BOOK OF ABSTRACTS

I. SESSION DESCRIPTION

ID: O2

Biodiversity and ecosystem services in South-East Europe: Research challenges and application issues towards a community of practice

Hosts:

	Title	Name	Organisation	E-mail
Host:		Stoyan Nedkov	National Institute of Geophysics Geodesy and Geography - Bulgarian Academy of Sciense	snedkov@abv.bg
Co-host(s):		Jeroen Arends	Consultant FAO	jeroen.arends@fao.org
		Hristina Prodanova	National Institute of Geophysics Geodesy and Geography - Bulgarian Academy of Sciense	hristina.zh.prodanova@gmail.com
		Vanya Stoycheva	National Institute of Geophysics Geodesy and Geography - Bulgarian Academy of Sciense	vanya.e.stoycheva@gmail.com

Abstract:

"South East Europe (SEE) has the greatest richness of flora and fauna in Europe and an exceptional number of endemic and relict species. However, biodiversity in SEE is under pressure by a range of environmental threats. SEE countries also share similar problems regarding economy, society and nature. Adoption and application of environmental policies, regulations and standards is still poor in many of these countries. Furthermore, there is general lack of awareness of the values of biodiversity to society. What is needed, is an approach that ensures sustainable and equitable local-regional development while securing the conservation of biodiversity.

Ecosystem services (ES) is becoming recognized in South East Europe as a valuable concept for nature conservation and sustainable development. Universities and research centres as well as international development organisations in the region have conducted research of various size, scope and duration into ES. While some countries have incorporated ES into their National Biodiversity Strategy and Action Plan (NBSAP) and other policies, overall adoption and implementation across sectors and covering various levels of governance remains limited. This is especially the case at lower levels of government and with management of Protected Areas (PA) at local levels. This is due to various reasons including a lack of knowledge on ES, scepticism, lack of capacities and a deficiency of case studies and

show cases that illustrate the value of the concept of ecosystem services in sustainable land use and the management of natural resources. In the meanwhile, a substantial body of knowledge, new methodologies, classification systems, etc. on ES is being developed which makes the learning curve for countries in South East Europe steeper and more challenging to confront.

The main objective of the proposed session is to bring together researchers and practitioners from the region to present their achievements and discuss how to fill knowledge gaps. One of the options to cope with the lack of capacities in the region is to develop a networking platform to facilitate transnational cooperation through a Community of Practice (CoP) in SEE. It will be a network and a platform for transnational collaboration and it will provide: knowledge transfer and capacity building through various means. The proposed CoP will contribute to the region's preparation and adoption of various EU policies such as the EU Biodiversity Strategy 2030, the EU green deal, the EU pollination initiative, and furthermore to facilitate the achievement of Sustainable development goals (SDG).

We invite speakers to present advancements in the application of the ecosystem services concept in South-Eastern Europe in relation to:

- Application of ES concept in real-world case studies with stakeholders and end-users;
- Mapping and assessment of ES for sustainable decision making;
- Good and bad practices in the implementation of ES products in various aspects and nature conservation and biodiversity issues;
- Multiscale mapping and modeling of ES (from cities to landscape)."

Goals and objectives of the session:

"This session is organized by ESP's South-East Europe regional chapter (TWG5) and has two main goals:

- to showcase recent advancements and developments in applications of ES concept in SEE;
- to initiate a discussion on how to proceed in the development of a networking platform for transnational cooperation through a CoP."

Planned output / Deliverables:

Special issue in a referenced journal

The session will be used to further develop collaboration and a research agenda within the South East Europe regional chapter through a concept for CoP.

Session format:

Standard session (presentations)

Voluntary contributions accepted:

Yes, I allow any abstract to be submitted to my session for review

Related to ESP Working Group/National Network:

Regional chapters: South-East Europe

II. SESSION PROGRAM

Date of session: October 13th
Time of session: 11:00–12:30

Timetable speakers

Time	First name	Surname	Organization	Title of presentation
11:00–11:05	Stoyan	Nedkov	National Institute of Geophysics, Geodesy and Geography – Bulgarian Academy of Sciences	Introduction
11:05–11:17	Katerina	Atanasovska	Farmahem	Multi-stakeholder collaboration and capacity building programme on integrating ecosystem services approach in policy and decision-making: A case study in North Macedonia
11:17–11:29	Nuket Ipek	Cetin	Gebze Technical University	Status and deficiencies of ecosystem services practices in Turkey: Potential collaborations in South-East Europe
11:29–11:41	Boian	Koulov	National Institute of Geophysics, Geodesy and Geography – Bulgarian Academy of Sciences	Current state of ecosystem accounting in Bulgaria
11:41–11:53	Maria	Glushkova	Forest Research Institute – Bulgarian Academy of Sciences	Modelling the recreation potential of forest territories in a case-study area of "Rila" and "Pirin" National Parks for development of health tourism at regional scale
11:53–12:05	Miglena	Zhiyanski	Forest Research Institute – Bulgarian Academy of Sciences	New perspective in assessment and mapping the climate regulating ecosystem service under extreme polar conditions
12:05–12:17	Agnes	Vari	McGill University	Ecosystem services mapping in protected karst areas in South-Eastern Europe – the EcoKarst project approach
12:17–12:30	Hristina	Prodanova	National Institute of Geophysics, Geodesy and Geography – Bulgarian	Crosswalking national classifications of Bulgaria to the IUCN-Global Ecosystem Typology

Time	First name	Surname	Organization	Title of presentation
			Academy of Sciences	

III. ABSTRACTS

Abstracts are ordered based on the session program. The first author is the presenting author unless indicated otherwise.

1. *Type of submission: Abstract*

O. Other sessions: O2 - Biodiversity and ecosystem services in South-East Europe: Research challenges and application issues towards a community of practice

Modelling the recreation potential of forest territories in a case-study area of “Rila” and “Pirin” National Parks for development of health tourism at regional scale

Presenting author: Maria Glushkova

Other author(s): Miglena Zhiyanski, Bilyana Borissova, Stoyan Nedkov

Contact: m_gluschkova@abv.bg

Recreation is a valuable ecosystem service, which is provided by ecosystems with well-preserved natural elements as protected areas and other natural habitats outside the settlements. People benefit from natural areas by different cultural services as sport and leisure (walking, cycling, riding etc.), recreation and tourism (relaxation, experiencing and studying nature and biodiversity). The ESTIMAP modelling approach is applied for assessment the potential of forest territories to provide recreation ecosystem service. The selected case-study area is located in the mountainous regions of “Rila” and “Pirin” National Parks, Bulgaria. The recreational potential of forest territories is assessed based on values for selected indicators and mapped in a four-grade scale for low, medium, high and very high potential, respectively. The results are visualized in GIS and showed that most of the protected areas are characterized by medium and very high potential for recreation. The very high potential is defined for the biosphere reserves "Parangalitsa", "Bayuvi Dupki - Djindjiritsa" and for Natura 2000 site "Rila Monastery". The spectrum of opportunities for recreation in the case-study area is analyzed through the integration of recreational potential and accessibility to the territories, forming twelve combinations. The most widespread are the accessible areas with very high potential, occupying about 41% of the case-study zone, followed by the areas with very high recreation potential but difficult access (26.5%). Territories with medium recreation potential in most cases are characterized with difficult access. The other combinations are distributed on limited territories. From strategic perspective specific measures for the development of health tourism at regional scale are proposed based on the results for recreation potential of forest territories and their accessibility. Modelling of ecosystem services is useful a tool for management of natural

resources and provides a good basis for the decision-makers in outlining next steps for territorial development and human well-being.

Keywords: mountain ecosystems, protected areas, cultural ecosystem services, recreation potential, modelling

2. Type of submission: Abstract

O. Other sessions: O2 - Biodiversity and ecosystem services in South-East Europe: Research challenges and application issues towards a community of practice

New perspective in assessment and mapping the climate regulating ecosystem service under extreme polar conditions

Presenting author: Miglena Zhiyanski

Other author(s): Rositsa Yaneva

Affiliation: Forest Research Institute - Bulgarian Academy of Sciences, Bulgaria

Contact: zhiyanski@abv.bg

The extreme weather in Antarctica creates some of the harshest habitats in the world. Meanwhile the global warming trends also reflect on the polar ecosystems and cause rapid changes in unprecedented and unpredictable ways. Polar terrestrial ecosystems, and in particular those in Maritime Antarctica, are characterized by a predominance of primitive soils and unique below and aboveground biodiversity - this is especially distinctive of the southern Shetland Islands, where the presence of soil cover prevails in coastal areas. The notion of ecosystem services provides a platform for examining the impacts on the provision of regulating ecosystem services in Antarctica considering the climate change. Studies about the practical application of the ES concept in polar regions are still scarce. The present research tends to outline a new perspective in assessment and mapping the potential of different polar ecosystems to provide climate regulating service in a regional and local context. Biophysical assessment is conducted based on original data on a set of indicators for different types of ecosystems from a case-study area of Livingston Island. UAV are used for obtaining details about the land cover and to differentiate the ecosystems types. The information is analyzed to move from quantitative to qualitative assessment and mapping of climate regulating ecosystem service and to discuss current challenges in the methodology and the application of the concept in remote polar areas. In this regard, some important aspects of modern polar ecology are considered by making parallel assessment of polar ecosystems' condition, analyzing the content and reserves of organic matter in soils and the study of the potential of ecosystems to maintain habitats under extreme and changing climate.

Keywords: Antarctica, Livingston Island, ecosystems' condition, carbon stock, climate regulation

3. Type of submission: Abstract

O. Other sessions: O2 - Biodiversity and ecosystem services in South-East Europe: Research challenges and application issues towards a community of practice

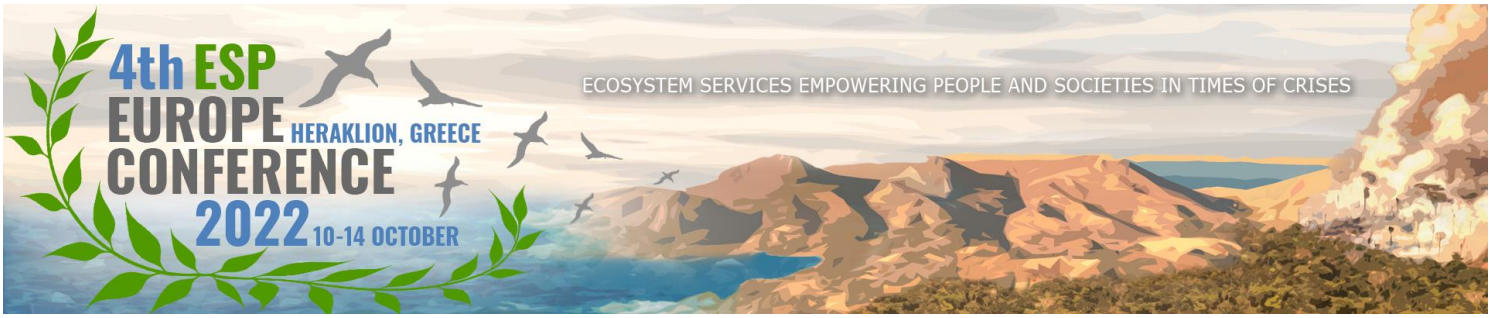
Current state of ecosystem accounting in Bulgaria

Presenting author: Boian Koulov
Other author(s): Stoyan Nedkov, Ivailo Rangelov, Radoslav Stanchev, Bilyana Borisova, Miglena Zhiyanski, Stelian Dimitrov, Lora Stoeva
Affiliation: National Institute of Geophysics, Geodesy and Geography, Bulgaria
Contact: bkoulov@gmail.com

The main goal of this overview is to present the current state of Ecosystem Accounting in Bulgaria. With direct funding from the European Union's Horizon 2020 Research and Innovation Programme, the country has succeeded to create, through the project Mapping and Assessment for Integrated Ecosystem Accounting (MAIA) under the leadership of the Netherlands' Wageningen University, a team of scholars and practitioners from its National Statistical Institute, the Executive Environmental Agency at the Ministry of the Environment and Waters, two institutes from the Bulgarian Academy of Sciences (the National Institute of Geophysics, Geodesy, and Geography and the Forest Research Institute) and Sofia University 'Saint Kliment Ohridski'. The collaboration, established between 2018 and 2022, has resulted in four national workshops with stakeholders from government institutions, public organizations, general public, policy makers, and researchers, as well as intensive exchanges with eighteen partners from ten EU Member States.

The presentation summarizes the identified country-specific policy priorities for the development of Ecosystem Accounting in Bulgaria, e. g., water regulation, forest ecosystem services, including extent and carbon sequestration, biodiversity, urban and cultural ecosystem services, especially for tourism, natural and cultural heritage appreciation. It outlines methods for the creation and testing, and the overall results from of the first seven pilot ecosystem accounts in the country that follow the most recent (2022) standard of the UN Statistical Commision - the 'System of Environmental-Economic Accounting- Ecosystem Accounting' (SEEA-EA). Lessons learnt, knowledge gaps and difficulties, as well as the support needs for developing natural capital accounts are also reported.

Keywords: ecosystem accounting, Bulgaria



4. Type of submission: Abstract

O. Other sessions: O2 - Biodiversity and ecosystem services in South-East Europe: Research challenges and application issues towards a community of practice

Ecosystem services mapping in protected karst areas in South-Eastern Europe - the EcoKarst project approach

Presenting author: Agnes Vari

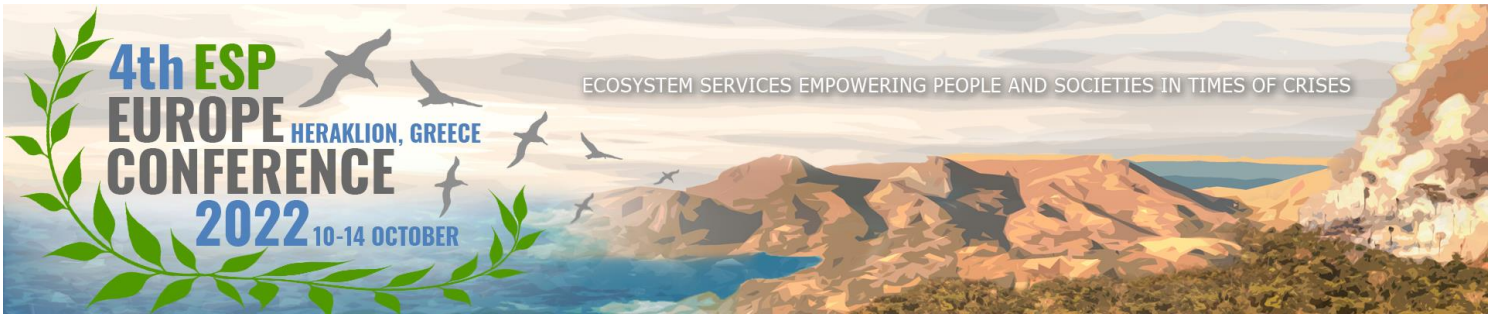
Other author(s): Sašo Gorjanc, Eszter Tanács, Réka Aszalós, Béla Kuslits, Anghel Drasovean, Alin Mos, Udo Gattenlöhner

Affiliation: McGill University, Canada

Contact: agnes.vari.sec@gmail.com

Nature conservation frameworks and implementation – along with the ecosystem services based approaches - are much better developed in Western parts of Europe, nevertheless, biodiversity is rather high in South-Eastern Europe, especially in karstic, protected areas. However, economic development in these regions can easily threaten and destroy these natural values. The project EcoKarst aimed to reconcile these two aspects (nature conservation and economic development) with the help of ecosystem services mapping in seven case studies in South-Eastern Europe. Biodiversity Investment Opportunities (BIO) maps were created, using participatory methods and an ecosystem services approach. The ecosystem services mapping methodology was developed so that managers of protected areas could implement the mapping themselves, giving easy to follow guidance on locally mapping ES. This mapping tool has thus the potential to be re-used in the future or be adopted in other areas as well. During EcoKarst, further steps based on the ES mapping were implemented with the delineation of BIO maps and Pro-Biodiversity Businesses. The implemented ES mapping exercise and the development of Pro-Biodiversity Business ideas involved park managers and other stakeholders as well, adapting participatory approaches to fit local requirements as far as possible. The procedures developed in EcoKarst can help to establish the use of ES mapping as a tool towards conservation in a South-Eastern European context.

Keywords: South-East Europe, conservation, sustainable development, biodiversity, protected areas



5. Type of submission: Abstract

O. Other sessions: O2 - Biodiversity and ecosystem services in South-East Europe: Research challenges and application issues towards a community of practice

Crosswalking national classifications of Bulgaria to the IUCN-Global Ecosystem Typology

Presenting author: Hristina Prodanova

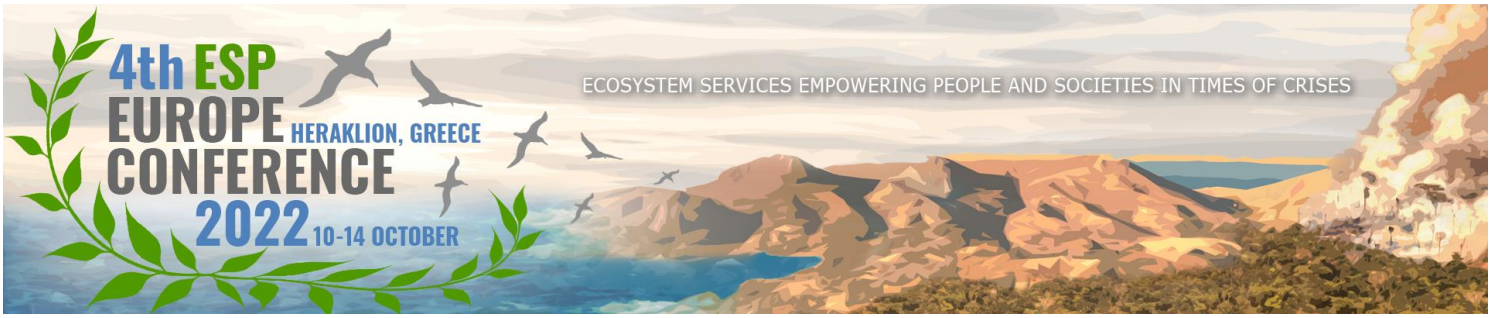
Other author(s): Gergana Petkova, Stoyan Nedkov

Affiliation: National Institute of Geophysics, Geodesy and Geography - Bulgarian Academy of Sciences (NIGGG-BAS), Bulgaria

Contact: hristina.zh.prodanova@gmail.com

The main outcomes from the study are intended to be used in a project which will develop a methodological framework for mapping, modeling and evaluation of water-related ecosystem services in order to implement nature-based solutions (NBS) in water management activities. The crosswalking of existing national classifications was made by correlating and assessing the levels of compliance of national ecological classifications with the IUCN-Global Ecosystem Typology (GET). Among the existing national ecological classifications in Bulgaria, we selected two: i) a MAES-based classification containing 9 types of ecosystems, and ii) a landscape classification and map of Bulgaria containing 26 types of landscapes in a scale of 1: 500 000. We reviewed and analyzed both classifications with focus on the hierarchical levels of the classifications, the determination criteria (required data) and the scale in which they are developed (level of details). In order to link the IUCN-GET ecosystem functioning groups to the existing classifications, we identified relevant criteria necessary for further testing in selected areas in the Ogosta river basin (North-West Bulgaria). The results show high correlation between global and national classifications. The review and analysis of the existing classifications of ecosystems and landscapes will lead to the systematization of the available information about the classifications worldwide and in Bulgaria. Linking national ecosystem classifications to the Global Ecosystem Typology will lead to a theoretical contribution from the project, namely a refined and verified typology.

Keywords: MAES, landscapes, nature-based solutions, mapping



6. Type of submission: Abstract

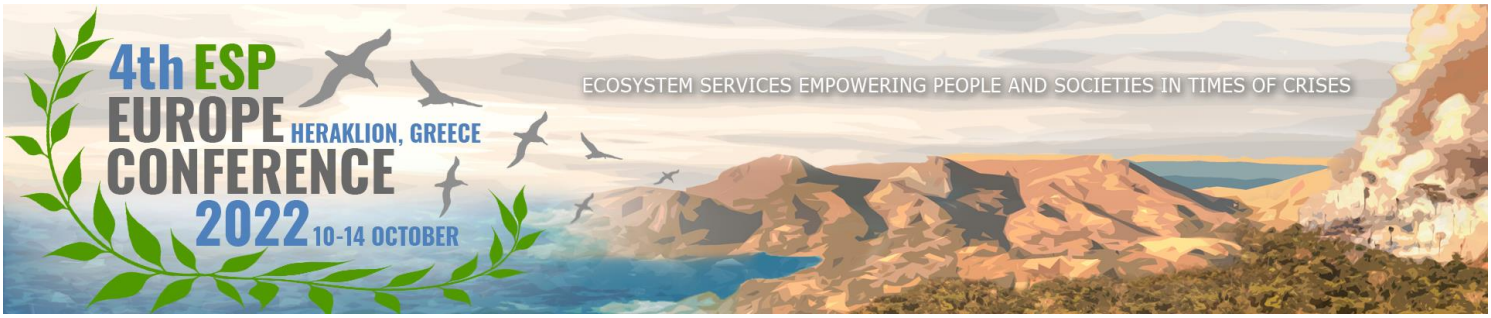
O. Other sessions: O2 - Biodiversity and ecosystem services in South-East Europe: Research challenges and application issues towards a community of practice

Multi-stakeholder collaboration and capacity building programme on integrating ecosystem services approach in policy and decision-making: A case study in North Macedonia

Presenting author: Katerina Atanasovska
Other author(s): Natalija Melovska, Marija Trencheva, Vlatko Trpeski, Sashko Jordanov,
Affiliation: Farmahem, Macedonia, The Former Yugoslav Republic Of
Contact: katerina@farmahem.com.mk

Since 2017, North Macedonia has been applying the Mapping and Assessment of Ecosystems and their Services (MAES) framework within the Nature Conservation Programme (NCP). The NCP is a project funded by the Swiss Agency for Development and Cooperation, whereas the Macedonian Ministry of Environment and Physical Planning have continuously supported the process. As in many other scientific disciplines, the gap between science and practice prevails as a challenge. This is especially accurate for the concept of ecosystem services (ES) and its introduction in North Macedonia. Therefore, the NCP developed a systematic approach for capacity building and networking of various stakeholders on a national level. The process started by designing an educational training package based on a needs assessment. The training consists of seven different ES-related modules, which include interactive theoretical and practical lectures. It ends with a study tour in order for the participants to have an opportunity to see a practical example of the ES concept application. The lectures themselves were developed and are performed by national and international experts. Numerous national institutions and organizations related to management and monitoring of natural heritage, decision and policy makers form the diverse stakeholder group of 35 representatives that follow the training. The modules have monthly dynamics and the selected participants are obliged to follow them in continuation. The training began in March 2022 and four modules have been successfully completed thus far. Evaluation of each module by the participants is an important contribution for future improvement. Besides strengthening the capacities of the stakeholder group, this training initiated establishment of a national ES network. Additional output is development of joint documents with proposals and recommendations on integrating ES in different strategic and planning documents, which will be submitted to the relevant government authorities.

Keywords: educational training, national network, policy improvement



7. Type of submission: Abstract

O. Other sessions: O2 - Biodiversity and ecosystem services in South-East Europe: Research challenges and application issues towards a community of practice

Status and deficiencies of ecosystem services practices in Turkey: Potential collaborations in South-East Europe

Presenting author: Nuket Ipek Cetin

Other author(s): Esra Başak, Can Vatandaşlar

Affiliation: Gebze Technical University, Turkey

Contact: nipekcetin@gtu.edu.tr

The ESP National Network of Turkey has recently conducted a national-scale review to shed light on Ecosystem Services (ES) practices in Turkey. In total 247 ES studies including peer-reviewed articles, national scientific publications, and grey literature (such as technical reports) were examined in terms of spatial scope, methodological approaches, and policy context. The prominent results emphasized that ES research in Turkey has mainly been steered by academia but increasing efforts in science-policy interface have also triggered studies within diverse policy sectors in recent years. The vulnerabilities of Turkey's geography especially regarding climate change impacts on leading economic sectors have been the main motivation for the assessed ES types mainly represented by Regulating ES category. Constraints in data availability, assessment methodologies and inadequate expertise have also resulted in relatively limited studies in monetary valuation, trade-off and transboundary ES flows analyses. Furthermore, the ES framework has not been well-integrated into protected area management which is essential for biodiversity conservation in the country.

As a result of these findings, this study reflects on the deficiencies of ES knowledge in Turkey by generating a roadmap on how to enlarge and integrate the ES framework to diverse policy contexts at various spatial scales. We believe that the roadmap can contribute to ensure the sustainability of natural ecosystems in the country and multiple ES they provide.

Keywords: Ecosystem services knowledge, understudied ecosystems, national assessment, Turkey, South-East Europe