

1. PERSONAL INFORMATION

Guerrieri Maria Rosa (**Preferred name: Rossella**)

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2. EDUCATION

Master (postgraduate degree) in in Gardening and landscape design (University of Torin, Italy)	05/10/2007
PhD in Crop Systems, Forestry and Environmental Sciences (University of Basilicata, UNIBAS, Italy)	15/02/2007
BSc in Forest and Environmental Sciences (UNIBAS, Italy)	29/04/2003

3. APPOINTMENTS

Associate professor , DISTAL, Alma Mater – University of Bologna (Italy)	10/2022- present
Assistant professor , DISTAL, Alma Mater – University of Bologna (Italy)	10/2019- 10/2022
Honorary Researcher , CREAM (Spain)	2019 - today
Post-doctoral researcher , Centre de Recerca Ecològica i Aplicacions Forestals CREAM (Spain)	06/2016-08/2019
Post-doctoral research associate , University of New Hampshire, UNH (USA)	03/2013-05/2016
Post-doctoral research fellow , University of Edinburgh (UK)	09/2009-05/2012
Post-doctoral research assistant , UNIBAS (Italy)	04/2008-04/2009
Research assistant , University of Basilicata Italy	08/2007-03/2008
Post-lauream research assistant , University of Basilicata, Italy	06-10/2003

4. COMPETITIVE GRANTS AND AWARDS

Coordinator of the national project (PRIN): Effects of nitrogen deposition and climate extremes on European forests: combining stable isotopes in tree rings and ecosystem fluxes (NEXTRES)	9/2023-9/2025 220. 400 €
Chair of the COST Action CA21138 - Joint effects of CLimate Extremes and Atmospheric deposition on European FORESTs (CLEANFOREST)	10/2022-10/2026
Haury Fellowship – visiting professor at the Laboratory of Tree Ring Research (USA)	9-31/1/2023
Marie Skłodowska-Curie Individual Fellowship Funded within the EU Horizon 2020	06/2016- 06/2018 (€ 158.121)
Newton International Fellowship funded by The Royal Society, the British Academy and the Royal Academy of Engineering	09/2009-09/ 2011 (£101.000)
European Science Foundation (ESF) scholarship within the Nitrogen in Europe program: visiting researcher (3 months), University of Edinburgh (UK)	2009 (€ 5.900)
ESF scholarship within the Stable Isotopes in Biospheric-Atmospheric Exchange program: visiting PhD student (7 months), Paul Scherrer Institute, PSI (CH)	2005-2006 (€ 10.900)

5. RESPONSABILITIES

TEACHING AND MENTORING in the last 5 years

Teaching (since 2019): Forest Management and Silviculture (6 cfu) and Forest dynamics and environmental restoration (6 cfu) - First cycle degree program in Land and agro-forestry Sciences (DISTAL, University of Bologna);

Mentorship: i) **Tutor** of 19 undergraduate students and 1 master student; ii) Supervisor of 1 PhD student (completed on 31st January 2024) and mentor of two postdocs at the University of Bologna (1 completed in 2023 and the other one starting in April 2024); iii) **External advisor** of 3 PhD students (CIEMAT, Spain; Université du Québec à Chicoutimi, Canada; ETH, CH) and 1 master student (Universidad de Costa Rica).

Member of the evaluation committee for the PhD defence (27th April 2020) – XXII program at the University of Basilicata (Potenza, Italy); external member of PhD evaluation committee of Yunke Peng (ETH, Zurich).

ACADEMIC RESPONSABILITIES

2020-2022: **Member of the library scientific committee** at the DISTAL (UNIBO); 2022-today: **Member of the research committee** at the DISTAL (UNIBO); 2024-today: Delegate Delegate for orientation of three-year degrees.

PRESENTATION AT SCIENTIFIC CONFERENCES AND INVITED SEMINARS (After awarded PhD; P=poster and O=oral presentation as 1st author)

EGU2025, Vienna (2P); IUFRO 2024, Stockholm (O); EGU 2024, Vienna (O, accepted); EGU 2023, EGU2023, Vienna (O); Ameridendro 2022, Montreal, Canada (O); XIII Conference of the Italian Society of Silviculture and Forest Ecology, SISEF (2022), Orvieto, Italy, (O and P); Dendrochronology Intensive Summer Course (DISCO21), Laboratory of Tree-Ring Research, The University of Arizona (USA), invited guest lecture; ISONET virtual conference (2021), Universidad de Costa Rica, invited guest lecture; EGU 2021, Vienna, virtual conference (O); TRACE 2019, Naples, Italy, Invited talk; SIBECOL (2019), Barcelona (O); Symposium: **From the deep past to the Anthropocene. Coupling earth system function to climate change** (2018), Bordeaux, France, (P); **Imbalance P conference** (2018), Lommel, Belgium (O); AGU Fall Meeting (2017), New Orleans, USA, (O); I International Workshop on Isotopes for Tropical Ecosystem Studies (2017), San José, Costa Rica, invited key note talk; 6th ICP forests scientific conference (2017), Bucharest, Romania, invited key note talk; 3rd Ameridendro (2016), Mendoza, Argentina, (O and P); X Conference of the Italian Society of Silviculture and Forest Ecology, SISEF (2015), Florence, Italy, (O and P); AGU (2014), San Francisco, USA (P); ESA (2014), Sacramento, USA, (O); NitroEurope (2011), Edinburgh, UK, (O); EGU (2010), Vienna, Austria, (O); **Stable Isotopes in Biospheric-Atmospheric Exchange** (2010), Ascona, Switzerland, (P); VII SISEF Conference (2009), Isernia-Pesche, Italy (O); Joint European Stable Isotopes Meeting (2008), Presqu' Île de Giens, France (P).

REFeree ACTIVITIES

Serving as **member of the Editorial Board** of Communications Earth & Environment (2 years IF: 7.9), **Tree Physiology** (IF:3.5) and **subject editor** for iForest-Biogeosciences and Forestry (5-years IF: 1.573)

Reviewer for 1) **scientific papers** for high impact scientific journals (e.g., Nature, PNAS, Tree Physiology, New Phytologist, Frontiers in Plant Science, Global Change Biology, Ecological Indicators); 2) **grant proposals** for the Swiss National Foundation (CH), the National Science Foundation (USA), Free University of Bolzano (Italy), and for the European Commission within the MSCA fellowship program (2021 and 2022).

MEMBERSHIP OF SCIENTIFIC SOCIETIES

Italian Society of Silviculture and Forest Ecology (since 2004), Tree Ring Society (since 2019); European Geoscience Union (EGU) since 2021; Marie Curie Alumni Association (since 2016).

6. PUBLICATIONS

PUBLICATIONS IN INTERNATIONAL JOURNALS

(h-index: 28, 3179 citations – source Google scholar, last visit: May 2025)

- [38] Sangiorgio, D., Cáliz, J., Mattana, S., **Guerrieri R (2024)**. Host species and temperature drive beech and Scots pine phyllosphere microbiota across European forests. *Commun Earth Environ* 5, 747.
- [37] Silvestro R, Mencuccini M, [...], Gryc V, **Guerrieri R et al. (2024)** Partial asynchrony of coniferous forest carbon sources and sinks at the intra-annual time scale. *Nat Commun* 15, 6169.
- [36] Ferretti M, Gessler A, Cools N, Fleck S, **Guerrieri R et al. (2024)**. Resilient forests need joint forces for better inventorying and monitoring. *Forest Ecology and Management* 561, 121875
- [35] **Guerrieri R, Cáliz J, Mattana S et al. (2024)**. Substantial contribution of tree canopy nitrifiers to nitrogen fluxes in European forests. *Nat. Geosci.* 17, 130–136.
- [34] **Guerrieri R, Belmecheri S, Asbjornsen H, Xiao J, Hollinger DY, Clark K, Jennings K, Kolb TE, Munger JW, Richardson AD, Ollinger SV (2022)**. Detecting long-term changes in stomatal conductance: challenges and opportunities of tree-ring $\delta^{18}\text{O}$ proxy. *New Phytol* 236(3), 809-812.
- [33] Ellsworth DS, Crous KY, De Kauwe MG, Verryckt LT, Goll D, Zaehle S, Bloomfield KJ, Ciais P, Cernusak LA, Domingues TF, Dusenge ME, Garcia S, **Guerrieri R, et al. (2022)**. Convergence in phosphorus constraints to photosynthesis in forests around the world. *Nat Commun* 13, 5005.
- [32] Kannenberg SA, Cabon A, Babst F, Belmecheri S, Delpierre N, **Guerrieri R, Maxwell JT, Meinzer FC, Moore DJP, Pappas C, Ueyama M, Ulrich DEM, Voelker SL, Woodruff DR, Anderegg WRL. (2022)**. Drought-induced decoupling between carbon uptake and tree growth impacts forest carbon turnover time. *Agric For Meteorol* 322, 108996.
- [31] Cabon A, Kannenberg S, Arain A, Babst F, Baldocchi D, Belmecheri S, Delpierre N, **Guerrieri R, [...], Anderegg RL (2022)**. *Cross-biome synthesis of source versus sink limits to tree growth*. *Science* 376 (6594), 758-761.
- [30] Lavergne A., Hemming DL, Prentice IC, **Guerrieri R, Oliver R, Graven H (2021)**. Global decadal variability of plant carbon isotope discrimination and its link to gross primary production. **Global Change Biology** 28 (2): 524-541.
- [29] **Guerrieri R., Templer P, Magnani F (2021)**. Canopy exchange and modification of nitrogen fluxes in forest ecosystems. **Current Forestry Reports** 7, 115–137.
- [28] **Guerrieri R, Correia M, Martín-Forés I, Alfaro-Sánchez R, Pino J, Hampe A, Valladares F, Espelta JM (2021)**. Land-use legacies influence tree water-use efficiency and nitrogen availability in recently established European forests. **Functional Ecology** 35 (6): 1325-1340.
- [27] Belmecheri S, Maxwell RS, Taylor AH, Davis KJ, **Guerrieri R, Moore DJ, Rayback SA (2021)**. Precipitation alters the CO_2 effect on water-use efficiency of temperate forests. **Global Change Biology** 27 (8): 1560-1571.
- [26] Zhao J, Feng H, Xu T, Xiao J, **Guerrieri R, Liu S, Wu X, He X, He X (2021)**. Physiological and environmental control on ecosystem water use efficiency in response to drought across the northern hemisphere. **Science of the Total Environment** 758: 143599.
- [25] **Guerrieri R, Vanguelova E, Pitman R, Benham S, Perks M, Morison J, Mencuccini M (2020)**. *Climate and atmospheric deposition effects on forest water-use efficiency and nitrogen availability across Britain*. **Scientific Reports** 10: 12418
- [24] **Guerrieri R, Lecha L, Mattana S, Calíz J, Casamayor E, A Barceló, Michalski G, Peñuelas J, Avila A, Mencuccini M (2020)**. *Partitioning between atmospheric deposition and canopy microbial nitrification into throughfall nitrate fluxes in a Mediterranean forest*. **Journal of Ecology** 108 (2): 626-640.
- [23] **Guerrieri R, Belmecheri S, Ollinger S, Asbjornsen H, Jennings K, Xiao J, Stocker BD, Martin M, Hollinger D, Bracho-Garrillo R, Clark K, Dore S, Kolb T, Munger JW, Novick K, Richardson AD (2019)**. *Disentangling the role of photosynthesis and stomatal conductance on rising forest water-use efficiency*. **Proceedings of the National Academy of Sciences of the United States of America (PNAS)** 116 (34): 16909-16914.
- [22] Craine JM, Elmore AJ, Wang L, Boeckx P, Delzon S, Fang Y, Gray A, **Guerrieri R, et al. (2019)** *Reply to: Data do not support large-scale oligotrophication of terrestrial ecosystems*. **Nature Ecology & Evolution** 3: 1287–1288.
- [21] Smith N, Keenan T, Prentice C, Wang H, Wright I, Niinemets U, Crous K, Domingues T, **Guerrieri R, et al. (2018)**. *Global photosynthetic capacity is optimized to the environment*. **Ecology Letters** 22 (3): 506-517.
- [20] Asbjornsen H, Campbell J, Jennings K, Vadeboncoeur M, McIntire C, Templer PH, Phillips R, Bauerle TL, Dietze M, Frey S, Groffman P, **Guerrieri R, et al. (2018)**. *Guidelines and considerations for designing precipitation manipulation experiments in forest ¹³C ecosystems*. **Methods in Ecology and Evolution** 9:2310–2325.

- [19] Craine J, Elmore AJ, Aranibar J, Bauters M, Boeckx P, Crowley BE, Dawes MA, Delzon S, Fajardo A, Fang Y, Fujiyoshi L, Gray A, **Guerrieri R**, et al. (2018). *Isotopic evidence for oligotrophication of terrestrial ecosystems*. **Nature Ecology and Evolution** 2: 1735-1744.
- [18] Peñuelas J, Saradans J, Filella...**Guerrieri R** et al. (2017). Quantifying Impacts of Drought and Wildfire on Forest's Water and Carbon Resources. **Forests** 8 (12), 463.
- [17] **Guerrieri R**, Jennings K, Belmecheri S, Asbjornsen H, Ollinger S (2017). *Evaluating climate signal recorded in tree ring $\delta^{13}\text{C}$ and $\delta^{18}\text{O}$ from bulk wood and α -cellulose for six species across the northeastern US*. **Rapid Communications in Mass Spectrometry** 31 (24), 2081-2091.
- [16] Fyllas N, Bentley LP, Shenkin A, Asner GP, Atkin OK, Díaz S, Enquist B, Farfan-Rios W, Gloor E, **Guerrieri R**, et al. (2017). *Solar radiation and functional traits explain the decline of forest primary productivity along a tropical elevation gradient*. **Ecology Letters** 20 (6), 730-740.
- [15] **Guerrieri R**, Lepine L, Asbjornsen H, Xiao J, Ollinger S (2016). *Guerrieri, R., L. Lepine, H. Asbjornsen, J. Xiao, and S. V. Ollinger (2016). Evapotranspiration and water use efficiency in relation to climate and canopy nitrogen in U.S. forests*. **Journal of Geophysical Research: Biogeosciences** 121, 2610–2629.
- [14] Malhi Y, Girardin CAJ, Goldsmith GR, Doughty CE, Salinas N, Metcalfe D B, Huaraca Huasco W, Silva-Espejo JE, del Aguilla-Pasquell J, Farfán Amézquita F, Aragão LEOC, **Guerrieri R**, et al. (2016). *The variation of productivity and its allocation along a tropical elevation gradient: a whole carbon budget perspective*. **The New Phytologist** 214 (3), 1019-1032.
- [13] Bahar NHA, Ishida FY, Weerasinghe LK, **Guerrieri R**, et al. (2016). *Photosynthetic capacity is greater in high-elevation, Andean tropical moist forests than their lowland, Amazonian counterparts*. **The New Phytologist** 214 (3), 1002-1018.
- [12] Jennings K, **Guerrieri R**, Vadeboncoeur M, Asbjornsen H (2015). *Response of *Quercus velutina* growth and water use efficiency to climate variability and nitrogen fertilization in a temperate deciduous forest in the northeastern U.S*. **Tree Physiology** 36 (4), 428-443.
- [11] **Guerrieri R**, Vanguelova EI, Michalski G, Heaton THE, Mencuccini M (2015). *Isotopic evidence for the occurrence of biological nitrification and nitrogen deposition processing in forest canopies*. **Global Change Biology** 21 (12): 4613-4626.
- [10] Atkin O, Bloomfield KJ, Reich PB, Tjoelker MG, [...], **Guerrieri R**, et al. (2015). *Global variability in leaf respiration in relation to climate, plant functional types and leaf traits*. **The New Phytologist** 206 (2), 614-636. [138]
- [9] Bellino A, Alfani A, Selosse MA, **Guerrieri R**, Borghetti M, Baldantoni D (2014). *Nutritional regulation in mixotrophic plants: new insights from *Limodorum abortivum**. **Oecologia** 175 (3), 875-885.
- [8] Leonardi S, Gentilesca T, **Guerrieri R**, et al. (2012). *Assessing the effects of nitrogen deposition and climate on carbon isotope discrimination and intrinsic water-use efficiency of angiosperm and conifer trees under rising CO₂ conditions*. **Global Change Biology** 18, 2925-2944.
- [7] Ripullone F, Rivelli A, Baraldi R, Guarini R, **Guerrieri MR**, et al. (2011). *Effectiveness of the photochemical reflectance index to track photosynthetic activity over a range of forest tree species and plant water status*. **Functional Plant Biology** 38, 177-186.
- [6] **Guerrieri R**, Mencuccini M, Sheppard LJ, Saurer M, Perks M, Levy P, Sutton MA, Borghetti M, Grace J (2011). *The legacy of enhanced N and S deposition as revealed by the combined analysis of $\delta^{13}\text{C}$, $\delta^{18}\text{O}$ and $\delta^{15}\text{N}$ in tree rings*. **Global Change Biology** 17, 1946-1962.
- [5] **Guerrieri R**, Siegwolf RTW, Saurer M, Ripullone F, Mencuccini M, Borghetti M (2010). *Anthropogenic NO_x emissions alter the intrinsic water-use efficiency (WUEi) for *Quercus cerris* stands under Mediterranean climate conditions*. **Environmental Pollution** 158, 2841-2847.
- [4] **Guerrieri MR**, Siegwolf RTW, Saurer M, Jäggi M, Cherubini P, Ripullone F, M Borghetti (2009). *Impact of different nitrogen emission sources on tree physiology as assessed by a triple stable isotope approach*. **Atmospheric Environment** 43, 410-418.
- [3] Ripullone F, **Guerrieri MR**, et al. (2009). *Testing a dual isotope model to track carbon and water gas exchanges in a Mediterranean forest*. **iForest** 2, 59-66.
- [2] Ripullone F, Borghetti M, Raddi S, Baraldi R, Vicinelli E, Cantoni L, Nolè A, **Guerrieri MR**, et al. (2009). *Physiological and structural changes of an evergreen Mediterranean forest in response to long-term altered precipitation regimes*. **Trees-Structure and Function** 23 (4), 823-834.
- [1] Ripullone F, **Guerrieri MR**, et al. (2007). *Stomatal conductance and leaf water potential responses to hydraulic resistance variation in *Pinus pinaster* plants*. **Trees- Structure and Function** 21, 371-378.

BOOK CHAPTER

Andreu-Hayles L, Lévesque M, **Guerrieri R**, Siegwolf RTW, Körner C. (2021). *Chapter 14, Environmental fingerprints in tree-ring stable isotopes: Limits and strengths in mirroring*

environmental impacts. In *Stable Isotopes in Tree Rings: Inferring Physiological, Climatic and Environmental Responses*. Springer Physiology Book Series. Ed. R. Brooks, J. Roden, R. Siegwolf, M. Saurer.

OTHER PUBLICATIONS

Including PhD thesis, publications in peer-reviewed Italian journal, essay, report/article for policy makers and general public. Note that titles are kept in the original language (in Italian).

- Scisci E, Ravaioli D, Rossi S, Guerrieri R (2025). L'aumento artificiale della deposizione atmosferica di azoto non stimola l'accrescimento di *Picea mariana* (Mill.) BSP nella foresta boreale canadese. *Forest@* 22: 18-26. - doi: 10.3832/efor4675-022
- Ravaioli D, Teglia A, **Guerrieri R**, Marcolini G, Muzzi E, Magnani F (2022). Effetti della deposizione atmosferica di N su produttività e allocazione della crescita. Primi risultati di un esperimento di lungo termine in una faggeta appenninica. *L'Italia Forestale e Montana* doi: 10.4129/ifm.2022.x.0x
- Guerrieri R (2019)**. *The secret life of forests*. Science in School, 46: 20-24 (www.scienceinschool.org).
- Guerrieri R**, Peñuelas J, Mencuccini M (2018). *Nitrification in tree canopies*. ICP Forests 2017. Executive Report. Eberswalde, Germany, pp: 5-6. [<https://icp-forests.org/pdf/ER2017.pdf>] ISSN 1020-587X, e-ISSN 2198-6541] Invited contribution
- Guerrieri MR (2010)**. *Utilizzo degli isotopi stabili per il monitoraggio degli ecosistemi forestali*. Viggiano (PZ), Edizione Akiris (monografia).
- Guerrieri MR**, Todaro L, Carraro V, D'Alessandro CM, De Stefano S, Lapolla A, Saracino A (2008). Ecophysiological performances of *Pinus leucodermis* at the tree line in Mediterranean area. ***Forest@* 5**, 28-38.
- Guerrieri MR**, Nolé A, Ripullone F, Lapolla A, Borghetti M (2008). Effetti delle emissioni di NO_x su popolamenti di *Quercus cerris*. *Alberi e Territorio* 5 (3), 8.
- Nolé A, Ripullone F, **Guerrieri MR**, Ferrara A, Borghetti M (2008). Applicazione del modello 3PG-S per la stima dell'accumulo di carbonio negli ecosistemi forestali a scala regionale. *Alberi e Territorio*. 3,8 - 9.
- Guerrieri R (2007)**. *Tree ecophysiology under limiting conditions. Two study cases: at treeline and at exposure to emissions from anthropogenic activities*. **PhD thesis**
- Guerrieri MR**, Saurer M, Siegwolf RTW, Waldner P, Cherubini P (2006). Impact of traffic on $\delta^{15}\text{N}$, $\delta^{13}\text{C}$ and $\delta^{18}\text{O}$ of needles and annual tree rings of Norway spruce (*Picea abies* L.). ***Forest@* 3 (3)**, 437-445.
- D'Alessandro CM, **Guerrieri MR**, Saracino A (2004). Comparing carbon isotope composition of bulk wood and holocellulose from *Quercus cerris*, *Fraxinus ornus* and *Pinus radiata* tree rings. ***Forest@* 1 (1)**, 51-57.