

## INTERNATIONAL SYMPOSIUM ON CLIMATE-RESILIENT AGRI-ENVIRONMENTAL SYSTEMS Implementing the New Green Deal: The Path Towards Sustainable Agriculture **ISCRAES 2022**

Theme Carbon Farming and Nature-based Solutions

28-31 August 2022, Dublin, IRELAND

DiSAA

## Validating NBFS contributions to agrobiodiversity values through a multi-scale floristic, vegetational and landscape monitoring approach

Chiaffarelli Gemma & Vagge Ilda

University of Milan, DiSAA - Department of Agriculture and Environmental Sciences, Milan (MI), Italy

## Introduction

Nature Based Farming Solutions (NBFS), here intended as landscape features management, agroforestry and agroecological crop management, are envisaged practices going in the direction of reintegrating, within the agricultural systems, their undermined ecosystem functions. These approaches still strongly demand further context specific scientific validation for their viable deployment at a local scale. Applied ecological sciences, like landscape ecology and phytosociology, concur to meet the need of scientific applied knowledge building related to the comprehension of the ecological patterns and trends underlying these practices, allowing to account for their overall contribution to the enhancement of the environmental stability and the ecological functionality of the agro-ecosystems. In this context, our project is focused on the test, calibration and validation of a monitoring







YER	TREES	SHRUBS	HERBACEOUS
VER )	80-100%	20-60%	5-20%
NANT SPECIES	Quercus robur L. Carpinus betulus L. Fraxinus excelsior L. Quercus cerris L. Acer campestre L. Prunus avium (L.) L. Castanea sativa Mill. Prunus serotina Ehrh.	Tree species renewal Corylus avellana L. Euonymus europaeus L. Cornus mas L. Crataegus monogyna Jacq. Hedera helix L.	Polygonatum multiflorum (L.) All. Vinca minor L. Viola alba Besser Brachypodium sylvaticum (Huds.) P. Beav. Anemone nemorosa L. Pteridium aquilinum (L.) Kuhn

References 1. European Commission, 2020a. Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions - A Farm to Fork Strategy for a fair, healthy and environmentally-friendly food system. COM/2020/381 final, Brussels, 20.5.2020. 2. European Commission, 2020b. Communication from the Commission to the European Parliament, the Council, the Europea Economic and Social Committee and the Committee of the Regions - EU Biodiversity Strategy for 2030, Bringing nature back into our lives. COM (2020) 380 final, Brussels, 20.5.2020. 3. MEA, 2005. Ecosystems and Human Well-being – Synthesis. Millennium Ecosystem Assessment, Island Press, Washington, D.C. 4. Gliessman S.R., 2007. Agroecology: the ecology of sustainable food systems. Second Edition, CRC Press, Taylor & Francis Group. 5. <u>www.polyculturae.it</u> 6. Pignatti S., Guarino R., La Rosa M., 2017-2019. Flora d'Italia. 2a edizione, Edagricole, Bologna.

comparison for forthcoming agricultural patches data

Conti F., Abbate G., Alessandrini A., Blasi C., (Eds), 2005. An annotated checklist of the Italian vascular flora. Ministero dell'Ambiente e della Tutela del Territorio – Direzione per la Protezione della Natura, Dipartimento di

7

12. Biondi E., Allegrezza M., Casavecchia S., Galdenzi D., Gasparri R., Pesaresi S. et al., 2015a. New syntaxonomic contribution to the Vegetation Prodrome of Italy. Plant Biosystems 149: 1-14.

19. Ingegnoli V., Giglio E., 2005. Ecologia del paesaggio. Manuale per conservare, gestire e pianificare l'ambiente. Sistemi Editoriali

riparian strips restoration, alien species management, etc.

Biologia Vegetale – Università degli Studi di Roma "La Sapienza", Palombi e Partner S.r.l. Pignatti S., Menegoni P., Pietrosanti S., 2005. Biondicazione attraverso le piante vascolari - Valori di indicazione secondo Ellenberg (Zeigerwerte) per le specie della Flora d'Italia. Braun-Blanquetia, Camerino, 39: 1-97. Biondi E., Allegrezza M., Casavecchia S., Galdenzi D., Gasparri R., Pesaresi S., Vagge I., Blasi C., 2014a. New and validated syntaxa for the checklist of Italian vegetation. Plant Biosystems 148: 318-332. 10. Biondi E., Blasi C., Allegrezza M., Anzellotti I., Azzella M.M., Carli E. et al., 2014b. Plant communities of Italy: the Vegetation Prodrome. Plant Biosystems 148 (3-4): 728-814. 11. Biondi E., Casavecchia S., Pesaresi S., Gangale C., Uzunov D., 2014c. New syntaxa for the prodrome of Italian vegetation. Plant Biosystems 148: 723-727.

Biondi E., Allegrezza M., Casavecchia S., Galdenzi D., Gasparri R., Pesaresi S., et al., 2015b. New Busch M., La Notte A., Laporte V., Erhard M., 2012. Potentials of 13. 20. insight on Mediterranean and sub-Mediterranean syntaxa included in the Vegetation quantitative and qualitative approaches to assessing ecosystem services. *Prodrome of Italy*. Flora Mediterranea 25: 77-102. *Ecological indicators*, Vol. 21, October 2012, Pages 89-103. 14. www.prodromo-vegetazione-italia.org 21. Vihervaara P., Viinikka A., Brander L., Santos-Martín F., Poikolainen L., Forman R.T.T., 1995. *Land mosaic*. Cambridge University Press, Cambridge. 15. Nedkov S., 2019. Methodological interlinkages for mapping ecosystem 16. Dramstad W.E., Olson J.D., Forman R.T.T., 1996. Landscape ecology principles in landscape services – from data to analysis and decision-support. One Ecosystem architecture and land use planning. Harvard University, American Society of Landscape 4:e26368. Architects, Island Press. 22. Almenar J.B., Rugani B., Geneletti D., Brewer T., 2018. Integration of 17. Farina M., 2001. Ecologia del paesaggio. Principi, metodi e applicazioni. Utet. ecosystem services into a conceptual spatial planning framework based on a landscape ecology perspective. Landscape Ecology 33, 2047–2059. 18. Fabbri P., 2005. Ecologia del paesaggio per la pianificazione. Aracne Ed..