

# EMEC21

21<sup>st</sup> European Meeting on Environmental Chemistry  
November 30 – December 3, 2021, Novi Sad, Serbia

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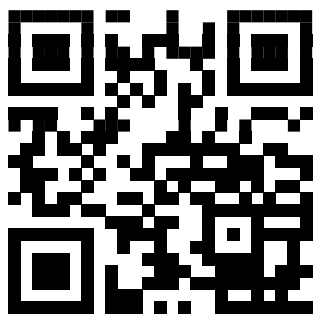
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## BOOK OF ABSTRACTS





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**Book of Abstracts**  
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*Publisher*

Serbian Chemical Society  
Karnegijeva 4/III, Belgrade, Republic of Serbia

*For the publisher*

Dušan Sladić  
President of the Serbian Chemical Society

*Editors*

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*Cover page photo*

Branko Lučić

*Design and prepress*

Beoživković, Belgrade

*Printed by*

RIS Studio, Belgrade

*Circulation*

150

ISBN

978-86-7132-078-8

*Year*

2021

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## Application of Nature-Based Solutions in Serbian Protected Area Management for the Attainment of Sustainable Development Goals

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Healthy natural ecosystems, such as protected areas (PA), support and sustain biodiversity and human well-being by providing essential ecosystem services and health benefits. However, maintaining such ecosystems to provide these environmental benefits becomes a more and more challenging issue with climate changes, biodiversity loss, land degradation and the continued erosion of the natural capital, particularly in the developing world. The main objective of this research is to establish a methodology for achieving the United Nations Sustainable Development Goal 15 “Life on Land”. The methodology will include the determination of heavy metals in soil and needle samples, and questioners for different stakeholders: local people, local businesses, government, civil society organizations (CSO), and the academic community.

Soils are integral components of protected area ecosystems. Soil health has been defined as “the capacity of soil to function as a vital living system, within an ecosystem and land-use boundaries, to sustain plant and animal productivity, maintain or enhance water and air quality, and promote plant and animal health” [1]. This definition speaks to the importance of managing soils, so they remain sustainable for future generations. On the other hand, the conifer needles are good bioindicators of ecosystem conditions. The questioner will allow obtaining data about the social and economic benefits of the PAs.

The soil and needle samples from four protected areas in Serbia (Zlatibor, Golija, Tara, Đerdap) were analyzed using Inductively coupled plasma –optical emission spectrometry (ICP-OES) and X-Ray Fluorescence (XRF). Quantitative pollution indices were calculated (Enrichment factor (EF), Contamination factor (Cf), Geoaccumulation index (Igeo), Pollution load index (PLI), and Degree of contamination (Cd)), since

they are effective tools for converting the raw environmental data into information relevant to support decision-making [2]. Results of this study provide a scientifically-based overview of the conditions of soil health and health of the forest ecosystem and help to propose nature-based solutions (NBS) for enhancing the sustainability of management, especially in the context of improving ecosystem services and climate change adaptation and mitigation. NBS provide affordable, sustainable, and feasible benefits that contribute to improving soil quality and support several ecosystem services relevant to support public health and social well-being [4].

Results of this study use the United Nations Sustainable Development Goals 15 “Life on Land” as a global framework for establishing the partnership between PA managers, conservationists and local authorities that would enhance health and increase environmental, social and economic benefits of the PAs.

### Acknowledgements

The study was supported by the Ministry of Education, Science and Technological Development, Republic of Serbia (Grant No. 451-03-9/ 2021-14/200026 and 451-03-9/2021-14/ 200168) for financial support.

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