Lorenzo Pinzani, PhD

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Academic and professional profiles
Google Scholar | Scopus | ResearchGate | LinkedIn

Key areas: freshwater and wetland vascular flora; floristics; ecological niche modelling; seed traits; invasive alien aquatic plants; biodiversity monitoring and open datasets

SCIENTIFIC PROFILE

Plant ecologist and botanist specialising in Mediterranean vascular flora, with a primary focus on freshwater and wetland ecosystems. My research builds floristic baselines and biodiversity evidence through extensive field surveys, critical synthesis of existing knowledge, and the curation of georeferenced datasets and checklists. I investigate plant distribution patterns and ecological processes in heterogeneous Mediterranean landscapes, with particular attention to ecological niche structure and habitat suitability, and their applications to biodiversity monitoring and conservation-oriented assessment in inland waters. A further, closely related component of my work addresses biological invasions in freshwater systems, integrating floristic evidence with ecological interpretation to support early detection, monitoring, and management-relevant perspectives.

In parallel, I study morpho-functional seed traits and early life-cycle processes underlying plant establishment, reproductive isolation, and naturalisation. This line of research links seed morphology and germination ecology to niche differentiation and biogeographical dynamics, combining comparative morphometrics, experimental approaches, and quantitative analyses. Overall, my work integrates field botany with reproducible analytical workflows in R and GIS-supported spatial data handling, producing peer-reviewed outputs and open resources that are transferable across research and long-term biodiversity monitoring.

RESEARCH POSITIONS

Postdoctoral Research Fellow

Department of Science, Roma Tre University (Rome, Italy) — Mar 2023–present

Research activities focus on the study of vascular flora in Mediterranean freshwater ecosystems, with particular emphasis on natural and volcanic lakes of central–southern Italy. Work combines systematic floristic surveys, critical synthesis of published and grey literature, and the development of georeferenced datasets aimed at strengthening floristic baselines and long-term biodiversity assessment. A central outcome of this activity is the DataLake project, an open and reproducible dataset compiling hygrophilous vascular plant records from multiple lake systems, designed to support comparative analyses, monitoring frameworks, and management-oriented applications.

Within this context, research also addresses the distribution and ecological dynamics of alien vascular plants in inland waters. Activities include comparative environmental analyses of native and alien congeneric species, evaluation of habitat suitability and invasion risk, and contribution to impact assessments of invasive alien plants following the EICAT protocol. These assessments have been submitted and are currently under review by EICAT authorities. Field activities further include coordinated floristic surveys and taxonomic verification during national botanical missions promoted

by the Italian Botanical Society promoted by the Italian Botanical Society across the Maritime and Western Alps and the Sila Massif Twith contributions to new records, distribution updates, and peer-reviewed floristic outputs.

Consultant Ecologist / Botanist
Botanical Environmental & Conservation Consultants Ltd (Dublin, Ireland) — Jul–Aug 2023; Jul–Aug 2024

Ecologist involved in the National Survey of Fens (Ireland), a national monitoring programme funded by the National Parks & Wildlife Service (NPWS) and coordinated by BEC Consultants Ltd. Activities focused on the survey, mapping and ecological assessment of Annex I fen habitats, including alkaline fens (7230), transition mires and quaking bogs (7140), and petrifying springs (7220).

Work included field surveys and data management within a two-person field team across multiple sites, following nationally standardised protocols. Tasks comprised habitat mapping using Fossitt, Annex I and IVC classifications; recording of vegetation relevés and monitoring stops; assessment of hydrological features and drainage networks; and identification and documentation of vascular plants and bryophytes, with particular attention to diagnostic and indicator species.

Field and environmental data were managed using Turboveg and structured in accordance with National Fen Survey guidelines, contributing to the first comprehensive national baseline for fen habitat conservation in Ireland.

PhD Researcher in Biology
University of Pisa, Department of Biology, Unit of Systematic and Environmental Botany (Pisa, Italy) — Nov 2019–Dec 2022

Doctoral research focused on ecological niche differentiation, reproductive isolation, and trait-based mechanisms in vascular plants, with particular attention to closely related taxa. Research activities combined ecological niche modelling, comparative analyses, and experimental approaches on early life-cycle stages, resulting in first-author peer-reviewed publications.

Alongside the core research activity, I was involved in collective floristic projects and notulae, contributing original field data, taxonomic verification, and chorological updates to multi-author works. These contributions were based on extensive field activity carried out during the doctoral period in different Italian regions.

During the PhD, I also participated in coordinated floristic surveys and botanical field missions promoted by the Italian Botanical Society, conducted in the Umbrian–Marche Apennines and the Aeolian Islands. In parallel, I contributed to editorial and content-related activities for Wikiplantbase, an online platform dedicated to the collection, validation, and dissemination of data on the Italian vascular flora.

Applied conservation monitoring **(Natura 2000 – Habitats Directive)**

Within my PhD, I contributed to the Nat.Ne.T project (Regional Natura 2000 programme), a scientific collaboration between Regione Toscana and the Universities of Florence, Pisa and Siena, aimed at developing and implementing monitoring protocols for plant species of conservation concern under the EU Habitats Directive (92/43/EEC). I carried out bibliographic and database screening to identify target sites and performed field surveys within Tuscan SACs (ZSC), collecting georeferenced,

standardised monitoring data on population size, occupied area, habitat characteristics, conservation status, and associated pressures and threats of target vascular plants.

Teaching Experience

University of Pisa, Department of Biology — Academic year 2022–2023*; Roma Tre University, Department of Science* — Academic year 2024–2025

Teaching activities in Botany and Plant Biology carried out at undergraduate level within Italian university programmes. Teaching experience includes academic teaching support and lectures in general and systematic botany, plant evolution and diversity, and vascular plant identification, delivered within Biology- and Pharmacy-oriented degree programmes at the University of Pisa and Roma Tre University.

EDUCATION AND ACADEMIC TRAINING

PhD in Biology

University of Pisa, Department of Biology, Unit of Systematic and Environmental Botany (Pisa, Italy) — Nov 2019–Dec 2022

Doctoral thesis: Comparative niche modelling and early life-cycle stages in related *Aquilegia* species

Doctoral research focused on speciation processes and taxon delimitation in closely related *Aquilegia* species, integrating ecological niche modelling (ENM), seed germination experiments, and comparative seed morphometric analyses across multiple populations to investigate niche differentiation, niche conservatism, and morpho-functional seed variation in relation to reproductive isolation and species divergence.

Supervisors: Prof. Gianni Bedini; Prof. Angelino Carta

Master's Degree in Science and Technology of Forest Systems

University of Florence, Faculty of Agriculture (Florence, Italy) — Final exam: 18 Jul 2017; final grade: 110/110 cum laude

Graduate training focused on plant ecology, forest ecosystems, and environmental assessment, with strong emphasis on fieldwork and applied methods. The programme provided solid training in forest botany and ecology, vegetation analysis, forest management and planning, genetic resource monitoring, geomatics, remote sensing, and environmental economics.

The master's thesis developed a field-based protocol for assessing forest habitats of conservation interest. The work combined floristic surveys, structural and dendrometric measurements, historical and landscape information, and comparative analyses across several forest sites in the Sieve Valley (Tuscany, Central Italy).

Supervisor: Prof. Federico Selvi.

Bachelor's Degree in Forest and Environmental Sciences

University of Florence, Faculty of Agriculture (Florence, Italy) — Final exam: 15 Jul 2015; final grade: 110/110 cum laude

Undergraduate training provided a broad foundation in biological, ecological, and environmental sciences, with particular focus on botany, forest ecology, silviculture, geomatics, applied mathematics,

and environmental management. The programme combined theoretical courses with practical field activities and laboratory work.

The bachelor's thesis focused on the documentation and analysis of monumental trees in the Sieve Valley (Tuscany, Central Italy). The work involved field surveys, collection of historical information, and basic ecological characterisation of individual trees and forest stands.

Supervisor: Prof. Paolo Grossoni.

Postgraduate Professional Training

University of Florence, (Florence, Italy) — First-level University Master in "Future Vegetation, Plants, Social Innovation and Project" — Final exam: 11 Nov 2018; final grade: 110/110 cum laude

Postgraduate interdisciplinary programme addressing plant-based approaches, biomimicry, landscape and environmental design, and plant–environment–society interactions. The training integrated foundations of plant and environmental sciences with elements of landscape architecture, design and project development, and environmental and territorial sociology, providing applied perspectives on vegetation-centred innovation and ecosystem-based cultural projects.

SCIENTIFIC PRODUCTION

Peer-reviewed research articles published as first author in international scientific journals, focusing on ecological niche differentiation, reproductive isolation, and early life-cycle traits in vascular plants, with particular attention to closely related montane taxa. The studies combine ecological niche modelling, seed morpho-functional analyses, and experimental approaches, and include research on floristic and biodiversity patterns in Mediterranean freshwater and wetland ecosystems based on field surveys, literature synthesis, and the analysis of distributional data.

- Pinzani L., Di Lernia D., Ceschin S. 2026. DataLake: a georeferenced dataset of hygrophilous vascular plants from freshwater lakes of central-southern Italy. Journal of Limnology. Under review.
- Pinzani L., Di Lernia D., Pelella E., Ceschin S. 2025. The vascular flora of Italian volcanic lake calderas: a comprehensive floristic study. Environments 12(9): 327. https://doi.org/10.3390/environments12090327
- Pinzani L., Pelella E., Azzella M.M., Ceschin S. 2025. A bibliographic review on vascular flora of Italian volcanic lakes. Inland Waters 15(1). https://doi.org/10.1080/20442041.2025.2475684
- Pinzani L. 2025. The vascular flora of the lower Sieve Valley (Tuscany, central Italy). Italian Botanist 19: 1–14. https://doi.org/10.3897/italianbotanist.19.144112
- Pinzani L., Ceschin S. 2023. Smart(phone)-monitoring (SPM): an efficient and accessible method for tracking alien plant species. Sustainability 15(12): 9814. https://doi.org/10.3390/su15129814
- Pinzani L., Casazza G., Bedini G., Carta A. 2023. Geographical isolation as reproductive barrier in phylogenetically related Aquilegia species (Ranunculaceae). Plant Biosystems 157(6): 1184–1191. https://doi.org/10.1080/11263504.2023.2258897
- Pinzani L., Bacci S., Olivieri F., Bedini G., Carta A. 2021. Comparative seed morphology in related high-mountain species of the genus Aquilegia (Ranunculaceae). Atti della Società Toscana di Scienze Naturali, Memorie, Serie B 128: 65–71.
- Co-authorship in a broad body of peer-reviewed scientific articles, including original research papers, reviews, and floristic contributions. These works cover vascular plant ecology, floristics,

invasive alien species, biodiversity monitoring, and plant distribution patterns at regional and national scales. The section includes collaborative floristic notes and checklist-based articles, as well as contributions reporting new records, rare taxa, and distributional updates for the Italian vascular flora, based on coordinated field activities, taxonomic verification, and shared analytical approaches.

- Gioria M., Fernández-Pascual E., Rosbakh S., Cruz Tejada D.M., Dawson W., Essl F., et al. 2026. Seed germination traits reveal naturalization potential: global insights from temperate European herbaceous species. Journal of Ecology 114: e70223. https://doi.org/10.1111/1365-2745.70223
- Peruzzi L., Viciani D., Angiolini C., Ardenghi N.M.G., Banfi E., Bonari G., et al. 2025. Contributi per una flora vascolare di Toscana. XVII (1159–1235). Atti della Società Toscana di Scienze Naturali, Memorie, Serie B 132: 85–99. https://doi.org/10.2424/ASTSN.M.B.2025.08
- Pelella E., Pinzani L., Di Lernia D., Gariboldi L., Ceschin S. 2025. Is the habitat of the native Ludwigia palustris suitable for the invasion of alien congeneric species? A comparative environmental analysis of Italian waterbodies. Marine & Freshwater Research 76: MF25024. https://doi.org/10.1071/MF25024
- Gennai M., Angiolini C., Bedini G., Bertacchi A., Carta A., Fanfarillo E., et al. 2025. A novel method for plant species conservation prioritization at a local scale: the IDEA protocol and beyond. Environmental and Sustainability Indicators 28: 101026. https://doi.org/10.1016/j.indic.2025.101026
- Domina G., Abeli T., Alessandrini A., Angiolini C., Argenti C., Astuti G., et al. 2025. Refining the inventory of the vascular flora of Italy: unconfirmed, doubtful, excluded or extinct taxa. Phytotaxa 723(1): 1–137. https://doi.org/10.11646/phytotaxa.723.1.1
- Di Lernia D., Pinzani L., Ceschin S. 2025. Critical review of the literature on key invasive alien freshwater plants in Europe with special focus on their impact on the invaded ecosystems. In: Anastácio P., Ribeiro F., Chainho P. (eds), Invasions in Aquatic Systems. NeoBiota 102: 441–472. https://doi.org/10.3897/neobiota.102.146280
- Mitrenina E.Y., Alekseeva S.S., Badaeva E.D., Peruzzi L., Artemov G.N., Krivenko D.A., et al. 2024. Karyotypes and physical mapping of ribosomal DNA with oligo-probes in *Eranthis* sect. *Eranthis* (Ranunculaceae). Plants 13(1): 47. https://doi.org/10.3390/plants13010047
- Musarella C.M., Laface V.L.A., Angiolini C., Bacchetta G., Bajona E., Banfi E., et al. 2024. New alien plant taxa for Italy and Europe: an update. Plants 13(5): 620. https://doi.org/10.3390/plants13050620
- Fanfarillo E., Loppi S., Angiolini C., Bacaro G., Bianchi E., Bonari G., et al. 2024. Bryophyte, lichen, and vascular plant communities of badland grasslands show weak cross-taxon congruence but high local uniqueness in biancana pediments. Ecological Indicators 165: 112171. https://doi.org/10.1016/j.ecolind.2024.112171
- Galasso G., Domina G., Bacchetta G., Barberis D., Bartolucci F., Cancellieri L., et al. 2024. Notulae to the Italian alien vascular flora: 17. Italian Botanist 17: 43–53. https://doi.org/10.3897/italianbotanist.17.126768
- Fiaschi T., Fanfarillo E., Maccherini S., Bacaro G., Bonari G., Foggi B., et al. 2023. Effectiveness of different metrics of floristic quality assessment: the simpler, the better? Ecological Indicators 149: 110151. https://doi.org/10.1016/j.ecolind.2023.110151
- D'Antraccoli M., Carta A., Astuti G., Franzoni J., Giacò A., Tiburtini M., et al. 2023. A comprehensive approach to improving endemic plant species research, conservation, and popularization. Journal of Zoological and Botanical Gardens 4(2): 490–506. https://doi.org/10.3390/jzbg4020036

- Fanfarillo E., Torri D., Angiolini C., Bacaro G., Bonari G., Cangelmi G., et al. 2023. Chronicle of a death foretold: the vanishing of an emblematic cultural landscape results in the loss of its unique plant communities. Global Ecology and Conservation: e02655. https://doi.org/10.1016/j.gecco.2023.e02655
- Barone G., Bajona E., Bartolucci F., Cancellieri L., Caruso G., Conti F., et al. 2023. Contribution to the floristic knowledge of Lipari and Panarea Islands (Sicily, Italy). Italian Botanist 16: 59–71. https://doi.org/10.3897/italianbotanist.16.113415
- Galasso G., Domina G., Adorni M., Angiolini C., Baccheschi L., Bacchetta G., et al. 2023. Notulae to the Italian alien vascular flora: 16. Italian Botanist 16: 73–87. https://doi.org/10.3897/italianbotanist.16.115302
- Roma-Marzio F., Luchino F., Giardini M., Bonari G., Millan M.Y., Meneguzzo E., et al. 2023. Nuove segnalazioni floristiche italiane 15. Notiziario della Società Botanica Italiana 7: 1–10.
- Bartolucci F., Domina G., Adorni M., Bacchetta G., Bajona E., Banfi E., et al. 2023. Notulae to the Italian native vascular flora: 15. Italian Botanist 15: 91–109. https://doi.org/10.3897/italianbotanist.15.105796
- Galasso G., Domina G., Andreatta S., Argenti C., Astuti G., Bacaro G., et al. 2022. Notulae to the Italian alien vascular flora: 14. Italian Botanist 14: 99–118. https://doi.org/10.3897/italianbotanist.14.97758
- Bartolucci F., Domina G., Adorni M., Andreatta S., Angiolini C., Bacchetta G., et al. 2022. Notulae to the Italian native vascular flora: 14. Italian Botanist 14: 119–131. https://doi.org/10.3897/italianbotanist.14.97813
- Astuti G., Banfi E., Salerno G., Paura B., Galasso G., Pinzani L., et al. 2022. Nuove segnalazioni floristiche italiane 12. Notiziario della Società Botanica Italiana 6: 101–112.
- Bartolucci F., Domina G., Andreatta S., Argenti C., Astuti G., Ballelli S., et al. 2022. Notulae to the Italian native vascular flora: 13. Italian Botanist 13: 67–84.
- Galasso G., Domina G., Andreatta S., Argenti E., Bacchetta G., Bagella S., et al. 2021. Notulae to the Italian alien vascular flora: 11. Italian Botanist 11: 93–119.
- Bartolucci F., Domina G., Andreatta S., Argenti C., Bacchetta G., Ballelli S., et al. 2021. Notulae to the Italian native vascular flora: 11. Italian Botanist 11: 77–92.
- Peruzzi L., Viciani D., Adami M., Angiolini C., Astuti G., Bonari G., et al. 2021. Contributi per una flora vascolare di Toscana. XIII. Atti della Società Toscana di Scienze Naturali, Memorie, Serie B 128: 85–94.
- Galasso G., Domina G., Angiolini C., Bacchetta G., Banfi E., Barberis D., et al. 2021. Notulae to the Italian alien vascular flora: 12. Italian Botanist 12: 105–121.
- Marhold K., Kučera J., Acuña C.A., Akopian J.A., de Almeida E.M., Alves M.V., et al. 2020. IAPT chromosome data 33. Taxon 69: 1394–1405.
- Galasso G., Domina G., Azzaro D., Bagella S., Barone G., Bartolucci F., et al. 2020. Notulae to the Italian alien vascular flora: 10. Italian Botanist 10: 57–71.
- Bartolucci F., Domina G., Andreatta S., Angius R., Ardenghi N.M.G., Bacchetta G., et al. 2020. Notulae to the Italian native vascular flora: 9. Italian Botanist 9: 71–86.
- Galasso G., Domina G., Adorni M., Angiolini C., Apruzzese M., Ardenghi N.M.G., et al. 2020. Notulae to the Italian alien vascular flora: 9. Italian Botanist 9: 47–70.

- Galasso G., Domina G., Andreatta S., Angiolini C., Ardenghi N.M.G., Aristarchi C., et al. 2019. Notulae to the Italian alien vascular flora: 8. Italian Botanist 8: 63–93.
- Peruzzi L., Viciani D., Angiolini C., Astuti G., Banfi E., Brandani S., et al. 2019. Contributi per una flora vascolare di Toscana. XI. Atti della Società Toscana di Scienze Naturali, Memorie, Serie B 126: 35–46.

Datasets and supplementary materials

Floristic datasets and supplementary materials associated with peer-reviewed publications, including georeferenced species inventories and bibliographic syntheses. These resources support transparency, reproducibility, and long-term biodiversity monitoring and are made available through open repositories when applicable.

- Pinzani L., Di Lernia D., Ceschin S. 2026. DataLake: a georeferenced dataset of hygrophilous vascular plants from freshwater lakes of central-southern Italy. Dataset. Zenodo. Available at: https://doi.org/10.5281/zenodo.18132161
- Pinzani L., Pelella E., Azzella M.M., Ceschin S. 2025. Supplementary material for A bibliographic review on vascular flora of Italian volcanic lakes. Figshare. Available at: https://doi.org/10.6084/m9.figshare.29041056.v3
- Pinzani L. 2025. Supplementary material for The vascular flora of the lower Sieve Valley (Tuscany, central Italy): floristic list and records. Italian Botanist. Supplementary material (PDF). Available at: https://italianbotanist.pensoft.net/article/144112/download/suppl/31/
- Peruzzi L., Roma-Marzio F., Pinzani L., Bedini G. (eds) 2019 -. Wikiplantbase #Italia, an online database of the Italian vascular flora. Available at: http://bot.biologia.unipi.it/wpb/italia

Scientific conferences and presentations

Participation in numerous national and international scientific conferences with oral and poster presentations, primarily focused on plant ecology, floristics, ecological niche modelling, seed traits, and freshwater ecosystems. Contributions were presented at meetings of the Italian Botanical Society and related thematic groups, as well as at international conferences on plant science, seed ecology, and Mediterranean biodiversity.

- Misteli B., Cannucci S., Acharya P., Lewerentz A., Pinzani L., et al. 2025. EUPHORIA: European plant phenology research in aquatic systems. Poster presentation. 5th Collaborative European Freshwater Science Project “FreshProject”, July 2025.
- Silvia G., Cao Pinna L., Acosta A.T.R., Brundu G., Celesti-Grapow L., Ceschin S., et al. 2024. Present and future impact of alien plants on biodiversity in Europe. Oral presentation. XXXIII Congresso della Società Italiana di Ecologia (S.It.E.), 23–26 September 2024, Rome (Italy)
- Pinzani L., Pelella E., Di Lernia D., Ceschin S. 2024. Toward an updated inventory of vascular flora of Italian volcanic lakes. Oral presentation. 119° Congresso della Società Botanica Italiana, 11–13 September 2024, Teramo (Italy).
- Pinzani L. 2023. Flora vascolare della Val di Sieve. Oral presentation. Riunione scientifica del Gruppo di Floristica, Sistematica ed Evoluzione della Società Botanica Italiana, 20–21 October 2023, Rome (Italy).
- Pinzani L., Ceschin S. 2023. DataLake: contribution to the floristic knowledge of central-southern Italian lakes. Oral presentation. 118° Congresso della Società Botanica Italiana, 13–16 September 2023, Pisa (Italy).

- Bedini G., Astuti G., Bonari G., Pinzani L., Pacifico G., Peruzzi L., et al. 2022. Addressing data quality issues of Wikiplantbase #Toscana. Oral presentation. VIII International Plant Science Conference (IPSC), 7–10 September 2022, Bologna (Italy).
- Pinzani L., Bacci S., Olivieri F., Bedini G., Carta A. 2022. Comparative studies on seed germination in related *Aquilegia* species (Ranunculaceae). Oral presentation. Seed Ecology VII Conference, 5–10 September 2022, Gijón (Spain).
- Pinzani L., Bacci S., Olivieri F., Bedini G., Carta A. 2021. Regeneration niche in high mountain species of the genus *Aquilegia* (Ranunculaceae). Oral presentation. 3rd Mediterranean Plant Conservation Week, 27 September–1 October 2021, Chania (Greece).
- Pinzani L., Carta A., Olivieri F., Casazza G., Bedini G. 2021. When isolation matters: relationships among pedoclimatic niches in phylogenetically related species of the genus *Aquilegia* (Ranunculaceae). Oral presentation. VII International Plant Science Conference (IPSC) – 116° Congresso della Società Botanica Italiana, 8–10 September 2021, online.
- Bacci S., Pinzani L., Olivieri F., Bedini G., Carta A. 2021. Comparative studies on seed germination in montane related *Aquilegia* species (Ranunculaceae). Oral presentation. VII International Plant Science Conference (IPSC) – 116° Congresso della Società Botanica Italiana, 8–10 September 2021, online.
- Olivieri F., Pinzani L., Peruzzi L., Astuti G., Bedini G. 2021. Monitoring activities of plant species protected by the Habitat Directive (92/43/EEC) in Tuscany (central Italy). Oral presentation. VII International Plant Science Conference (IPSC) – 116° Congresso della Società Botanica Italiana, 8–10 September 2021, online.
- Bedini G., Astuti G., Bonari G., Pinzani L., Pacifico G., Peruzzi L., et al. 2021. Centers of endemism in the vascular flora of Tuscany (central Italy). Oral presentation. VII International Plant Science Conference (IPSC) – 116° Congresso della Società Botanica Italiana, 8–10 September 2021, online.
- Dolci D., Carta A., Pierini B., Ferretti G., Roma-Marzio F., Gestri G., et al. 2021. Species richness in the vascular flora of Tuscany estimated through a species distribution modelling approach. Oral presentation. VII International Plant Science Conference (IPSC) – 116° Congresso della Società Botanica Italiana, 8–10 September 2021, online.
- Peruzzi L., Dolci D., Pierini B., Ferretti G., Roma-Marzio F., Gestri G., et al. 2021. Climate change and elevational shifts in plant distribution: a case study from the vascular flora of Tuscany across the last century. Oral presentation. VII International Plant Science Conference (IPSC) – 116° Congresso della Società Botanica Italiana, 8–10 September 2021, online.
- Pinzani L., Bacci S., Olivieri F., Bedini G., Carta A. 2021. Morfologia comparativa dei semi in specie altomontane affini del genere *Aquilegia* (Ranunculaceae). Oral presentation. Riunione scientifica del Gruppo di Floristica, Sistematica ed Evoluzione della Società Botanica Italiana, 20–21 November 2020, online.
- Pinzani L., Casazza G., Olivieri F., Carta A. 2020. Relazioni tra nicchie climatiche di specie filogeneticamente affini del genere *Aquilegia*. Oral presentation. 115° Congresso della Società Botanica Italiana, 9–11 September 2020, online.

METHODOLOGICAL AND TECHNICAL SKILLS

Field botany and floristic methods

Extensive experience in field surveys of vascular plants, floristic inventories, and species identification across a wide range of habitats, with additional familiarity with the main bryophyte

groups. Use of standard field protocols for vegetation and habitat surveys, including GPS-based data collection and georeferencing.

Herbarium work and specimen-based documentation
Curation and maintenance of a personal herbarium collection comprising approximately 5,000 voucher specimens representing about 3,500 vascular plant taxa, collected during research activities, floristic missions, and coordinated field surveys. Specimens are used for taxonomic verification, comparative analyses, and long-term documentation of floristic records, including rare taxa and new distributional data. Herbarium material is prepared following standard procedures for collection, pressing, and labelling, with associated metadata and extensive photographic documentation (approximately 40,000 images).

Floristic data management and documentation
Management of large floristic datasets, including georeferenced records, taxonomic verification, and integration of field observations into shared databases. Active involvement in the development and maintenance of online floristic platforms, including Wikiplantbase #Italia.

Quantitative, analytical and spatial analysis skills
Application of statistical and exploratory analyses in R for ecological and floristic data, including data organisation, analysis, and visualisation. Use of ecological niche modelling and comparative analytical approaches, combined with GIS-based spatial data management and analysis (ArcGIS) for floristics, habitat mapping, and biodiversity assessment.

Technical field instrumentation
Use of technical equipment for forest and ecological surveys, including GPS devices, optical stereoscopes, hypsometers, Vertex instruments, portable multiparameter probes for basic water chemistry, and standard tools for hydrological and habitat assessment.

Curriculum vitae updated in January 2026