



Report of guest lectures

Goč, October 3th, 2024





Project information

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AGENDA

Study visit

Thursday 3rd October 2024

Guest lecture session

	Guest lecture 1 Georgi Kostov "Resilient landscapes, through integrated management"
	Guest lecture 2 Vladimir Zebec "Agricultural land suitability for agroforestry systems"
15:00 – 18:30 h	Guest lecture 3 Jelena Lazarević "Pathogenic and beneficial fungi in protective forest belt"
	Guest lecture 4 Teodor Nedelin "Commercial truffles for Bulgaria - ecology, distribution and economic importance"
	Guest lecture 5 Anton Benko "Prerequisites for the production of inoculated seedlings of economic tree species with black truffles"
	Guest lecture 6 Ivana Zegnal "Evaluation of inoculated seedlings of economic tree species with black truffles"
19:30 h	<i>Dinner</i>



Participants from 5 partner institutions - University of Belgrade Faculty of Forestry, Serbia (UB); University of Forestry from Sofia, Bulgaria (UFS); Josip Juraj Strossmayer University of Osijek Faculty of Agrobiotechnical Sciences (UNIOS) and University of Montenegro Biotechnical faculty (UOM); Croatian Forest Institute, Jastrebarsko, Croatia (CFRI) were present at the meeting. Additionally, students from the Faculty of Forestry and Biotechnology at Zhejiang A&F University in China were also in attendance. For more information, you can visit the following link: <https://www.sfb.bg.ac.rs/studenti-iz-kine-na-master-studijskom-programu-forestry-and-natural-resources-management/>. The list of attendees is attached below.

After a productive morning, the group paused for lunch from 13:00 h to 14:15 h at Vrnjačka Banja. At 14:15 h, they proceeded to Goč Mountain, where the guest lecture session began.

The first guest lecture was delivered by Dr Georgi Kostov, focusing on "Resilient Landscapes Through Integrated Management". The lecture emphasized the necessity of building resilient landscapes through a framework of integrated management, highlighting that collaborative landscape management must be adaptive and inclusive to effectively mitigate climate change. Kostov stressed that local authorities should lead these initiatives, with meaningful engagement from local communities and shared funding for activities to ensure sufficient resources for resilience-building efforts. He asserted that a resilient landscape serves as the best preventive measure against environmental degradation and climate impacts. During the lecture, Kostov presented alarming data on forest losses due to wildfires across the European Union from 2000 to 2017. He noted that approximately 90% of wildfires originated from agricultural land, underscoring the urgent need for effective management strategies. Furthermore, he discussed the establishment of 11 laboratories within the EU focused on developing fire defense strategies. A significant advancement mentioned was the creation of a GIS database targeting the most vulnerable areas in Bulgaria, identifying priority zones with a high frequency of wildfires. This proactive approach facilitates the implementation of preventive measures. In conclusion, Kostov argued that integrated management offers a viable solution to address these challenges, with agroforestry ecosystems playing a crucial role in enhancing landscape resilience to mention problems.

Following him, Dr Vladimir Zebec delivered a lecture on "Agricultural Land Suitability for Agroforestry Systems" a compelling lecture on the challenges of food production, a pressing issue faced by countries worldwide due to rising populations and the increasing demand for food. He focused on the specific challenges encountered in Croatia, which has three distinct agricultural regions. Zebec highlighted the potential of 400,000 hectares of currently unused land for agricultural purposes in Croatia. However, he noted that the process of land cultivation and food production often leads to various degradation issues that diminish both the quantity of food production and quality of soil. Key problems include soil erosion, reduction of organic matter, soil compaction, and other forms of degradation. He emphasized the role of agroforestry ecosystems in mitigating these challenges. While agroforestry can address some of the current issues, Zebec pointed out a significant concern: the potential reduction in food production capacity when transitioning to agroforestry practices. Additionally, Zebec discussed the systematic assessment of existing soil quality, where land is evaluated based on various criteria, placing it into specific quality classes. Factors such as climate, soil type, relief, exposure, texture, and soil structure are taken into consideration in this classification process. He presented findings from two specific sites, Račinovići and Rajevo Selo, detailing the results of this soil classification effort. In summary, Zebec's lecture underscored the complex interplay between food production, land degradation, and the potential benefits of agroforestry systems, illustrating the need for innovative solutions to enhance soil health and agricultural productivity in Croatia.

Dr Jelena Lazarević presented "Pathogenic and Beneficial Fungi in Protective Forest Belts", a lecture on the beneficial roles of fungi in shelterbelts. She discussed the dual nature of fungi, highlighting both the beneficial species found in newly established shelterbelts and the pathogenic fungi that can emerge in older systems. Lazarević emphasized the



importance of mycorrhizal for soil health and function, noting that these beneficial organisms play a crucial role in enhancing soil fertility and plant growth. She advocated for the selection of appropriate agricultural practices that promote beneficial microbiomes and their positive functions within the ecosystem. Furthermore, she addressed the issues posed by pathogenic fungi, detailing the harmful effects these species can have on the plants commonly found in shelterbelts. In conclusion, Lazarević's lecture provided valuable insights into the complex relationships between fungi and windbreak ecosystems, highlighting the significance of fostering beneficial fungi through agricultural practices.

Dr Teodor Nedelin presented valuable insights on "Commercial Truffles for Bulgaria: Ecology, Distribution, and Economic Importance," highlighting Bulgaria's status as a leading exporter of truffles in Europe. Notably, approximately three-quarters of the truffles produced in Bulgaria are exported to Italy, underscoring the significant demand for these delicacies. During his presentation, Nedelin discussed various truffle species and elaborated on their importance in the market, emphasizing their culinary and economic value. He also provided examples of truffle cultivation as an integral part of agroforestry ecosystems, illustrating how truffle plantations can enhance biodiversity and support sustainable land use practices.

Further contributions included Dr Anton Benko, who spoke about the "Prerequisites for the Production of Inoculated Seedlings of Economic Tree Species with Black Truffles". He outlined the crucial steps involved in controlled germination, fungal material selection, and the inoculation process necessary for successful truffle cultivation. Benko began by explaining the process of controlled seed germination, emphasizing the importance of proper seed selection, sterilization, seed stratification, and germination. He then detailed the fungal material preparation, highlighting the careful selection and sterilization of truffle species, as well as methods for drying and preserving ascocarps (truffle fruiting bodies). For the inoculation process, Benko described the key steps: preparing the substrate, incorporating the fungal inoculum into the mixture, container preparation, and seedling readiness. He also stressed the importance of maintaining final prerequisites, such as growing the seedlings in greenhouses with controlled conditions and employing dedicated staff to monitor the seedlings' development.

Dr Ivana Zegnal's guest lecture on "Evaluation of Inoculated Seedlings of Economic Tree Species with Black Truffles" built upon the process outlined in the previous presentation. She emphasized the importance of accurate evaluation in ensuring the success of truffle cultivation, particularly to avoid introducing invasive or unwanted truffle species that could displace native or more valuable varieties. Zegnal outlined the key steps involved in the evaluation process:

1. Identification of the Plant Lot: Ensuring the correct origin and lot of the seedlings being evaluated.
2. Selection of Plant Samples: Choosing representative samples from the plant lot.
3. Removal of the Substrate: Carefully removing soil or substrate around the roots for closer inspection.
4. Evaluation of Plant Quality: Assessing the overall health and viability of the plants.
5. Preliminary Evaluation: Using a binocular microscope to examine each plant for initial signs of mycorrhizal development.
6. Molecular Confirmation: Performing PCR tests to verify the presence of the desired truffle species.
7. Quantification of Mycorrhizal and Total Fine Root Tips: Counting the number of mycorrhizal root tips to determine the success of the inoculation process.

This thorough evaluation process ensures that the inoculated seedlings are healthy and properly inoculated with the intended truffle species, preventing contamination and promoting successful truffle cultivation.

The day concluded with dinner at 19:30 h.



ATTENDANCE LIST

No	Name	Organization
1	Vladimir Ivezić	Josip Juraj Strossmayer University of Osijek
2	Predrag Miljković	University of Belgrade
3	Krasimira Petkova	University of Forestry Sofia Bulgaria
4	Georgi Kostov	University of Forestry Sofia Bulgaria
5	Nasko Iliev	University of Forestry Sofia Bulgaria
6	Jelena Lazarević	University of Montenegro
7	Milena Đokić	University of Montenegro
8	Milić Čurović	University of Montenegro
9	Stefan Miletić	University of Belgrade
10	Snežana Belanović Simić	University of Belgrade
11	Teodor Nedelin	University of Forestry Sofia Bulgaria
12	Sara Lukić	University of Belgrade
13	Anton Benko	Croatian Forest Institute
14	Ivana Zegnal	Croatian Forest Institute
15	Josipa Puškarić	Josip Juraj Strossmayer University of Osijek
16	Vladimir Zebec	Josip Juraj Strossmayer University of Osijek
17	Aleksandar Baumgertel	University of Belgrade
18	Danica Borota	University of Belgrade
19	Ivana Maslarević	University of Belgrade
20	Miloš Tomić	University of Belgrade
21	Mon Rubei	Zhejiang A&F University
22	Li Zhnoynan	Zhejiang A&F University
23	Wang Zhangyuan	Zhejiang A&F University
24	Wang Junkin	Zhejiang A&F University
25	Wu Yunxnan	Zhejiang A&F University
26	Wu Jiang	Zhejiang A&F University
27	An Chunlin	Zhejiang A&F University
28	Chen Bofan	Zhejiang A&F University
29	Wu Qin	Zhejiang A&F University
30	Huang Yonggang	Zhejiang A&F University
31	Ma Yizhe	Zhejiang A&F University
32	Yang Jin	Zhejiang A&F University
33	Lian Weihong	Zhejiang A&F University
34	Han Hao	Zhejiang A&F University
35	Tuyee Hu	Zhejiang A&F University
36	Magen	Zhejiang A&F University
37	Huang Liqiac	Zhejiang A&F University
38	Lian Chengang	Zhejiang A&F University
39	Xu Zbixuan	Zhejiang A&F University
40	Chen Ruo	Zhejiang A&F University
41	Zhang Gejin	Zhejiang A&F University



42	Ma Qian	Zhejiang A&F University
43	Wang Yike	Zhejiang A&F University
44	Mo Kehen	Zhejiang A&F University
45	Ltn Yixnan	Zhejiang A&F University
46	Xu Leyao	Zhejiang A&F University
47	Cai Zingxiang	Zhejiang A&F University
48	Chen Kayi	Zhejiang A&F University
49	Tang Kai	Zhejiang A&F University