



FORS²D

FORESTRY SCIENCE FOR SUSTAINABLE DEVELOPMENT

BOOK OF ABSTRACTS

**"Perspectives of forestry and related sectors
as drivers of sustainable development in the post-Covid era"**

**Banja Luka, the Republic of Srpska / Bosnia and Herzegovina
29–30 September 2022**

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Perspectives of forestry and related sectors as drivers of sustainable development in the post-Covid era

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FORESTRY SCIENCE FOR SUSTAINABLE DEVELOPMENT

"Perspectives of forestry and related sectors as drivers of sustainable development in the post-Covid era"

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Foreword

Dear participants and friends,

The International Scientific Conference "**Forestry science for sustainable development FORS²D – Perspectives of forestry and related sectors as drivers of sustainable development in the post-Covid era – FORS²D**" in Banja Luka is held on the occasion of important Jubilee (30 years) of the Faculty of Forestry, University of Banja Luka, and 30 years of PFE "Šume Republike Srpske" a.d. Sokolac, in cooperation with FAO (*United Nations Food and Agriculture Organization*). Considering global changes that we are facing, the importance of forests cannot be underestimated. We depend on forests for our survival, from the air we breathe to the wood we use, but without education and scientific research we cannot promise sustainable development or sustainable forestry. Besides basic functions of forests needed for humans, forests also offer climate change mitigation, watershed protection, prevent soil erosion and torrential floods that we are frequently facing in recent decades. Unfortunately, despite our dependence on forests, we are still allowing them to disappear.

This Conference will give an opportunity for participants to address important issues related to forestry, exchange recent research, knowledge and experiences in forestry and related fields, to establish functional international cooperation among institutions, to improve cooperation between forestry science and practice and finally to forestry as important sector for human well-being at local, national and global level.

The Conference is organized in nine sessions along different themes. Together there are five plenary lectures, 64 oral presentations and 64 poster contributions, with more than 120 participants.

As announced, authors, the reviewed and accepted papers are going to be published in the Bulletin of the Faculty of Forestry, University of Banja Luka (<http://glasnik.sf.unibl.org>).

We wish you a very successful Conference and pleasant stay in Banja Luka.

Chair of the Organization Committee
Marijana Kapovic Solomun

Predgovor

Dragi učesnici i prijatelji,

Međunarodna naučna konferencija „Šumarska nauka za održivi razvoj FORS²D – Perspektive šumarstva i povezanih sektora kao pokretača održivog razvoja u post-kovid eri – FORS²D” se održava u Banjoj Luci povodom značajnog jubileja (30 godina) Šumarskog fakulteta Univerziteta u Banjoj Luci i 30 godina JPŠ “Šume Republike Srpske” a.d. Sokolac, u saradnji sa FAO (Organizacija Ujedinjenih nacija za hranu i poljoprivredu). Imajući u vidu globalne promjene kojima se suočavamo, značaj šuma mora biti posebno istaknut. Opstanak čovječanstva zavisi od šuma od vazduha koji udišemo do drveta koje koristimo kao materijal, ali bez obrazovanja i naučnog istraživanja ne možemo obećati održivi razvoj ili održivo šumarstvo. Pored osnovnih funkcija šuma potrebnih čoveku, šume takođe nude ublažavanje klimatskih promjena, zaštitu riječnih slivova, sprječavanje erozije zemljišta i bujičnih poplava sa kojima se često suočavamo poslednjih decenija. Nažalost, uprkos činjenici da zavisimo od šumskih ekosistema, mi i dalje dozvoljavamo da one nestaju.

Ova Konferencija će pružiti priliku učesnicima da se pozabave važnim pitanjima vezano za šumarstvo, razmijene novija istraživanja, znanja i iskustva u šumarstvu i srodnim oblastima, da uspostave funkcionalnu međunarodnu saradnju među institucijama, da unaprijede saradnju šumarske nauke i struke i konačno da istaknu šumarstvo kao važan sektor za ljudsko blagostanje na lokalnom, nacionalnom i globalnom nivou.

Konferencija je organizovana u devet sesija na različite teme. Učesnicima će se obratiti pet eminentnih plenarnih predavača, 64 usmenih izlaganja i 64 poster priloga, sa više preko 120 učesnika. Kako je najavljeno, recenzirani i prihvaćeni radovi biće objavljeni u Glasniku Šumarskog fakulteta Univerziteta u Banjoj Luci (<http://glasnik.sf.unibl.org>).

Želimo Vam uspješnu Konferenciju i ugodan boravak u Banja Luci.

Predsjednica Organizacionog odbora

Marijana Kapović Solomun

THEMATIC AREAS

1. Forest and sustainable development in light of climate change
2. Nature-based solutions
3. Let's green, be seen
4. A modern and competitive forestry sector
5. Innovative value chains and sociological aspects in forestry and related sectors

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INCREASE OF URBAN FORESTS SUSTAINABILITY BY ASSESSING LANDSCAPE SENSITIVITY

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ABSTRACT

Urban forest includes individual trees, but also associated vegetation and the soil beneath the trees. In many regions, urban forests are the most extensive, functional and visible form of green infrastructure in cities and occupy an important place in mitigating and adapting to climate change and preservation of forest ecosystems. These forests are safe islands for biodiversity and play a key role in preserving human health and raising the quality of life in the city. However, urban forests face many challenges including difficult growing condition, insufficient resources for proper care and problems for development, which are enhanced by incomplete public understanding of benefits that urban forests provide. Urban soils are often subject to several degradation processes, such as erosion, compaction and pollution.

The Košutnjak urban forest (Belgrade, Serbia), occupies a total area of 305.32 ha, of which 83% is forested. In 2014, 93% of the area was declared a Monument of Nature "Košutnjak Forest" while the remaining 7% of the forest is intended for recreation and general cultural and educational functions. The stand is mostly natural deciduous hardwood tree and covers almost 70% of the forest. Košutnjak is home to many plant and animal species, some of which are under strict protection. There are 521 plant species, including for example oak (*Quercus* sp.), chestnut (*Aesculus hippocastanum*), cedar (*Cedrus* sp.), pine (*Pinus* sp.), hazel (*Corylus* sp.). In 2015, the average age of the trees has been estimated to be 60–70 years. During the same year, about 50 ha of Košutnjak has been re-forested with 4,400 seedlings of ash (*Fraxinus* sp.) and sycamore (*Platanus* sp.). However, trees in Košutnjak present a poorly developed canopy, often rotten. The forest was seriously affected by the snowfall in December 2021, when a large number of trees fell, broke and bent. The general condition of the forest is unfavorable, the assembly is interrupted and damaged. Due to steep slopes and generally poor condition of vegetation, erosion processes are observed in the form of scouring, rills, gullies and local movements of soil masses. Other forms of physical degradation include compaction namely in observed wheel tracks.

The aim of this study is to investigate the connection between the productivity of forest ecosystems and soil quality. Soil physical- chemical characteristics contribute to determining the sensitivity of the soil of the urban forest Košutnjak to degradation processes and the connection between the state of vegetation and soil quality. The study is based on the detail analyses of the data of the current state of land and vegetation, as well as expected deviations due to the impact of selected climate change scenarios.

Three potential climate scenarios were tested and contribute to understanding the possibility of adapting the Košutnjak urban forest to degradation processes and soil nutrient losses favored by climate change. This knowledge will aid in determining proposed measures and strategies to mitigate the effects of land degradation processes based on the principle of environmental engineering. The study introduces a new framework for valorization of the current and future state of land and vegetation in the urban forest Košutnjak. The results provide a basis for mitigating or restoring land degradation, which inevitably arises from the management practices. With application of anti-erosion, remediation and prevention measures and application of nature-inspired solutions and ecosystem services, the condition of the land will be improved.

Key words: soil quality, land degradation, soil erosion, nature-inspired solutions, climate change

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