Roberto Tognetti, PhD

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**Full professor**
Forest Ecology and Management (AGR/05 - Assestamento Forestale e Selvicoltura)
Director of the Master in Environmental Management of Mountain Areas (EMMA)
*Faculty of Agricultural, Environmental and Food Sciences, Libera Universitàdi Bozen-Bolzano*

Roberto Tognetti, a forest ecophysiologist, specializes in the study of water flux in leaves and canopies, stomatal physiology, and the hydraulic architecture of trees. His research encompasses a broad spectrum of interests, from leaf-level attributes and processes—such as gas exchange and leaf traits—to tree and stand scales, including water utilization, growth rates, ecological indicators, and allometric relationships. Additionally, his expertise extends to ecosystem-level phenomena, encompassing forest productivity, carbon sequestration, and biodiversity conservation.

**Academic education**
B.Sc.-M.Sc., Forest tree breeding – Forestry, University of Firenze (Italy)
Ph.D., Plant physiological ecology - Botany, Trinity College of Dublin (Ireland)

**Professional experience**
1988-1999 – Researcher, CNR
2000-2023 – Professor, University of Molise

1995 – Visiting scientist, University of Florida
1999 – Visiting scientist, University of Pisa

Coordinator of the EFI (European Forest Institute) Project Centre on Mountain Forests (MOUNTFOR) at the Edmund Mach Foundation of San Michele all'Adige, 2013-2019.
Chair of the COST Action CA15226 Climate-Smart Forestry in Mountain Regions (CLIMO), 2016-2020.

**Research interests**
My research focuses on forest ecophysiology and its relationship with the changing environment. I aim to integrate plant attributes and processes across various temporal and spatial scales—from cell and tissue (leaf traits, wood biology) to tree and stand (tree physiology, proximal sensing), and up to ecosystem and landscape levels (ecological processes, remote sensing). Using a quantitative approach, I seek to determine how sustainable forest management can mitigate the impacts of ongoing global change. My mission is to assess and monitor the response of vulnerable forest ecosystems to natural and human-induced changes in climate and land use, addressing the synergies and trade-offs between adaptation and mitigation options for climate change. This knowledge on the relationship between disturbance regimes and forest dynamics supports climate-smart forestry, aimed at providing ecosystem services and restoring ecosystem functions.

**Recent projects**
2018-2021 - MAECI: Progetti di grande rilevanza - Joint Research Project as part of the Science and Technology Cooperation between Italy and the Kingdom of Sweden: Rischi ambientali per le foreste del futuro: adattamento al clima che cambia; principal investigator.
2019-2023 - PRIN-MIUR 2017: The Italian TREETALKER NETWORK - continuous large-scale monitoring of tree functional traits and vulnerabilities to climate change (ITTN); head of research unit.
2021-2025 - HORIZON 2020: Systemic solutions for upscaling of urgent ecosystem restoration for forest related biodiversity and ecosystem services (SUPERB); head of research unit.
2022-2027 - HORIZON: The ForestWard Observatory to Secure Resilience of European Forests (FORWARDS); head of research unit.

**Current teaching**
Forestry (L-25)
Protection forests (LM-73)
Wood anatomy and productive forestry (L-P03)

**Editorial board**
*Tree Physiology* (2003-present)
*iForest* (2008-present)
*Forests* (2018-present)
*Frontiers in Forests and Global Change* (2022-present)
*European Journal of Forest Research* (2024-present)
*Environmental Research Communications* (2024-present)

**Professional organizations**
ODAF (Agronomist and Forester Professional Association), 1991-present
SISEF (Italian Society of Silviculture and Forest Ecology), 1996-present
AISF (Italian Academy of Forest Science), 2010-present

**Selected publications**

Antonucci S., Rossi S., Deslauriers A., Morin H., Lombardi F., Marchetti M. & Tognetti R. (2017) Large-scale estimation of xylem phenology in black spruce through remote sensing. Agricultural and Forest Meteorology, 233, 92-100.

Pioli S., Antonucci S., Giovannelli A., Traversi M.L., Borruso L., Bani A., Brusetti L. & Tognetti R. (2018) Community fingerprinting reveals increasing wood-inhabiting fungal diversity in unmanaged Mediterranean forests. Forest Ecology and Management, 408, 202–210.

Conte E., Lombardi F., Battipaglia G., Palombo C., Altieri S., La Porta N., Marchetti M. & Tognetti R. (2018) Growth dynamics, climate sensitivity and water use efficiency in pure vs. mixed pine and beech stands in Trentino (Italy). Forest Ecology and Management, 409, 707–718.

Maltoni A., Mariotti B., Tani A., Martini S., Jacobs D.F. & Tognetti R. (2019) Natural regeneration of Pinus pinaster facilitates Quercus ilex survival and growth under severe deer browsing pressure. Forest Ecology and Management, 432, 356–364.

Tognetti R., Lasserre B., Di Febbraro M. & Marchetti M. (2019) Modeling regional drought-stress indices for beech forests in Mediterranean mountains based on tree-ring data. Agricultural and Forest Meteorology, 265, 110-120.

Versace S., Gianelle D., Garfì V., Battipaglia G., Lombardi F., Marchetti M. & Tognetti R. (2020) Interannual radial growth sensitivity to climatic variations and extreme events in mixed-species and pure forest stands of silver fir and European beech in the Italian Peninsula. European Journal of Forest Research, 139, 627-645.

Bowditch E., Santopuoli G., Binder F., del Río M., La Porta N., Kluvankova T., Lesinski J., Motta R., Maciej P., Panzacchi P., Pretzsch H., Temperli C., Tonon G., Smith M., Velikova V., Weatherall A. & Tognetti R. (2020) What is Climate-Smart Forestry? A definition from a multinational collaborative process focused on mountain regions of Europe. Ecosystem Services, 43, 101113.

Pretzsch H., Hilmers T., Biber P., Avdagic A., Binder F., Bončina A., Bosela M., Dobor L., Forrester D. I., Lévesque M., Ibrahimspahić A., Nagel T. A., del Rio M., Sitkova Z., Schütze G., Stajić B., Stojanović D., Uhl E., Zlatanov T. & Tognetti R. (2020) Evidence of elevation-specific growth changes of spruce, fir, and beech in European mixed-mountain forests during the last three centuries. Canadian Journal of Forest Research, 50, 689–703.

Versace S., Bräuning A., Cherubini P., Di Febbraro M., Häusser M., Lombardi F., Marchetti M., Marziliano P.A., Salbitano F., Szymczak S. & Tognetti R. (2022) New evidence for population-specific responses to drought events from tree ring chronologies of Pinus nigra ssp. laricio across the entire distribution range. Agricultural and Forest Meteorology, 323, 109076.

Tognetti R., Smith M. & Panzacchi P., eds. (2022) Climate-Smart Forestry in Mountain Regions. Springer Nature, Managing Forest Ecosystems, Vol. 40, 574 p.. https://doi.org/10.1007/978-3-030-80767-2