

CV Manuele Bazzichetto

2022



Contacts and socials

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Short summary

I am a vegetation ecologist broadly interested in the mechanisms driving plant diversity patterns and processes across spatiotemporal scales. The tools I use to address my research questions are: quantitative ecology, R, and remote sensing. In 2019, I completed a PhD in *Science, Technology and Biotechnology for Sustainability*, which dealt with analysing the effect of natural and non-natural processes on coastal dune vegetation through the integration of field-collected floristic data and remotely sensed imagery. A large part of my PhD focused on plant invasion in Mediterranean coastal dunes, as well as on the use of species distribution modelling as a tool for understanding what determines the outcome of invasion on dune ecosystems. After my PhD, I was as a postdoctoral researcher at the Université de Rennes 1 (France), where I investigated how anthropogenic and climatic factors affected the invasion dynamics of non-native plants on French sub-Antarctic islands. Also, I joined a research expedition in the sub-Antarctic with the aim of collecting data on non-native plants colonizing the **Crozet Archipelago** (57th summer campaign: “French Southern and Antarctic Lands” for the French Polar Institute). Currently, I am a visiting researcher at the Centro de Investigaciones sobre Desertificación (CSIC-UV-GV, Spain), where I am analysing the effect of extreme climatic events on the stability of central European grassland communities. From October 2022, I will be a MSCA fellowship at the Czech University of Life Sciences in Prague, where I will study how different ecosystem types respond to climatic anomalies.

Research interests

Vegetation ecology; Biological invasions; Ecological informatics; Remote sensing; Ecological modelling; Spatial ecology; Species distribution modelling; Extreme Climatic Events; Ecosystem stability.

Current position

01/2021: Visiting researcher in Francesco de Bello's lab (Centro de Investigaciones sobre Desertificación - CSIC-UV-GV, Moncada, Spain).

Previous position

12/2018-12/2020: Postdoctoral researcher at the Université de Rennes 1 (**Phenome Research Team**, PI: Prof. David Renault).

Education

- 05/2019: PhD in *Science, technology and biotechnology for sustainability* (Università degli Studi della Tuscia). Thesis: "Monitoring plant diversity in Mediterranean coastal landscapes: integration of field collected and remotely sensed data"
- 02/2015: Master's Degree in *Biodiversity and ecosystems management* (Università di Roma Tre). Thesis (110/110 *cum laude*): "Beach litter composition and accumulation dynamic along two coastal sites of central Italy"
- 10/2011: Bachelor's Degree in *Ecology* (Università di Roma Tor Vergata). Thesis: "Analysing skeleton anomalies in *Atherina boyeri* (Risso, 1810) to assess the environmental quality of two Albanian lagoons"

Publications

Since 2016, I published 18 scientific papers in well-established, peer-reviewed international journals.

- Poeta, G., **Bazzichetto, M.**, Gallitelli, L., ... & Malavasi, M. (2022). *One year after on Tyrrhenian coasts: The ban of cotton buds does not reduce their dominance in beach litter composition*. Marine Policy, 143, 105195. <https://doi.org/10.1016/j.marpol.2022.105195>
- Renault, D., Hess, M. C., Braschi, J., Cuthbert, R. N., Sperandii, M. G., **Bazzichetto, M.**, ... & Massol, F. (2022). *Advancing biological invasion hypothesis testing using functional diversity indices*. Science of The Total Environment, 155102. <https://doi.org/10.1016/j.scitotenv.2022.155102>
- Yannelli, F., **Bazzichetto, M.**, Conradi, T., Pattison, Z., Andrade, B.O., ... , & Sperandii, M.G. *Fifteen emerging challenges and opportunities for vegetation science - A horizon scan by early career researchers*. Journal of Vegetation Science, e13119. <https://doi.org/10.1111/jvs.13119>
- Sperandii, M.G., de Bello, F., Valencia, E., Götzenberger, L., **Bazzichetto, M.**, Galland, T., ... , & Leps, J. *LOTVS: a global collection of permanent vegetation plots*. Journal of Vegetation Science, e13115. <https://doi.org/10.1111/jvs.13115>
- **Bazzichetto, M.**, Massol, F., Carboni, M., Lenoir, J., Lembrechts, J.J., Joly, R., & Renault, D. *Once upon a time in the far south: Influence of local drivers and functional traits on plant invasion in the harsh sub-Antarctic islands*. Journal of Vegetation Science, 32(4), e13057. <https://doi.org/10.1111/jvs.13057>; **Recommended by PCI Ecology**.
- Malavasi, M., **Bazzichetto, M.**, Komarek, J., Moravec, D., Moudry, V., Rocchini, D., Bagella, S., Acosta, A.T.R. & Carranza, M.L. (2021). *Unmanned aerial systems-based monitoring of the eco-geomorphology of coastal dunes through spectral Rao's Q*. Applied Vegetation Science, 24(1), e12567. <https://doi.org/10.1111/avsc.12567>
- Rocchini, D., Iannacito, M., Thouverai, E., Marcantonio, M., Da Re, D., Bacaro, G., **Bazzichetto, M.**, Bernardi, A., Foody, G.M., Furrer, R., Larsen, S., Lenoir, J., Malavasi, M., Montagni, A., Moudry, V., Naimi, B., Payne, D., Ricotta, C., ... , Wegmann, M. (2021). *rasterdiv: an Information Theory tailored R package for measuring diversity from space: to the origin and back*. Methods in Ecology and Evolution, 12(6): 1093-1102. <https://doi.org/10.1111/2041-210X.13583>
- **Bazzichetto, M.**, Sperandii, M.G., Malavasi, M., Carranza, M.L., & Acosta, A.T.R. (2020). *Disentangling the effect of coastal erosion and accretion on plant communities of Mediterranean dune ecosystems*. Estuarine, Coastal and Shelf Science, 106758. <https://doi.org/10.1016/j.ecss.2020.106758>

- Filibeck, G., Sperandii, M.G., **Bazzichetto, M.**, Mancini, L.D., Rossini, F., & Cancellieri, L. (2019). *Exploring the drivers of vascular plant richness at very fine spatial scale in sub-Mediterranean limestone grasslands (Central Apennines, Italy)*. Biodiversity and Conservation, 1-25. <https://doi.org/10.1007/s10531-019-01788-7>
- Malavasi, M., Barták, V., Jucker, T., Acosta, A.T.R., Carranza, M.L., & **Bazzichetto, M.** (2019). *Strength in Numbers: Combining Multi-Source Remotely Sensed Data to Model Plant Invasions in Coastal Dune Ecosystems*. Remote Sensing, 11(3), 275. <https://doi.org/10.3390/rs11030275>
- Sperandii, M. G., **Bazzichetto, M.**, Gatti, F., & Acosta, A.T.R. (2019). *Back into the past: Resurveying random plots to track community changes in Italian coastal dunes*. Ecological Indicators, 96, 572-578. <https://doi.org/10.1016/j.ecolind.2018.09.039>
- Marzialetti F., **Bazzichetto M.**, Giulio S., Acosta A.T.R., Stanisci A., Malavasi M., & Carranza M.L. (2019). *Modelling Acacia saligna invasion on the Adriatic coastal landscape: An integrative approach using LTER data*. In: Mazzocchi MG, Capotondi L, Freppaz M, Lugliè A, Campanaro A (Eds) Italian Long-Term Ecological Research for understanding ecosystem diversity and functioning. Case studies from aquatic, terrestrial and transitional domains. Nature Conservation 34: 127-144. <https://doi.org/10.3897/natureconservation.34.29575>
- Sperandii, M. G., **Bazzichetto, M.**, Acosta, A.T.R., Barták, V., & Malavasi, M. (2019). *Multiple drivers of plant diversity on coastal dunes: A Mediterranean experience*. Science of The Total Environment, 652, 1435-1444. <https://doi.org/10.1016/j.scitotenv.2018.10.299>
- **Bazzichetto, M.**, Malavasi, M., Bartak, V., Acosta, A.T.R., Rocchini, D., & Carranza, M. L. (2018). *Plant invasion risk: A quest for invasive species distribution modelling in managing protected areas*. Ecological Indicators, 95, 311-319. <https://doi.org/10.1016/j.ecolind.2018.07.046>
- **Bazzichetto, M.**, Malavasi, M., Barták, V., Acosta, A.T.R., Moudry, V., & Carranza, M. L. (2018). *Modeling plant invasion on Mediterranean coastal landscapes: An integrative approach using remotely sensed data*. Landscape and Urban Planning, 171, 98-106. <https://doi.org/10.1016/j.landurbplan.2017.11.006>
- Battisti, C., **Bazzichetto, M.**, Poeta, G., Pietrelli, L., & Acosta, A.T.R. (2017). *Measuring non-biological diversity using commonly used metrics: Strengths, weaknesses and caveats for their application in beach litter management*. Journal of coastal conservation, 21(2), 303-310. <https://doi.org/10.1007/s11852-017-0505-9>
- **Bazzichetto, M.**, Malavasi, M., Acosta, A.T.R., & Carranza, M. L. (2016). *How does dune morphology shape coastal EC habitats occurrence? A remote sensing approach using airborne LiDAR on the Mediterranean coast*. Ecological indicators, 71, 618-626. <https://doi.org/10.1016/j.ecolind.2016.07.044>
- Poeta, G., Battisti, C., **Bazzichetto, M.**, & Acosta, A.T.R. (2016). *The cotton buds beach: Marine litter assessment along the Tyrrhenian coast of central Italy following the marine strategy framework directive criteria*. Marine pollution bulletin, 113(1-2), 266-270. <https://doi.org/10.1016/j.marpolbul.2016.09.035>

^ Shared first authorship.

Under review or in preparation:

- De Toma, A., Carboni, M., **Bazzichetto, M.**, Malavasi, M., Cutini, M. *Alpine shrub encroachment in the central Apennines: current patterns and temporal trends*. (under review in **Journal of Vegetation Science**).
- Da Re, D., Tordoni, E., Lenoir, J., Lembrechts, J.J., de Bello, F., Rocchini, D., **Bazzichetto, M.**. *Don't do it randomly! Exhaustively sampling background points in the environmental space improves the performance of species distribution models*. (in preparation)

Conferences

- Vegetation science and global changes: scenarios, challenges and innovation. 55th Congress SISV (Società Italiana di Scienze della Vegetazione), 16th - 17th June 2022, L'Aquila, Italy.
- Revegetating Europe - contribution of the EVS to the ecological restoration decade. 29th Congress of the European Vegetation Survey, 6th - 7th September 2021, virtual online conference.
- Vegetation diversity and global changes. 28th Congress of the European Vegetation Survey, 2nd - 6th September 2019, Madrid, Spain.

- Vegetation science and biodiversity research. 62th Symposium of the International Association for Vegetation Science, 14th - 19th July 2019, Bremen, Germany.
- Research days. Università degli Studi del Molise, 1st March 2018, Pesche (IS), Italy.
- Diversity patterns across communities in the frame of global change: conservation challenges. 26th Congress of the European Vegetation Science, 13th - 16th September 2017, Bilbao, Spain.
- Vegetation patterns in natural and cultural landscapes. 60th Symposium of the International Association for Vegetation Science, 20th - 24th June 2017, Palermo (PA), Italy.
- Research days. Università degli Studi del Molise, 1st - 2nd March 2017, Pesche (IS), Italy.
- Challenges of Anthropocene and the role of Landscape Ecology. S.I.E.P. (Società Italiana di Ecologia del Paesaggio), 26th - 28th May 2016, Asti (AT), Italy.
- Research days. Università degli Studi del Molise, 1st - 2nd March 2016, Pesche (IS), Italy.
- In the Wake of Plastics International Conference. Università Ca' Foscari, 13th - 15th October 2015, Venice, Italy.
- National Marine Litter Forum. MARLISCO, 16th January 2015, Rome, Italy.

Talks and presentations

I presented my work at 5 international (4 oral communications) and 3 national conferences. Also, I was invited to present my research on plant invasion in sub-Antarctic islands at the Université de Lille in 2019 and at the Università di Roma Tre in 2020.

- Oral communication: **Bazzichetto M.**, Lenoir J., Da Re D., Tordoni E., Rocchini D., Malavasi M., Sperandii M.G. Effects of data sampling on the response curves estimated by plant distribution models. 55th Congress SISV (Società Italiana di Scienza della Vegetazione), 16th - 17th June 2022, L'Aquila, Italy.
- Invited talk: **Bazzichetto M.** COCOS: effects of climatic extremes on ecosystem stability. Czech University of Life Sciences, 06th January 2022, Prague, Czech Republic.
- Oral communication: **Bazzichetto M.**, de Bello F., Sperandii M.G., the German Biodiversity Exploratories & Gossner M.M. Drivers of community resistance under extreme climatic events. 29th EVS (European Vegetation Survey) symposium, 6th - 7th September 2021, virtual online conference.
- Invited talk: **Bazzichetto M.**, Massol F., Lenoir J., Carboni M., Rocchini D., Lebouvier M. & Renault D. So far so close: history and future of plant invasion in sub-Antarctic islands in the context of global changes. Università di Roma Tre, 23rd January 2020, Rome, Italy.
- Invited talk: **Bazzichetto M.**, Lenoir J., Massol F., Rocchini D., Lebouvier M. & Renault D. So far so close: history and future of biological invasions in sub-Antarctic islands in the context of global changes. Université de Lille, 11th October 2019, Lille, France.
- Oral communication: **Bazzichetto M.**, Lenoir J., Massol F., Rocchini D., Lebouvier M. & Renault D. Modelling the distribution of the non-native grass *Poa pratensis* (Poaceae) in sub-Antarctic islands. 62th IAVS (International Association for Vegetation Science) Symposium, 14th - 19th July 2019, Bremen, Germany.
- Poster: **Bazzichetto M.**, Malavasi M., Bartak V., Acosta A.T.R., Rocchini D. & Carranza M.L. Predicting alien species occurrence for plant biodiversity conservation in Natura 2000 coastal network. Research days, 1st March 2018, Pesche (Isernia), Italy.
- Poster: **Bazzichetto M.**, Malavasi M., Bartak V., Acosta A.T.R. & Carranza M.L. Predicting alien species occurrence for plant biodiversity conservation in Natura 2000 coastal network. 26th EVS (European Vegetation Survey) Congress, 13th - 16th September 2017, Bilbao, Spain.
- Oral communication: **Bazzichetto M.**, Malavasi M., Bartak V., Acosta A.T.R., Moudry V. & Carranza M.L. Modeling plant invasion on Mediterranean coastal dunes: an integrative approach using remotely sensed data. 60th IAVS (International Association for Vegetation Science) Symposium, 20th - 24th June 2017, Palermo, Italy.
- Oral communication and poster: **Bazzichetto M.**, Malavasi M., Bartak V., Acosta A.T.R., Moudry V. & Carranza M.L. Influence of propagule pressure, abiotic and biotic factors on the invasion process of a non-native taxon (*Carpobrotus* sp.) on a Tyrrhenian dune system. Research days, 1st - 2nd March 2017, Pesche (Isernia), Italy.
- Poster: **Bazzichetto M.**, Malavasi M., Acosta A.T.R. & Carranza M.L. How does dune morphology shape coastal EC habitats distribution? A remote sensing approach using airborne LiDAR on the Mediterranean coast. "Challenges of Anthropocene and the role of Landscape Ecology", SIEP-IALE, 26th - 28th May 2016, Asti, Italy.

Academic services

I am actively involved in the International Association for Vegetation Science (IAVS): I have been elected as the secretary of the Steering Committee of the “Ecoinformatics” working group and I am member of the “Young Scientists” working group.

- Member of the International Association for Vegetation Science (IAVS) (since 2019).
- Member of the “Young Scientists” working group (IAVS) (since 2019).
- Member of the steering committee of the “EcoInformatics” working group (IAVS) (2019-2022).
- Secretary of the steering committee of the “EcoInformatics” working group (IAVS) (since 2022).
- Member of the scientific committee of the 55° congress of the Italian Society of Vegetation Science (SISV), entitled: *Vegetation science and global changes: scenarios, challenges and innovation*. 16th - 17th June 2022, L’Aquila, Italy. More info at <http://www.scienzadellavegetazione.it/sisv/evento/abstractTitoli.jsp?idevento=2>

Editorial services

2019-2021: Editor of *Remote Sensing (Ecological section)*.

Biodiversity mapping in ecology and conservation: Pitfalls, uncertainties and creative ways forward (journal: *Frontiers in Ecology and Evolution*).

Reviewer for: *Applied Vegetation Science*; *Journal of Vegetation Science*; *Scientific Reports*; *Diversity and Distributions*; *Journal of Ecology*; *Biological invasions*; *Estuarine, coastal and shelf science* (for details see <https://publons.com/researcher/K-5616-2019/>).

Research experiences

I can count on several international experiences and many collaborations with researchers all around Europe: Università di Roma Tre, Università di Trento, Edmund Mach Foundation, Università del Molise (Italy); Université de Lille, Université de la Picardie (France); Czech University of Life Sciences (Czech Republic); University of Antwerp (Belgium).

- Department of Biodiversity and Molecular Ecology, Fondazione Edmund Mach, 12th November - 12th December 2017, San Michele all’Adige (Trento), Italy.
- Department of Applied Geoinformatics and Spatial Planning, Czech University of Life Sciences, 5th April - 5th June 2017, Prague, Czech Republic.
- Department of Applied Geoinformatics and Spatial Planning, Czech University of Life Sciences, 10th October - 10th November 2016, Prague, Czech Republic.
- Department of Applied Geoinformatics and Spatial Planning, Czech University of Life Sciences, 21st May - 21st June 2016, Prague, Czech Republic.

Teaching

- Contract Professor. Msc in *Biodiversity and ecosystems management*. Course: GIS and its application for Ecology. Università di Roma Tre, 21st October 2021 - 15th November 2021, Rome, Italy.
- Demonstrator. BSc in *Biological sciences*. Course: GIS in Ecology. Università di Roma Tre, December 2016, Rome, Italy.
- Demonstrator. BSc in *Biological sciences*. Course: GIS in Ecology. Università di Roma Tre, December 2015, Rome, Italy.

Funding and awards

- Juan de la Cierva fellowship 2020 (grant number: FJC2020-044172-I). Refused for having been granted a MSCA fellowship.
- 34 TOMST TMS4 microclimate loggers funded by the **SoilTemp consortium** (2720 eur.).
- Daikin for “Biodiversity Conservation” (2000 eur.).
- IAVS travel grant (500 eur.).

Other activities

- Member of the 57° Summer Campaign “*French Southern and Antarctic Lands*” for the French Polar Institute. Collection of invasive plants occurrence data on Possession Island (Crozet archipelago) following a systematic sampling of the environmental space. Possession Island (Crozet archipelago), 7th November 2019 – 3rd January 2020.
- Workshop “Sampling and analyzing data in vegetation ecology”, organized by the Ecological section of the Italian Botanical Society, 13th - 14th June 2019, Siena (Italy).
- Working group meeting on Biological invasions organized by the Groupement de Recherche CNRS 3647 Invasions Biologiques, 3rd - 7th June 2019, St. Malo (France).
- Fifth International SPLIT REMOTE SENSING ® PROFESSIONAL SUMMER SCHOOL 2018, 11th – 17th June 2018, Prague, Czech Republic.
- I actively participated in writing the project “ASsessing and mitigating the effects of climate change and biological Invasions on the spatial redistribution of biodiversity in Cold environmentS” (ASICS), which was recently funded by the BiodivERsA consortium (see **coldregioninvasives**). Specifically, I co-led the development of a working package focusing on modelling biological invasions in extreme cold environments.

Scientific references

- **Prof. Maria Laura Carranza** (carranza@unimol.it)
- **Prof. Alicia Teresa Rosario Acosta** (aliciateresarosario.acosta@uniroma3.it)
- **Marta Carboni** (marta.carboni@uniroma3.it)
- **Francois Massol** (francois.massol@univ-lille.fr)