
1. PERSONAL INFORMATION

Family name, First name: Guerrieri Maria Rosa (**Preferred name: Rossella**)

Date of birth: 01/05/1977

Nationality: Italian

Orcid ID: 000-0001-5247-0432; **Researcher ID:** F-5229-2016; **Scopus Author ID:** 36169034700

Personal webpage: <http://www.rossellaguerrieri.com/>

2. CAREER PROFILE

I am a plant physiologist and forest ecologist with broad research interests unified by the goal of better understanding how forest functioning varies in relation to global changes by using **methods** applied at the **genome level** (e.g., meta-barcoding, qPCR) to the **ecosystem level** (e.g., interpretation of eddy covariance data) and from **instantaneous measurements** of leaf gas exchanges to **long-term reconstruction of tree physiological traits** by using stable isotopes in tree rings. My well documented international experience, involvement in large projects (e.g., NASA funded project in the US) and leading role in personal competitive grants contributed to significantly strengthening my leading thinking, ability to build a network of collaborations, coordinate multidisciplinary projects, manage multiple tasks, taking crucial decisions during the project execution and last, but not least, create the best conditions to work in multicultural, respectful and collaborative environment.

3. EDUCATION

Master 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

4. PROFESSIONAL EXPERIENCES

Assistant professor, Alma Mater – University of Bologna (Italy)	10/2019- present
Post-doctoral researcher, Centre de Recerca Ecològica i Aplicacions Forestals CREAM (Spain)	06/2016-10/2018
Post-doctoral researcher associate, University of New Hampshire, UNH (USA)	03/2013-05/2016
Post-doctoral research fellow, University of Edinburgh (UK)	09/2011-05/2012
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

5. COMPETITIVE PERSONAL GRANTS AND AWARDS

Marie Skłodowska-Curie Individual Fellowship Funded within the EU Horizon 2020	2016-2018 (€ 158.121)
Newton International Fellowship funded by The Royal Society, the British Academy and the Royal Academy of Engineering	2009-2011 (£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 (Switzerland).	2005-2006 (€ 10.900)

6. RESPONSABILITIES

TEACHING AND MENTORING

Teaching: Forest Management and Silviculture (6 cfu) - First cycle degree program in Land and agro-

forestry Sciences (DISTAL, University of Bologna). **Lecturing** and **laboratory/field demonstrating** for a number of forestry science and plant physiology courses at the University of Edinburgh (UK), UNIBAS (Italy), PSI (Switzerland). **Supervision** of undergraduate and master students (at the University of New Hampshire, USA and at the CREAM, Spain); currently **tutor** of a **master student and PhD student** at the University of Bologna. **External advisor** of 2 **PhD students** (Université du Québec à Chicoutimi, Canada; ETH, CH). **Member of the evaluation committee** for the **PhD defence** (27th April 2020) – XXII program at the University of Basilicata (Potenza, Italy).

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

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 Ameridendo (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

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). Serving as **subject editor** for iforest-Biogeosciences and Forestry (5-years IF: 1.573).

MEMBERSHIP OF SCIENTIFIC SOCIETIES

Italian Society of Silviculture and Forest Ecology (since 2004), the **American Geophysical Union (AGU)** since 2014, the **Tree ring society** (since 2019); **British Ecological Society** (since 2020); **European Geoscience Union (EGU)** since 2021; **Marie Curie Alumni Association** (since 2016).

PUBLIC OUTREACH

Science communication at the **Edinburgh International Science Festival (2011-2012)**;
Open day of the Ecohydrology lab at the Earth Systems Research Center Institute, **University of New Hampshire (2016)**; Exhibition '*Després de la fi del món – after the end of the world*' at the **Centre de Cultura Contemporània de Barcelona**, co-organizing the event '*Boscos en moviment. Com afectarà el canvi climàtic els nostres boscos?*' led by Jordi Martínez Villalta (CREAF/UAB) (**March 2018**); *Interview* for the i) Italian blog '*Oggiscienza*'; ii) **CREAF blog**; iii) **Universidad de Costa Rica blog**. *Invited* to contribute to the **2017 ICP forests Executive Report** for public and policy makers - see section 'other publication'; Article published in the European Journal for teachers *Science in School* - see section 'other publication'; Interview during the radio show 'Vida verde' (Radiotelevisión Española, Radio 4, 16th September 2019); Invited speaker at the *Colloqui di Dobbiaco* (Bolzano, Italy, 27th -29th September 2019); Speaker at the *Cafè científic a la Casa Orlandai* (Barcelona, 16th October 2019); Invited speaker at the event "Casadeipensieri" (Bologna, 16th September 2020); Webinar on the benefits of urban forests (24th November 2020, available here: <https://ambiente.regione.emilia-romagna.it/it/radiciperilfuturoer/eventi/webinar/i-webinar-di-mettiamo-radici-per-il-futuro>); European Research night (virtual, Bologna 27th November 2020).

7. PUBLICATIONS

PUBLICATIONS IN INTERNATIONAL JOURNALS

(h-index: 19, 1066 citations – source googlescholar, 6th January 2021)

- [27] Belmecheri S, Maxwell RS, Taylor AH, Davis KJ, Guerrieri R, Moore DJ, Rayback SA (2021). Precipitation Alters the CO₂ Effect on Water-use Efficiency of Temperate Forests. *Global Change Biology* (in press).

- [26] Zhao J, Feng H, Xu T, Xiao J, **Guerrieri R**, Liu S, Wu X, He X, He X (2020). Physiological and environmental control on ecosystem water use efficiency in response to drought across the northern hemisphere. **Science of the Total Environment**, in press.
- [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, Caliz J, Casamayor E, A Barceló, Michalski G, Peñuelas J, Avila A, Mencuccini M (2019). *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 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 $\delta^{13}C$ and $\delta^{18}O$ 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*. **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*. **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*. **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.

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).

- 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**, Nolè 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.
- Nolè 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.