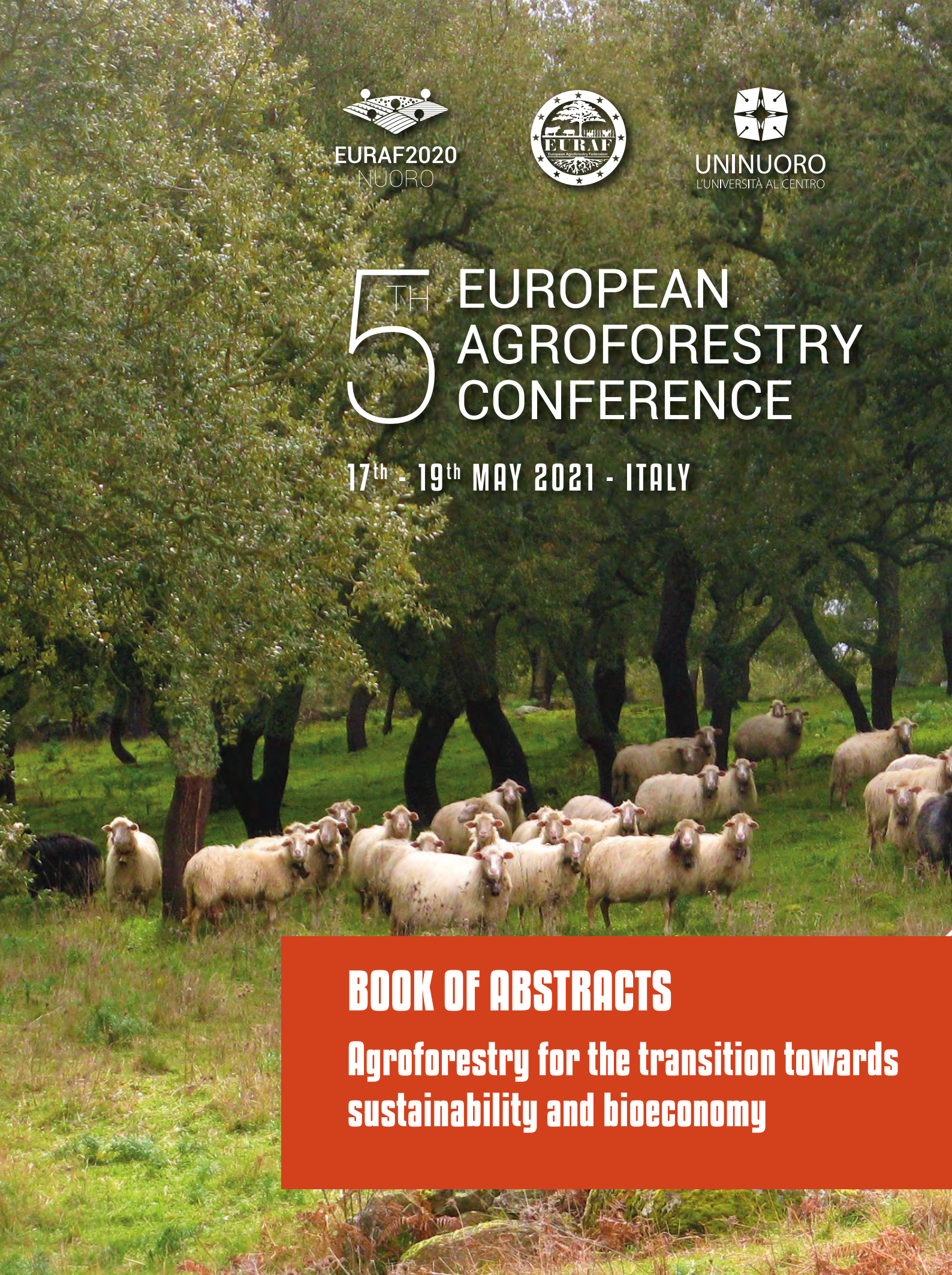
EURAF2020
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L'UNIVERSITÀ AL CENTRO
5TH EUROPEAN AGROFORESTRY CONFERENCE
17th - 19th MAY 2021 - ITALY
BOOK OF ABSTRACTS
Agroforestry for the transition towards sustainability and bioeconomy

EURAF2020

Welcome Address

Towards a renaissance of Europe's agriculture

As we open the fifth European agroforestry conference – twice pandemic-delayed, and alas still online – we are beginning to see indications that the world is at long last beginning to take the Earth systems crisis as seriously as it deserves. The most obvious signs are the ones that make the headlines: Joe Biden, the United States' new President, has nominated a prominent diplomat, John Kerry, as his climate envoy with Cabinet rank; the world is preparing to recognize the dire state of global biodiversity at a COP in Kunming, China and do something about it; preparatory meetings for the UNFCCC's COP 26 in Glasgow are noting the alarming trends of global heating and leading countries to negotiate ever stronger emission cuts. Large powers like France drum up funding for particularly stressed regions through top-level meetings like the One Planet Summit. And while the cold war between China and the West is heating up, the one area on which both sides collaborate productively are climate change and biodiversity issues. Buttressing that are United Nations efforts to wake peoples' sense of urgency and get corporate players and civil society to commit to change, ranging from the Decade for Ecosystem Restoration to the upcoming Food System Summit.

But the most encouraging signs are the ones that are harder to discern. The cost of renewables has dropped so much that a recent paper estimates that 70% of the world's population now lives in areas where the cheapest form of energy is solar power. The oracle of the energy world, the IEA, the International Energy Agency, has systematically underestimated the speed with which renewables spread and drop in price, and has done so every year for the last 20 years. But its latest report, just out, says that PV solar is now "the cheapest form of energy in human history". Even the inchoate efforts of America's last president, Donald Trump, to preserve coal jobs did not help: under his presidency, coal lost more market share more rapidly than any previous time in American history. And today, we begin to see a similar dynamic affecting gas, as policymakers recognize that far from being a cleaner alternative than coal, the frequent leakages of methane along its production and supply chain means that it can be as bad for the climate as solid fossil fuels. Finally, there is the extraordinary speed with which China is ramping up the design, production and deployment of new, modern nuclear power plants. Yes, together the various forms of non-carbon energy still only account for a few percent of the global total, but they are on unmistakable exponential growth curves.

On the biodiversity front, a number of papers have qualified the awful news of the past few years documenting the speed of the decline of vertebrate animals. The situation is no doubt dire, but not quite as dire as we thought. There is also a growing recognition that far from being a pristine wilderness until Europeans imported their technologies, much of the world has been a productively managed garden for the last 10,000 years, seemingly for the benefit of humans and biodiversity alike. Based on this growing insight, an increasing number of bodies are recognising the management skills of indigenous and traditional groups and developing the legal and financial support required to protect them against external impacts.

And that brings us closer to our own world, agriculture. There, mentalities are beginning to change too. The tired old argument of the agrochemical industry that the only thing needed to fix the problems of industrial farming are better chemistry and better genetics are finding it ever harder to find receptive ears (which is why our salvation is now supposed to come from precision agriculture – if you can't win the argument, shift the conversation). Instead, the farming world is abuzz with the excitement of a new concept, regenerative agriculture. Still nebulous and subject to capture by private interests, this idea is a seductive one: by using farming practices that mimic natural ecosystemic processes - for example by mixing perennials and annuals, ensuring the soil is always covered with living plants, reducing or eliminating ploughing and integrating livestock management - farmers, it is said, can boost their profits by reducing their costs and broadening their suite of products, all while delivering a multitude of desirable ecosystem services too. Films like "Kiss the Ground" are hits on Netflix, and almost every copy of the magazines sent out to farmers by their associations now contain features on soil health. Consumers are beginning to understand that "organic" and "sustainable" are yesterday's promises and I looking for ways to make a difference with their spending, while certificates such as ROC, Regenerative Organic Certification, are hoping to provide a widely recognized alternative.

In this new world being born, agroforestry is an essential technology. Novel archaeological techniques suggest this most ancient form of agriculture was applied in immensely varied and complex ways over many thousands of years by people across biomes ranging from the hottest and most humid to the driest and most frigid. We are only just beginning to understand just how productive these systems could be: the population density of pre-contact Papua New Guinean Highlands was of the same order of magnitude as that of the modern-day Netherlands, and as far as we can tell has been that high for several thousand years. Vast areas of the south-western Amazon were managed as periodically flooded farmlands, again for thousands of years, and the perennial species distribution across the whole of that forest suggests that, far from being a natural environment, the growth of species useful to humans has been systemically encouraged over centuries by its inhabitants.

While usually unaware of this deep history, policymakers are beginning to understand how powerful the agroforestry tool can be to achieve big societal objectives such as carbon mitigation and biodiversity restoration. The European Union has identified it, along with peatlands management, as one of its two key climate farming interventions. It is now regularly mentioned in the context of the reform of the CAP, the common agricultural policy, is a key component of the CAP's ecoschemes, and has become the go-to solution to rural development in most overseas development programmes.

And last but not least, the world is now awash with trillion tree campaigns, billion tree campaigns and million tree campaigns, all promising to absolve us of our carbon greed by locking the resulting pollution into trees, in a mechanism some wags compare to the sale of absolutions by the mediaeval Catholic Church. The amount of money flowing from corporations into carbon offsets backed by trees is growing exponentially. Most of these campaigns have recognized that large-scale monoclonal plantations of single species are a bad idea (after all, an oil palm plantation is a "forest" too) and are seeking to encourage farmers, usually in the global south, to add trees to their fields through a mixture of financial inducements and technical support.

Nevertheless, we all know that agroforestry's spread in Europe's landscapes is much slower and far more constrained than we hoped. The reasons range from a widespread unfamiliarity with these ancestral techniques (it has been three to four generations now since trees and hedges started being grubbed up and replaced by mechanization and agrichemical inputs, long enough for cultural knowledge to disappear) to a lack of technical support, ignorance by advisory services, a farming discourse dominated by the input industry, often relayed to their members by farmers associations; and immensely complex rules and regulations that farmers have to respect to get their subsidies. When policymakers try to dictate the number of trees per hectare or limit the range of species that may be planted, and change those rules regularly, we should not be surprised that most farmers are getting cold feet.

Nevertheless, agroforestry is beginning to become recognized as a key agricultural technology to lead Europe to a Renaissance of its farmlands. The excitement is palpable and takes many forms, from a nobleman informing your president that he would not cut down his trees in order not to be damned by future generations, to the increasing evidence presented at this conference about the superb impacts of this technology and the challenges of deploying it at scale.

As you will see by scanning these abstracts, few of these issues have been ignored by our community and many have been the subject of rigourous research and impactful innovation. And while I profoundly regret that I will not be able to discuss the many fascinating insights of your research over the traditional beer (or three) in the evening, I take heart from the fact that a fully online conference can reach a broader audience and may, thus, hopefully convince more people that adding trees to farming landscapes is not some deranged hippy idea, but the future.

And it is why this book of abstract has helped convince me that, unlike Sisyphus, we will not have to keep on pushing the rock of agroforestry wisdom uphill for eternity. Soon, our labours will bear fruits.

Patrick Worms

EURAF President

Welcome Address

On behalf of the EURAF2020 Scientific and Organizing Committees, we are very pleased to introduce the rich collection of research on agroforestry illustrated in this book of abstracts and presented within the 5° European Agroforestry Conference.

Unfortunately, as we all know, the COVID-19 pandemic has forced us to meet only remotely, despite all the efforts of our local and national organizers to hold the conference in presence. We are conscious about the completely different dimension, which does not allow participants to meet, discuss and live the conference supported by an environment socially vibrant and rich of cross-cultural stimuli as the real Sardinia can offer.

Nevertheless, in accordance with the mission of the European Agroforestry Federation, EURAF, to promote agroforestry knowledge, we wish to support the sharing of data presented and solicit a fruitful scientific confrontation on agroforestry issues.

This book is the result of a long and rigorous work performed by the authors (about 230 abstracts sent from 5 continents and 37 countries) and members of the Scientific Committee. The book will be one of the tools supporting such confrontation we are glad to foster from the heart of the Mediterranean.

The Mediterranean is a "demonstration site" with a pivotal role in showing the effects of climate change on the environment, a hotspot where extreme events, water resource reduction, forest fires, soil consumption, desertification, crop productivity and ecosystem services losses are the main issues. However, it can be the place to successfully build a new model of sustainable development to strengthen resilience and reduce impacts. Today, to be aware of this transformation is an absolute priority, also in consideration of health, environmental, social, and economic crisis caused by COVID-19.

The IPCC report on Land emphasizes how urgent is to test different integrated agricultural systems to assess synergies between mitigation, adaptation, and sustainability to reach low-carbon and climate-resilient pathways for sustainable food security and ecosystem health. Agroforestry practices are coherent with such indications following a holistic approach to obtaining biophysical, socio-cultural, and economic benefits from land management systems.

A multidisciplinary approach to the organization of this conference has allowed facing the research in agroforestry from different perspectives, as shown by the studies reported in this volume.

The provision of ecosystem services, the role of agroforestry in featuring the landscapes, and driving rural development, the need for proper policy instruments to support farmers in adopting agroforestry and look towards innovation encouraging education and dissemination, all such themes represent a comprehensive context that can help understand the complexity and preserve the beauty of European agroforestry systems.

We do hope that you will find this volume and the entire conference program noteworthy and thought-provoking and a valuable opportunity to build new connections between the scientific community, institutions, enterprises, and practitioners from around the world.

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Aknowledgments

We are very grateful to:
Valentina Marchi, Luca De Paoli, Miriam Bacchin, Silvia Baronti, Francesca Ugolini, Anna Panozzo, Donatella Gasparro, Francesco Reyes, Anita Maienza for collaborating at EURAF2020 communication activities

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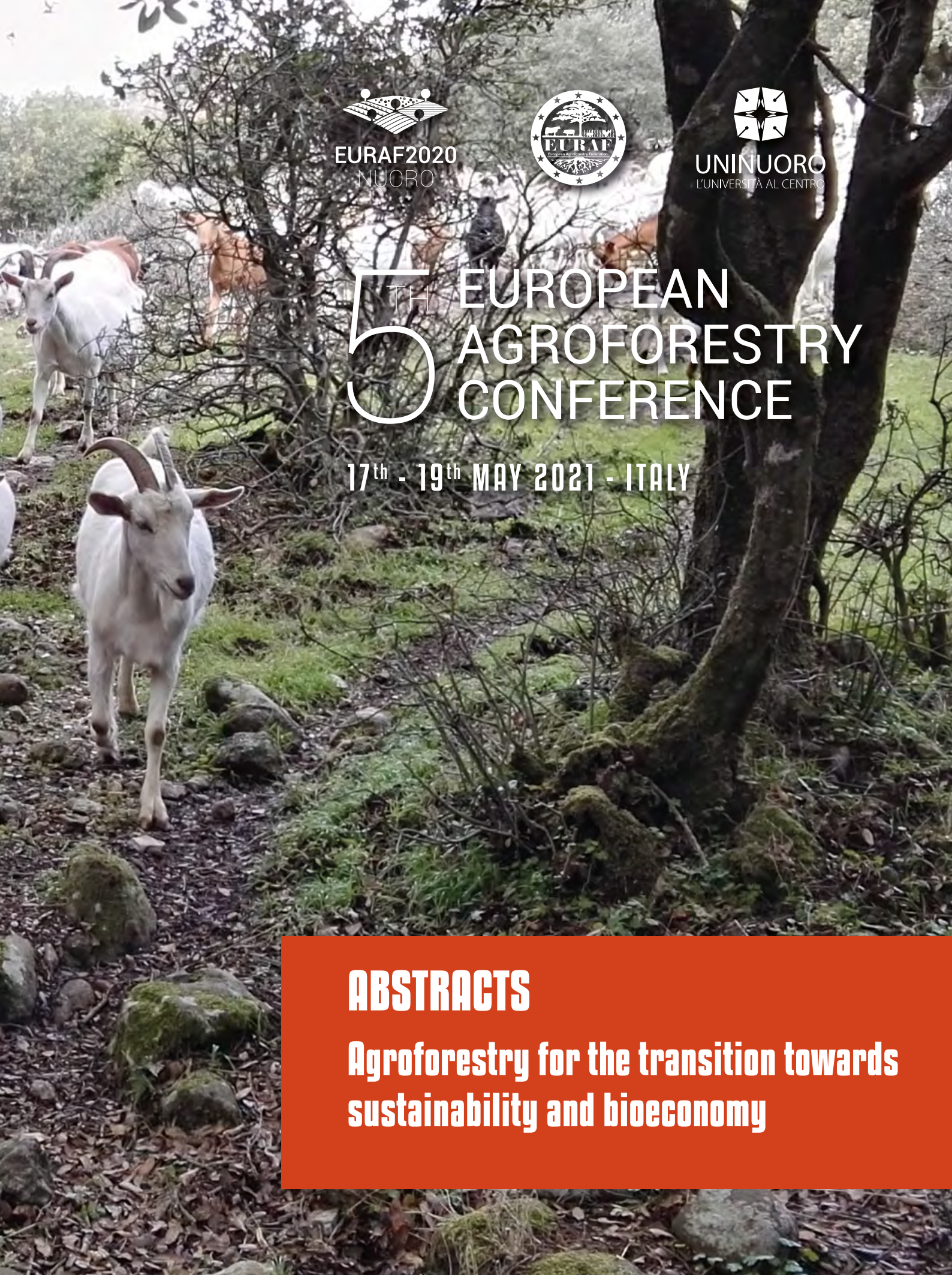

ABSTRACTS

Agroforestry for the transition towards sustainability and bioeconomy

2

Agroforestry and policy for sustainable development

2.2

Policy

Rural and Peri-Urban Areas Planning with the View to Improving Agroforestry and Landscape – EU Experience in Serbia

EURAF 2020
Agroforestry for the transition towards sustainability and bioeconomy
Abstract
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Theme: Agroforestry and policy for sustainable development

Keywords: spatial and urban planning, forests, environmental protection

Abstract

Spatial and urban planning are fundamental spatial development mechanisms. Spatial development takes into account complex relationships of different activities and functions in space with the view to facilitating the establishment of the most optimal spatial interactions, on the one hand, and preventing conflicts in space, on the other. That is why spatial and urban planning is so crucial in all kinds of social activities in the specific space. With all that in mind, spatial and urban planning plays a significant part in improving agroforestry and landscape in rural and peri-urban areas as well, since these functions are especially important in such areas. This paper aims at stressing the significance of planning in improving agroforestry and landscape in the times of agricultural intensification, specific changes in the ownership over the land during the transition period in the Republic of Serbia, and the change of demographic structure and increasingly negative demographic trends, especially in rural areas. All these circumstances have caused the increased degradation of agricultural land (soil erosion, salinisation, chemical pollution, etc.), the change in the endemic landscape architecture (cutting down small forested areas, alleys, individual trees or groves, destroying wildlife habitats, flora and fauna loss, etc.), the abandonment of certain agricultural areas, and the pollution of both groundwater and surface water. The role of planning is to implement the EU directives and specific experience from the areas of supporting agricultural production development, improving demographic circumstances, and reducing negative impacts of intensive agricultural production on the environment. The concept rests on the symbiosis of the existing phenomena and processes, which serve as a basis for shaping spatial development policies and defining measures for the agroforestry and landscape improvement, and is an authentic European experience in Serbia. Urban planning measures are directed towards the increase of forested areas and windbreaks, recultivation and melioration of degraded agricultural areas, and the preservation of authentic landscape, trees or groves. The protection of natural resources is an integral part of every urban planning document in the Republic of Serbia. The current Spatial Plan of the Republic of Serbia, (SPRS) a framework planning document in the country, covers the topic of forestry and recognises the significance of protective forests. The protection and preservation of forests are planned to the purpose of preserving soil from degradation, improving the quality of forest and agricultural land, and environmental protection in

general. The guidelines stipulated in SPRS are implemented by means of the planning documents deriving from the Plan, following the hierarchically ordered planning system in Serbia, down to the level of urban regulatory plans. Still, the examples of planning greenfield locations and repurposing of forest land into building land exceed the number of planned brownfield locations. A good practice example is planning shelterbelts around recultivated former minig sites. Putting in practice such documentation, aided by GIS tools and strategic environmental assessment, results in the integral protection and preservation of agricultural and forest areas, landscape, and the environment.

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