



**INTERNATIONAL CONFERENCE:**  
**17 - 18 November, 2023**  
**Bucharest, Romania**



Environment at Crossroads: **SMART** approaches for sustainable future



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## CCMESI at 30 years of uninterrupted activity - An unique platform for young geographers passionate about deciphering the environment

**Prof. Dr. Maria Pătroescu**, founder of CCMESI, emeritus professor at the University of Bucharest, and honorary member of the Society for Urban Ecology:



*"Three decades have passed since the establishment of the Centre for Environmental Research and Impact Studies (CCMESI), the first research centre at the University of Bucharest. CCMESI emerged in response to society's need to train responsible specialists capable of **promoting** appropriate and tailored methods for deciphering the environmental internalities and externalities. It aimed to consciously **address** the new challenges of society and **support** the transition to a sustainable and resilient environment.*

*These three decades began with modest research activities that have multiplied and diversified with great perseverance and seriousness. The over 50 titular members, as well as the over 200 volunteer students (including undergraduate, master's, and doctoral students), have created a substantial reserve of specialists in the field of environmental research. They have significantly contributed to the progress of Romanian geography at both national and international levels. This achievement was made possible through constant investments in **research infrastructure** (especially the Species and Habitats Monitoring Centre in Eșelnița, Mehedinți county, and numerous integrated environmental assessment tools), the **development of young talents** (including scholarships at prestigious international universities and research institutes), and the **connection to national and international research networks** (especially in France, the United States, Germany, and Switzerland).*

*CCMESI has addressed European, national, regional, county, and local environmental issues, providing sustainable solutions for the protection and conservation of the environment. Some of these solutions have had a significant territorial impact, especially contributions to improving the conservation status of species and habitats of conservation interest in Romania and increasing the understanding of urban blue-green infrastructures. Thus, the Iron Gates Natural Park and the Putna Vrancea Natural Park are creations of CCMESI, which have designed new models for the social management of natural and cultural heritage.*

*By organizing the National Symposium of Geography Students annually, CCMESI has encouraged the competition among future environmental researchers from all universities where the geographical school has developed. We frequently find recognized specialists in geographical university centers, research institutes, national and local public institutions, private companies, or NGOs who have passed through the filter of this traditional event.*



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*Environmental conduct and awareness are formed over time, and CCMESI has invested in cultivating healthy volunteerism in the service of society and the environment. Through partnerships with other environmental institutions (an example being the Carpathian-Danubian Centre for Geoecology – CCDG), CCMESI has coordinated activities that have honed teamwork and the opportunity to take on responsibilities in maintaining environmental quality.*

*A solemn thought of remembrance for the one who left us this legacy, Professor Valer Trufaş. Surely, he is proud of what we have developed and diversified over the course of three decades in this institution called CCMESI.*

*My encouragement is to preserve the character of being an environmental school, an institution responsible for the modernization of geography, and the protection of the environment and its components."*

Bucharest 15.11.2023





## A. Applied Geomorphology

### The assessment of RUSLE model by bathymetric survey in an open system catchment

*Constantin Nistor<sup>1</sup>; Ionuț Săvulescu<sup>1</sup>; Gabriela Toroimac<sup>1</sup>; Sorin Carablaișă<sup>2</sup>*

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<sup>2</sup> Orșova Geographic Research Station

#### **Abstract:**

The assessment of RUSLE model by bathymetric technique for sediment volume evaluation was the subject of this research. On the Danube River was built in 1969 one of the biggest hydropower from Europe in cooperation with former Yugoslavia, the results being a huge reservoir with a length of about 120 kilometers and an increase in water level of about 20 meters which led to the flooding of tributary rivers mouths in this area. The methodology used combines the GIS approach for RUSLE model and sediments transfer function development in the Eselnița river basin with a field survey for sediment volume evaluation at the river discharge mouth. The sediment thickness distribution was revealed with the morphological profile which emphasizes the feature of relief before dam construction and actual submerged relief. The production of sediments indicated by the RUSLE model corresponds in a proportion of about 70% with the volume of sediments accumulated at the river mouth. We considered that the difference was the results of human activities introduced by embankment to gain new land used for construction. The reservoir behind the dam is a trap for sediments, one of the major problems for this kind of lake with negative feedback on functionality and touristic activities. The most important for communities are shallow water from river mouths, close to villages which ensure water space for docking, nautical sports, fishing, and swimming, which are the most affected by clogging.



**Siret Valley between Roman and Mărășești settlements – preliminary geomorphological approach**

*Iulian Săndulache<sup>1</sup>; Alexandra Rizac<sup>1</sup>; Cătălina Săndulache<sup>2</sup>; Mihaela Rașcu<sup>3</sup>; Florina Tatu<sup>1</sup>; Răzvan Oprea<sup>1</sup>*

<sup>1</sup> Faculty of Geography, University of Bucharest, Romania

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<sup>3</sup> “Dierna” Technological High School, Orșova, Mehedinți county, Romania

**Abstract:**

The Siret Valley is generally asymmetrical in the study area, with the left side being short and steep and the right side being long and gently sloping, on which the entire series of river terraces can be seen. In the current study, we attempted to determine which terrace of the Siret River is the highest in this area. This information could lead us to discern the paleogeomorphological evolution of the Pietricica Hill, the Zăbrăuți Platform, and the Tutova Hills, as well as the Siret Valley and the lower Troțușului Valley. Given that, the Pâncești Platform and the Zăbrăuți Platform are composed of Căndești gravels, which are not present in the Culmea Pietricica, being composed of Miocene conglomerates and abundant greschist, which suggests that the massive subcarpathian peak rose only recently (during the Quaternary; Brânduș first proposed this theory in 1979). According to the alluvial remains discovered, the highest terrace in Siret is located between 125 and 130 meters above sea level (east of Buchila village), and based on the morphology of the terrace bridges, at 170 – 190 m (Șoșușca, Dalul Rusului, Dealul Teiuș – Răcăciuni, the interfluvium between the Orbeni and Drăgușani streams, etc.). By identifying the type of soil on each morphological landform and using radiometric and paleontological dating to determine the age of the alluvial and deluvial material, we are attempting to accurately date the age of the terraces of the Siret, Lower Bistrita, and Lower Troțușul rivers. For this preliminary communication, we used cartographic materials from Ms. Lecturer's doctoral thesis. Dr. Florina Tatu and the field observations carried out by the authors of the study on Valea Siretului and Valea Bistriței in January and March 2022, February and March 2023.



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**Analysis of Gleic Proluvosol Profile and Morphological Properties in the Vicinity of Vitomiresti Village, Cotmeana Piedmont**

*Vasile-Octavian Cosmescu*

“Hariclea Darclee” High School of Arts, Braila, Romania

“Nicolae Titulescu” Technical High School, Însurăței, Romania

**Abstract:**

This study focuses on characterizing the gleic proluvosol in the Cotmeana Piedmont area near Vitomiresti Village. The research primarily involves determining soil horizons and their morphological properties, with a special emphasis on their structure. Three distinct horizons have been identified: A horizons, A/B, Bt, and C. The analysis has revealed pedogenetic processes, particularly gleization, associated with reduction and redox reactions, indicated by violet, rust, and yellowish tones. These processes are driven by the presence of the water table, confirmed by the discovery of a spring that feeds the soil. Additionally, soil skeleton particles were observed. The main conclusion is that these properties render the soil unsuitable for cereal crops due to its lack of fertility.



**Land use change effects on soil erosion: an integration between remote sensing and pedological approach towards sustainable soil-use solutions**

*Marina Vîrghileanu<sup>1</sup>; Ionuț Săvulescu<sup>1</sup>; Bogdan-Andrei Mihai<sup>1</sup>; Monica-Gabriela Paraschiv<sup>1,2</sup>; Carmen-Gabriela Bizdadea<sup>1</sup>*

<sup>1</sup> Faculty of Geography, University of Bucharest, Bucharest, Romania

<sup>2</sup> Romanian National Meteorological Administration

**Abstract:**

Soil erosion represents a global environmental issue and the main threat to soil sustainability, being described as the degradation of the fertile upper layer of soil, with serious consequences on land productivity. According to the European Union statistics, about 970 million of tones of soil is lost by erosion each year, and the mean soil loss by water is projected to increase by 13-22.5% in the EU and UK by 2050, mainly due to land cover/use and global climate changes (Soil Data Centre - ESDAC). Moreover, the actual concern is related to accelerated soil erosion, as any soil loss of more than 1 t ha<sup>-1</sup> yr<sup>-1</sup> can be considered as irreversible within a time span of 50-100 years (ESDAC). The aim of our paper is to analyse the spatial-temporal dynamics of soil erosion rates in relationship with the land use changes, during the last 30 years. The approach is focused on selected test sites from Romania and it is based on aggregating and processing Earth Observation (EO) techniques, including remote sensing imagery, in-situ measurements, spatial and temporal analysis and pedological approaches. The workflow follows two stages: 1) assessment of the present-day status of soil erosion; 2) modelling of the potential soil loss rates within the last 30 years, in relationship with land use practices and changes. Our results highlight the effects of various land use practices and changes on soil erosion, being a necessary step for forecasting the future soil loss rates and a decision-making tool for soil erosion prevention, mitigation, or soil conservation strategies. Our study aligns to the EU framework to preserve, protect and restore soil, contributing to the accomplishment of the EU objectives as the transition towards healthy soil for food by 2023 and the European Green Deal related to healthy and sustainable food systems.



**Geomorphological and geophysical investigations for detection of undercooled talus slope deposits in Romanian Carpathians**

*Răzvan Popescu; Toma Hoinic; Alexandra Pană; Marius Rădulescu; Alexandra Rizac*

Faculty of Geography, University of Bucharest, Bucharest, Romania

**Abstract:**

Periglacial talus deposits below the timberline from temperate regions are sometimes subjected to chimney circulation that produces high negative ground thermal anomalies and possible permafrost development even in conditions of mean annual air temperature well above 0°C. In Romania, the only such site with prolonged surface ice occurrence in the spring and even summer was reported at Detunata Goală from Metaliferi Mountains, at about 1050 m asl. The aim of this work is to investigate if chimney circulation is widespread across other low altitude talus slopes in Romania or Detunata is rather a singular case. The methods used are: i) geomorphological mapping of low altitude periglacial talus deposits using aerial images; ii) field investigation of vegetation and ground air circulation occurrence; iii) electrical resistivity tomography (ERT) survey and iv) continuous ground thermal regime monitoring using temperature data loggers. These investigations were applied on five screes located in Parâng and Buila-Vânturarița Mountains located between 1300 and 1700 m asl. Results revealed that one talus slope from Parâng has a strong manifestation of chimney circulation while other two screes revealed to be affected in a lower degree by this phenomenon. In opposition, talus from Buila-Vânturarița showed no signs of undercooling processes. We provide a preliminary discussion of the factors determining these differences.



### **Geospatial modelling of land multi-degradation at global and European levels**

*Remus Prăvălie<sup>1</sup>; Pasquale Borrelli<sup>2</sup>; Mihai Niculiță<sup>3</sup>; Bogdan Roșca<sup>4</sup>; Cristian Patriche<sup>4</sup>;  
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<sup>3</sup> Faculty of Geography and Geology, Department of Geography, Alexandru Ioan Cuza University, Iași, Romania

<sup>4</sup> Geography Department of Romanian Academy - Iași Divison, Iași, Romania

#### **Abstract:**

The international studies have generally ignored the complex nature of land degradation, which by its definition implies a multidimensional approach of multiple land degradation processes. To approach the multiple pathways of land degradation (or land multi-degradation), in this work we modelled and mapped the convergence pattern of five / twelve land degradation processes at global / European levels, using large-scale geographical databases that were processed and combined via appropriate geospatial and geostatistical GIS (Geographic Information System) techniques. By simultaneously considering multiple land degradation facets, we identified the most common pathways of land multi-degradation conditions across the global and European agricultural environments, which can be of critical importance for applying various agricultural, climate or sustainable development policies at global and continental levels.



## **Historical impact chains in Bucharest**

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Faculty of Geography, University of Bucharest, Romania

### **Abstract:**

Bucharest is one of the most endangered capitals in the world due to seismic hazard, as revealed by all global and regional hazard studies. Although located more than 130 km epicentral distance away from the Vrancea Seismic Source, significant peak ground acceleration (PGA) values, greater than 0.2 g, can occur in Bucharest. By constructing time and location-dependent impact chains, we are able to understand direct and indirect seismic risk. In this paper, we present multiple impact chain results for historical past events which were subject to forensic analysis. In order to understand impact chains, a large historical database including 39 large earthquakes with magnitudes over 6.5 that affected Bucharest between 1100 and 1900 was analysed. The Impact Chain provides an overview of the triggered hazard and an overview of its multi-sectorial impacts.



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### **Romania's geoheritage – theoretical paradigm, legislation and the need for assessment**

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#### **Abstract:**

This paper aims to present the way the geological and geomorphological heritage is reflected in Romania's literature and legislation, and especially the practical measures that are needed to better protect it and capitalize on it. Efforts to conduct geological and geomorphological heritage inventories can be noted in most European states, as well as on other continents, where national projects are being implemented. In Romania, both the legislative framework and activities focusing on the geological and geomorphological heritage are in relatively early stages of development, as no coherent and concerted approach has been defined yet and no geosite and/or geomorphosite inventory has been launched. There are a series of isolated initiatives to conduct inventories/assess said elements within the boundaries of various natural or administrative units, either as part of scientific studies or local government-led projects (Băile Felix Village; Vâlcea County; Apuseni, Harghita, Călimani, Ceahlău, Bucegi, Făgăraș Mountains; Mehedinți, Dobrogea Plateau etc.). A part of geoheritage elements are inventoried in Law 5/2000 in the broader category of protected natural areas, as natural monuments of geomorphological importance. The main measures to be implemented nationally should aim to: raise awareness among the population and local and central government bodies about the value of geosites and geomorphosites, enhance the sites' level of protection, stimulate the implementation of projects that provide relevant training (on sustainable site administration) to the personnel working in this field, improve site management, develop geotourism. Another main objective of the study is to produce a synthetic national map that would inventory and assess Romania's most important geoheritage elements.

**Spatio-temporal reconstruction of rockfall activity using dendrogeomorphological approach, in a forest stand in the Southern Carpathians**

*Adriana - Bianca Ovreiu; Constantin - Răzvan Oprea; Andreea Andra – Topârceanu*

Faculty of Geography, University of Bucharest, Romania

**Abstract:**

Rockfall is a common geomorphic process in steep mountain regions, which can cause considerable material and human damage. In order to mitigate the negative impacts of rockfall, it is essential to delineate hazard areas that require detailed reconstruction of past rockfall activity. Spatio-temporal analysis of rockfalls based on tree growth responses to impacts was carried out for the tourist geomorphosite "Stone Gate" at 1400 m (a.s.l.) in the Cozia Massif in the Southern Carpathians. The dendro-geomorphic reconstruction covers over 200 years of rockfall activity (1807 - 2022) and is based on the analysis of 100 cores and 70 discs taken at different stem heights from 40 *Picea Abies* (L.) Karst. The assessment allowed the dating of 1137 growth anomalies due to rockfall activities, of which 928 are different rockfall events, with an average recurrence interval of 5.4 years. The results of the study show the manifestation of processes with high frequency and low magnitude of rockfalls, without recording large-scale events, but most importantly the main direction of the release of rock fragments and the dynamics of the source area. Therefore, this work provides important information on the spatial patterns of rockfalls in the study area, which is very useful for the planning and design of the mountain terrain.



**Methodological context in the study of the geomorphological dynamics of the steep valleys  
in the Bucegi mountains**

*Valentin Jujea*

Simion Mehedinti Nature and Sustainable Development Doctoral School, University of Bucharest, Romania

**Abstract:**

To achieve this goal, detailed climate and weather data are collected from multiple sources, including local weather stations and satellite data. Using these data, the geomorphological characteristics of the valleys are identified and analyzed, including slopes, rivers and landslides. interpolation techniques are used to create detailed maps of temperature and precipitation in these areas. Also, future changes in temperature and landslides are modeled based on predicted climate scenarios.

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## B. GIS, Remote Sensing and Geotechnology

### Water quality index assessment by remote sensing and application of IoT (Internet of things) technology for the mobile monitoring of mountain streams and reservoirs

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<sup>1</sup> Sustainability Solutions Research Lab, University of Pannonia, Veszprém, Hungary

<sup>2</sup> National Laboratory for Water Science and Water Security, University of Pannonia, Veszprém, Hungary

#### **Abstract:**

The monitoring of the surface water quality in rural and isolated areas is a significant challenge due to the lack of connectivity and human intervention. These challenges can lead to problems in assessing and providing safe and clean water sources. Innovative solutions such as on-line water parameter measuring stations are essential to solve these problems. These solutions leverage technology, automation and data analytics to make water quality monitoring more accessible and efficient, even in areas with limited resources and connectivity. These improvements can have a positive impact on public health and the environment by providing timely and accurate information on water quality. The online water quality monitoring system, based on IoT (Internet of Things) technology, can monitor water quality in real time and dynamically and can serve the country's strategic water resource requirements. It can also be applied to transboundary water bodies, as international cooperation and coordination is particularly important because activities in one country can have an impact on the water quality of another country and the ecosystem of the whole region. It is therefore essential that the policy makers, specialists, NGOs and stakeholders work together to ensure sustainable water management and water quality. The results can contribute to water management plans for different water bodies and can be incorporated into the design and implementation of sustainable management measures, as significant changes in phosphorus and nitrogen concentrations in a water body due to anthropogenic activities can have a major impact. For the case of the Dumbravita, Homorod stream in Transylvania, the impact of a natural nutrient load from waterfowl during the migration period 2020-2022, with a combined contribution of phosphorus (up to 6.6% of P at the outlet) was significant as it is a phosphorus limited wetland, while the nitrogen contribution was sometimes up to 0.7% at the outlet.



### **Mapping retrogressive thaw slumps in Svalbard using SBAS and Sentinel-1 imagery**

*Ionuț Șandric, Laura Țîrlă, Mirela Vasile, Răzvan Popescu, Radu Irimia*

Faculty of Geography, University of Bucharest, Romania

#### **Abstract:**

The study of retrogressive thaw slumps, one of the most prominent indicators of permafrost degradation in Arctic and subarctic regions, has gained significant attention in recent years due to their potentially severe environmental and infrastructural impacts. Sentinel-1 satellite imagery, with its Synthetic Aperture Radar (SAR) capabilities, has proven to be a valuable tool in monitoring and mapping these thaw slumps. Retrogressive thaw slumps, characterized by the gradual collapse of permafrost terrain, pose many challenges, including erosion, carbon release, and habitat disruption. Accurate monitoring and mapping of these slumps are essential for understanding their dynamics and predicting future changes. Sentinel-1, a European Space Agency satellite mission, offers high-resolution SAR data with frequent revisit times, making it an ideal data source for tracking thaw slump development. The Small Baseline Subset (SBAS) technique, an advanced interferometric SAR processing method particularly well-suited for monitoring land surface deformation, has been successfully applied in various geodetic and environmental studies. In the context of retrogressive thaw slumps, SBAS provides a robust means of detecting and quantifying ground displacement, thereby aiding in the accurate mapping of these dynamic features. The current case study is located in Longyearbyen city from Svalbard, Norway, where a landslide occurred in October 2016, blocking a local road for more than 24 hours. Sentinel-1 imagery from 1st June to 30th October 2016 has been downloaded, and an SBAS analysis was performed. The results clearly present the active layer dynamics during the summer period in the Svalbard region. The cross intersection of the land deformation maps obtained from the SBAS analysis with the landslide inventory available for Svalbard led to the identification of the most probable areas where landslides can occur because of the permafrost thawing., in the area of Longyearbyen town.



**A Tree-Level Hierarchical Model for Detecting Plastic Marine Debris from Medium-Resolution Sentinel-2 Images: the Case Study in the Adriatic Sea off the Coast of Bari**

*Alessandra Capolupo, Pietro Marco Santoro, Eufemia Tarantino, Alberico Sonnessa*

Department of Civil, Environmental, Land, Construction and Chemistry (DICATECh),  
Politecnico di Bari

**Abstract:**

Floating marine litter has lately been identified as a critical ecological hazard that must be addressed. In fact, a significant amount of macroplastic debris, arising from human activities and frequently infiltrating marine and coastal ecosystems, whether purposefully or unintentionally, affects all seas and oceans globally. For these reasons, it is crucial to identify the most effective methods for detecting these materials and developing the most efficient means to remove them from the marine ecosystem. Unlike traditional ship-based surveys, which are prone to inherent data uncertainty, optical remote sensing offers new opportunities for detecting macroplastic litter across extensive areas. This not only reduces data acquisition and processing time but also minimizes inherent errors. This research's primary objective is to develop a tree-level hierarchical model using the Floating Debris (FDI) and Normalized Difference Vegetation (NDVI) Indices to extract macroplastics from medium-resolution Sentinel-2 images in the Adriatic Sea off the coast of Bari over a ten-year period (2015-2023). The entire method was conducted within the cloud-based platform Google Earth Engine and the QGIS environment. After filtering the Sentinel 2 dataset and specifying a maximum cloud cover of 5%, a geodatabase was created. These selected images were then corrected using the Atmospheric Correction for OLI light algorithm. Land and cloud masking procedures were applied as necessary, and the resulting data served as input for the indices. FDI distinguished plastics from water and organic matter, while NDVI separated floating vegetation from other substances. The results were integrated into a customized tree-level hierarchical model, specifically developed to generate the final outcome for the study area, showing promising results, however more testing on additional pilot locations is required. The study also underscored the limitations of Sentinel-2 image resolution for addressing research objectives.



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**A Multidisciplinary Approach for Enhancing Tourism Experience Through VR and AI: A Case Study of the Princely Court of Iași**

*Lucian Roșu; Mihai Bulai*

Faculty of Geography and Geology, Alexandru Ioan Cuza University of Iasi, Romania

**Abstract:**

This study delves into the dynamic intersection of technological innovation and cultural heritage, focusing on the application of Artificial Intelligence (AI) and Virtual Reality (VR) technologies to enhance the tourism experience at the Iasi Princely Court in Romania. This historical site replaced by nowadays Palace of Culture necessitates a modern approach to engage contemporary tourists. Traditional methods of conveying historical narratives through static exhibits and conventional guided tours may fall short in captivating the interests of tech-savvy visitors. To address this challenge, the research presents a pioneering approach that harnesses AI and VR to deliver an immersive and educational encounter. AI algorithms are harnessed to process extensive historical datasets, including texts and images, enabling the creation of vibrant, interactive narratives. These narratives are seamlessly integrated into a VR environment, enabling tourists to virtually step into the past and actively participate in crucial historical events. The VR experience affords visitors the opportunity to explore the architectural splendor of the royal court, engage with historical figures, and gain profound Initial findings highlight the efficacy of the AI-VR experience in providing both informative and emotionally engaging encounters, resulting in more memorable and enjoyable visits to the Iasi Princely Court. In addition to its immediate impact, this research highlights the substantial potential of AI and VR technologies to rejuvenate historical sites and resonate with a digitally native generation of tourists. The insights offered herein are invaluable for heritage site managers, tour operators, and policymakers seeking innovative strategies to foster cultural heritage and stimulate tourism. In summary, the integration of AI and VR holds great promise in the preservation and promotion of historical landmarks, offering tourists an enchanting journey through time while simultaneously ensuring the cultural heritage's lasting legacy.



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**Geomorphological mapping of permafrost and thermokarst landforms in Northern Fennoscandia using Earth observation methods**

*Maria-Laura Tîrlă; Mirela Vasile; Ionuț Șandric*

Faculty of Geography, University of Bucharest, Romania

**Abstract:**

Permafrost thawing is a striking environmental issue of global concern that affects the arctic environments and their alpine counterparts due to climate changes. In Northern Europe all the permafrost classes (continuous, discontinuous, sporadic, and isolated) can be observed and monitored. The purpose of this study is to develop/apply the U-net deep-learning algorithm able to recognize and extract from satellite images diagnostic features and landforms for permafrost degradation in the Arctic region of Europe. We performed fieldwork and drone survey to detect permafrost and thermokarst-related landforms and features on three key sites in northern Sweden and Finland. The high-resolution satellite imagery provided by ArcGIS basemap service was employed for geomorphological mapping of more than 1700 polygon features. A first model run provided good results on the spectral response of water bodies and vegetation type, and poor results on feature shape. The best precision was achieved for thermokarst lakes (>80%), a moderate precision for palsas and peat plateaus (40-50%), and very low precision for wetlands and stone circles. These preliminary results are useful for the adjustment of sampling strategy, targeting a greater number of diagnostic geomorphological features for permafrost thawing and the expansion of thermokarst terrain.



**Geospatial analysis of the environmental pressures of natural factors affecting nutrient pollution of fresh surface waters**

*Piroska Tóth<sup>1</sup>; Zsófia Kovács<sup>1</sup>; Bálint Levente Tarcsay<sup>1</sup>; Dan Traian Ionescu<sup>2</sup>; Endre Domokos<sup>1</sup>*

<sup>1</sup> University of Pannonia, Veszprém, Hungary

<sup>2</sup> Transilvania University of Brașov, Brașov, Romania

**Abstract:**

Surface waters and waterbirds and water management are linked in efforts to conserve habitats for endangered populations. Waterbirds depend on a dispersed network of wetlands for their annual migration, threatened by climate and land use changes triggering ecological and socioeconomical impacts affecting their availability and quality. During migration, waterfowls can be present in large enough numbers to influence water quality themselves. However, guidelines do not account for natural changes of water quality, such as the migration of birds. This research aims to analyze the correlation between migratory waterbird species and water quality using principal component analysis (PCA) in the Dumbrăvița section of the Homoród. After analysing the annual changes in water quality, a regression model was established and tested using Principal Component Regression (PCR) to identify any links using a four-year dataset on water quality and the number and species of birds in the region by the first author. Correlations and matching tendencies were found between literary data and our results about the effects of migratory birds on water composition and quality, yielding new conclusions. The established PCR water quality prediction model showed adequate abilities to estimate changes in the Water Quality Index (WQI) in the area with an R<sup>2</sup> of 0.81 and a Mean Squared Prediction Error (MSPE) of 0.17.

The research presented in the article was carried out within the framework of the Széchenyi Plan Plus program with the support of the RRF 2.3.1 21 2022 00008 project.

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**Disappeared tourist attractions on Strada Justitiei, reconstructed in cartographic documents**

*Anca Munteanu*

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**Abstract:**

Strada Justitiei is one of the streets on which there are numerous tourist attractions represented by churches, monasteries, Carol Park. It is located on the western side of Mitropoliia Hill, connecting Antim Monastery and Garmont Street. On it is the Church of St. Nicolae Vladica, from the intersection with Strada Regina Maria. It is one of the access streets to Carol Park. The Antim Monastery is hidden behind the blocks on Unirii Boulevard. The part of buildings in this area escaped the communist demolitions. Before, it started from the Right of the Postăvari White Church, which was demolished, as well as the northern part, where the House of the People and the Constitution Square are. It is one of the particularly important streets near the Mitropoliia Hill. The historical-geographical analysis highlights the way in which this area is found over time.



### **Pedestrian accessibility to urban parks in the city of Constanța, Romania**

*George-Marius Cracu<sup>1</sup>; Andrei Schvab<sup>1</sup>; Zoia Prefac<sup>1</sup>; Marius Popescu<sup>2</sup>; Igor Sîrodoev<sup>1</sup> George Secăreanu<sup>1</sup>*

<sup>1</sup> University Ovidius of Constanța, Romania

<sup>2</sup> National Institute of Statistics, Ialomița County Statistics Direction, Romania

#### **Abstract:**

The rapid urbanization of our cities presents a growing challenge to the well-being and quality of life of urban inhabitants. The accessibility of green spaces have emerged as one of the pivotal factors in mitigating the adverse effects of urbanization and enhancing the urban living experience, due to the benefits that green spaces bring to communities, such as increasing physical health, mental well-being, social cohesion, and environmental sustainability.

This study employs the Two-Step Floating Catchment Area (2SFCA) method in Geographic Information Systems (GIS) to comprehensively evaluate pedestrian accessibility to urban parks in the city of Constanța, Romania. Through the integration of spatial analysis and demographic data, this research assesses the distribution of urban parks and their accessibility to the urban population. The 2SFCA method allows for a dynamic evaluation of service areas around green spaces, considering factors such as proximity, urban parks areas, and population demand.

The results of this study reveal an unevenly distribution of urban parks and both low general values and important territorial differentiations regarding the pedestrian accessibility of the population to urban parks. The western and southern parts of the city, as well as the newly built neighborhoods present the lowest values of accessibility, while the central and eastern parts of the city present the highest values of accessibility. These findings can have important implications in the process of sustainable urban planning of a city that encouraged residential construction (19.1% increase from 1990 to 2021) at the expense of green spaces and quality of life of its inhabitants.



**Changes in the structure of tourist attractions in the Piatra Craiului National Park, reflected in cartographic documents. Curmătura area case study**

*Anca Munteanu*

Faculty of Geography, University of Bucharest, Romania

**Abstract:**

The historical-geographical analysis of a mountain area highlights certain aspects of changes in the structure and distribution of the tourist infrastructure, of cabins, tourist refuges, stables, but also of other environmental problems, such as the distribution of vegetation. This case study from the eastern slope highlights certain changes due to the extreme processes, the avalanches that destroyed two cabins and tourist refuges. These historical-geographical analyzes are particularly important because each pack presents certain situations from the period of years when it was realized. The oldest map used in the study is from the 1930s, and the last one is from the tourist guide made in Piatra Craiului by the National Park administration, but satellite images are also used.



## **The utility of geospatial information in emergency services**

*Alexandra-Diana Bălan*

Faculty of Geography, University of Bucharest, Romania

### **Abstract:**

Emergency services in Romania are specialized intervention agencies (structures) that ensure the immediate resolution of specific emergency problems. They are either public (of general interest, coordinated by public administration authorities and available to all citizens), or private. In Romania, the main specialized emergency services of national interest are the Romanian Police, the Romanian Gendarmerie, the Ambulance Service, Community public services for emergency situations, Other professional or voluntary public services for emergency situations, Other structures established by Government decision. The current work aims to inventory the geospatial data sources available at the level of the city of Bucharest.



**Assessing hillslope dynamics through morphometric and morphographic analysis of the terrain, using GIS techniques. Case study: Dâmbovița and Prahova Subcarpathians (Curvature Subcarpathians)**

*Robert Răzvan Dobre; Eduard-Cristian Popescu*

Faculty of Geography, University of Bucharest, Romania

**Abstract:**

In order to be able to obtain an image of the degree of unfolding of the erosional processes in the present time, measurements were made on the erosional forms for which they also existed on the topographic maps of the past. Therefore, certain areas with high susceptibility were defined, an average calculation of their advance could be estimated and of course, a series of preparations to reduce this probability of triggering. In the case of landslides, they can best be visualized and analyzed both by field research and topographic maps, but delineation by orthophotomaps and GPS measurements in the field can also be taken into account.

Through this study I combined the information obtained from the bibliographic materials published in the online environment and cartographic materials with GIS techniques to create maps and analyzes that ultimately lead to the creation of representations regarding hypsometry, geodeclivity, the exposure/orientation of the slopes, the depth of relief fragmentation/relief energy, as well as other similar aspects.

Therefore, the study will consist of the use of spatial geographic data (processing them from ArcGIS), mapping (the topographic map with the scale 1:25.000) and, last but not least, the processing of the collected data. So, considering the previously mentioned aspects, in total, I will carry out a concise analysis of the geomorphological potential in my study area, focusing on the dynamics of the slopes. The relevance of the work is based on the awareness of the importance of GIS techniques applied at the level of this region. They must represent a priority of the regional development policy, so that the improvement of the infrastructure is therefore a necessity for the development of the communities.

👁 [POSTER VIEW](#)



### **Rapid mapping and volume estimation of landslides using UAVs**

*Radu Irimia<sup>1</sup>; Ionut Sandric<sup>1</sup>; Viorel Ilinca<sup>2</sup>; Zenaida Chitu<sup>3</sup>; Ion Gheuca<sup>4</sup>*

<sup>1</sup> Faculty of Geography, University of Bucharest, Romania

<sup>2</sup> Geological Institute of Romania, Romania

<sup>3</sup> National Meteorological Administration, Romania

<sup>4</sup> National Institute of Hydrology and Water Management, Romania

#### **Abstract:**

Unmanned aerial vehicles (UAVs) have proven to be effective tools for rapid mapping and volume estimation of landslides. By collecting high-resolution aerial imagery and using photogrammetry techniques, it is possible to create accurate 3D models of landslide areas and calculate their volume. This method allows for faster and safer mapping of landslides, especially in areas that are difficult to access or hazardous for ground-based measurements. The use of UAVs for landslide mapping and volume estimation has the potential to improve our understanding of landslide mechanisms and help. The study aims to understand how landslides in a specific area change in terms of volume and location over time. The case study is conducted in the Livadea village, situated in the Teleajen Subcarpathians, part of the larger Curvature Subcarpathians region in Romania. The study is in response to a landslide that occurred on May 3, 2021, in the Livadea village. This event serves as the basis for the research. The study area is characterized by a heterogeneous lithological constitution, including clay, marl, and sandy facies. The terrain features moderate slopes and rounded interfluves, which make it susceptible to slope processes like landslides and ravines. The geological and geomorphological conditions in the Curvature Subcarpathians region create an environment conducive to modeling terrain processes, particularly landslides and ravines. In this case study, the primary objective was to assess the volume of earth that had been displaced during different stages of the landslide's dynamics. This assessment was carried out by utilizing data gathered from Unmanned Aerial Vehicle (UAV) flights conducted at various time points to record changes in the landslide-affected area. This efficiency is crucial for disaster management and mitigation efforts, as it enables authorities and responders to take appropriate actions swiftly to reduce the impact of landslides on the affected area and its inhabitants.



## C. Monitoring the weather and climate to reduce their impacts and effects

### Urban land use imprint on land surface temperature in the main cities of north-eastern Romania

*Lucian Sfică<sup>1</sup>, Pavel Ichim<sup>1</sup>, Claudiu-Ștefănel Crețu<sup>2,3</sup>, Vlad-Alexandru Amihăese<sup>2,4</sup>*

<sup>1</sup>Faculty of Geography and Geology, Department of Geography Alexandru Ioan Cuza University, Iași, Romania

<sup>2</sup> Doctoral School of Geosciences, Alexandru Ioan Cuza University, Iași, Romania

<sup>3</sup> Active Interventions in Atmosphere PLC, Bucharest, Romania

<sup>4</sup> Department of Climatology, National Meteorological Administration, Bucharest, Romania

#### **Abstract:**

The current presentation outlines the main features of Land Surface Temperature in relation with urban land use in the 4 largest cities in north-eastern Romania (Iași, Bacău, Botoșani and Suceava). The analyzed cities present an urban structure modelled especially by their recent and current evolution, with the largest imprint of the residential and industrial areas developed intensively in the communist period, followed during the recent years by the shift of the decaying industrial areas toward commercial units and by a new phase of rather chaotic residential outburst.

In order to classify the urban land use we assessed local climate zones in these cities using Local Climate Zones (LCZs) generator, resulting in the identification of eight LCZs, with the largest extension being specific to compact midrise and open midrise, covering approximately 40% of the cities' surface. The accuracy of the LCZ delimitation ranges from 0.80 to 0.90. LANDSAT LST was used as thermal image for 1983-2021, these long series of LST observation enabling a multiannual trend analysis of the main two LCZs in the analyzed cities.

The results of this study synthesize the progress made in assessing urban climate conditions in the cities of north-eastern Romania, in the framework of UCLAR project, and are intended to serve as a basis for mitigation policies to be developed by local and regional stakeholders for the sustainable development of these cities in the actual context of climate change.

Acknowledgement: This work was supported by a grant of the Ministry of Research, Innovation and Digitization, CNCS - UEFISCDI, project number PN-III-P1-1.1-TE-2021-0882, within NCDI III.



### Observed variability and future projections of urban heatwaves in Romania

*Sorin Cheval<sup>1</sup>; Vlad Amihăesei<sup>2</sup>; Adina Croitoru<sup>3</sup>; Alexandru Dumitrescu<sup>3</sup>; Csaba Horvath<sup>3</sup>; Dana Micu<sup>2</sup>*

<sup>1</sup> National Institute for Research and Development in Forestry (INCDS) “Marin Drăcea”

<sup>2</sup> National Meteorological Administration

<sup>3</sup> Babeș-Bolyai University, Cluj-Napoca, Romania

#### **Abstract:**

Heat hazard induces increasing pressure on urban areas as a result of the combined impact of climate change and urbanisation. The Heat Waves (HWs) supplement the heat excedent in cities under the present climate, and the ongoing global warming is very likely to exacerbate the impact on the Urban Heat Island (UHI), especially in big cities. This study focuses on the heatwaves characteristics under the present and future climate in the urban areas of Romania. We analyse multiple dimensions of the HWs (frequency, magnitude, amplitude and duration) to provide an improved understanding of the exposure to heat stress under present-day and future climate warming in the county cities of Romania, including the capital city of Bucharest. The study examines the variability and change in the distinctive characteristics of daytime and nighttime HWs using CLIMPACT indices centred on the excess heat factor (EHF) and exceedance of the 90th percentile of daily maximum (TX90) and minimum (TN90) temperatures. For this purpose, the study employs daily time series of maximum and minimum temperature from 42 weather stations of the National Meteorological Administration (1961-2020) and ensemble RCM-GCM EUROCORDEX climate projections (2031-2060), bias corrected with observations, under RCP4.5 and RCP8.5 scenarios. The results show that under the present-day climate, there is a generalised increase in all HW characteristics, with over 70–90% statistically significant increases in most cases ( $p$ -value $<0.05$ ). The observed change signal is particularly strong for the TX90 and EHF HWs and diminished for the TN90 HWs. In the future, the observed signal is expected to persist and intensify under both climate scenarios, suggesting an amplification of nighttime heat stress. This study has been funded by the project Synergies between Urban Heat Island and Heat Wave Risks in Romania: Climate Change Challenges and Adaptation Options (SynUHI) PN-III-P4-PCE-2021-1695.



**Aspects concerning the optimal precipitation requirement for winter wheat in the Extracarpathian area of the Meridional and Curvature Carpathians (Romania)**

*Dana Maria Constantin (Oprea)<sup>1</sup>; Nicoleta Ionac<sup>1</sup>; Elena Grigore<sup>1</sup>; Daiana Giorgiana Lüftner<sup>2,3</sup>; Gabriel Raul Ilea<sup>2,3</sup>*

<sup>1</sup> Faculty of Geography, University of Bucharest, Romania

<sup>2</sup> Simion Mehedinti Nature and Sustainable Development Doctoral School, University of Bucharest, Romania

<sup>3</sup> National Meteorological Administration, Romania

**Abstract:**

The annual variability of climatic factors manifests in the year-to-year fluctuations in agricultural yields. Examining how climate variability affects agricultural crops can help us take preventive, mitigative, or corrective measures against the harm it inflicts on farming. This study's primary objective is to scrutinize the precipitation regime in the Extracarpathian area of the Meridional and Curvature Carpathians concerning the optimal water precipitation needs of winter wheat. To analyze precipitation variability, we will rely on monthly precipitation data collected from 19 weather stations operated by the National Meteorological Administration over the 1991-2020 period. Our research methodologies incorporate logical, spatial, and comparative analyses of climatic and production data, in-depth literature exploration, and the application of Geographic Information System techniques. Throughout this research period, annual precipitation ranged from 240.5 mm at the Sulina weather station to 727.7 mm at the Râmnicu Vâlcea weather station. Regarding the productivity of winter wheat, yields within the study area revealed a broad spectrum, ranging from 1,429 kg/ha to 4,888 kg/ha. The substantial fluctuations of precipitation, alongside the influence of other climatic factors on the growth and development of winter wheat, result in conditions that either align with or deviate from optimal requirements, consequently leading to year-to-year variations in harvests.



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**Bucharest, Romania**

Environment at **Crossroads**: **SMART** approaches for sustainable future



**Spatial analysis of global wind power potential**

*Georgeta Bandoc; Remus Prăvălie; Adrian Tișcovschi*

Faculty of Geography, University of Bucharest, Romania

**Abstract:**

This work aims to geographically analyze the distribution and intensity of onshore wind resources, globally, continentally and nationally, using the wind power potential as a relevant parameter for the assessment of wind resources across the world. Using GIS (Geographic Information System) techniques and one of the most updated global databases of wind power density, we identified, mapped and assessed the most important hotspots of abundant wind resources throughout the planet. Our geospatial results showed an overall image of wind power potential existing worldwide, which can be a useful scientific support for the global transition towards a carbon-free economy, by potentially helping the world's governments better understand and use their wind resources available at regional or local levels.



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**Bucharest, Romania**

Environment at Crossroads: SMART approaches for sustainable future



**A new method to identify urban heat island hotspots**

*Adina-Eliza Croitoru<sup>1</sup>; Zsolt Magyari-Saska<sup>1</sup>; Csaba Horvath<sup>1</sup>; Sorin Cheval<sup>2</sup>*

<sup>1</sup> Faculty of Geography, Babes-Bolyai University, Romania

<sup>2</sup> National Meteorological Administration, Romania

**Abstract:**

The escalating prevalence of Urban Heat Islands (UHIs) poses significant challenges to urban environments and human well-being. In response, we propose a novel methodology to identify Urban Heat Island Hotspots (UHIHs) to address the urgent need for effective management and mitigation strategies. Our research introduces the innovative concept of direct hotspot ranking, providing a framework for urban planning stakeholders to prioritise areas for regeneration based on UHIH severity. This approach greatly improves the effectiveness of interventions to mitigate the adverse impacts of UHIs on urban environments and public health. This methodology relies on percentile-based thresholds, establishing minimum acceptable values for individual cells and hotspot mean values. This underscores the critical importance of incorporating threshold percentiles and considering the spatial coverage of the study area. Through extensive experimentation with various threshold pairs, we identified the most suitable thresholds for further application, considering both LST and non-climatic factors, such as urban fabric and imperviousness. This novel feature enhances the effectiveness of our method by prioritising the assessment of UHIHs based on their severity. It provides a valuable tool for data-informed decision-making in urban planning and climate mitigation. This enables urban planners and stakeholders to allocate resources and interventions more strategically, focusing on areas with the most pressing UHI concerns, thereby maximising the impact of their efforts in enhancing urban resilience and sustainability. This feature underscores our approach's practical applicability and policy relevance in addressing the increasingly critical challenges posed by UHIs in contemporary urban environments.



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**Microclimatic and Topoclimatic Characteristics of Bucharest Municipality. Case Study**  
**August 2023**

*Isabelle Coiciu; Sorin Constantin Stegărescu*

Faculty of Geography, University of Bucharest, Romania

**Abstract:**

In this paper, we aim to study and understand the microclimatic and topoclimatic differences within the area of Bucharest Municipality. Through the collection and analysis of meteorological data obtained from the field, the paper will map and quantify the differences in the main meteorological elements (air temperature and humidity, wind) between the three meteorological stations belonging to the National Meteorological Administration (Filaret, Băneasa, and Afumați) and the two observation points (active asphalt surface and grassy surface) selected for this study, considered representative due to their geographic location within the city (central area – Piața Revoluției and Cișmigiu Garden). As a result, we will analyze the characteristics of green microclimate in comparison to the urban active surface microclimate, represented by asphalt. The purpose of this paper is to conduct a scientific study that aims to highlight the characteristics of the two microclimates and emphasize the distinctions between the two observation points within the urban topoclimate of Bucharest.



## **Assessing International Environmental Impact Assessment (EIA) Practices for Climate Change Adaptation**

*Andreea Niță<sup>1,2</sup>; Stacey Fineran<sup>3</sup>; Weston Fisher<sup>4</sup>; Laurențiu Rozyłowicz<sup>1,2</sup>*

<sup>1</sup> Faculty of Geography, University of Bucharest, Romania

<sup>2</sup> Centre for Environmental Research and Impact Studies, University of Bucharest, Romania

<sup>3</sup> Ohio State University, College of Food, Agricultural, and Environmental Sciences, School of Environment and Natural Resources, United States of America

<sup>4</sup> International Association for Impact Assessment

### **Abstract:**

In response to climate change, the Paris Agreement established a set of goals for meeting the 2050 climate neutrality objective and limit global warming through all policies. Right from the beginning of its implementation, the Environmental Impact Assessment (EIA) procedure aimed to minimize and reduce the impacts of projects that could cause major damage on the environmental components, which could otherwise be irreversible. Although the procedure is implemented somewhat differently internationally, there are several similarities regardless of the legislation of each country that implements it. At the same time, even though there are criticisms about the shortcomings of the procedure, we can say that EIA is an essential tool that could contribute to the implementation of projects so that they consider climate change adaptation. We conducted research that surveyed IAIA members around the world to see what good practices are used in their countries of origin (or where they work) to use EIA in adapting to climate change. The feedback obtained from experts and researchers in the field was processed to identify patterns, trends, and emerging paradigms in EIA practices as they relate to climate change adaptation. The survey results contain information that demonstrates the IAIA community's potential to contribute its expertise for effective climate change action. Our findings will draw on models and expertise worldwide and help increase engagement to advance EIA social and environmental oversight processes for climate change mitigation and adaptation.



**The observed changes in the precipitation regime in Romania – as a premise for the river restoration**

*Dana Maria Constantin (Oprea)<sup>1</sup>; Adrian Amadeus Tişcovschi<sup>1</sup>; Giorgiana Daiana Lüftner<sup>1,2</sup>; Raul Gabriel Ilea<sup>1,2</sup>; Gabriela Ioana Toroimac<sup>1</sup>; Elena Grigore<sup>1</sup>; Ionuț Andrei Șandor<sup>1</sup>; Gabriela Adina Moroșanu<sup>3</sup>; Cătălina Stoica<sup>4</sup>*

<sup>1</sup> Faculty of Geography, University of Bucharest, Romania

<sup>2</sup> National Meteorological Administration, Romania

<sup>3</sup> Institute of Geography, Romanian Academy, Romania

<sup>4</sup> National Research and Development Institute for Industrial Ecology, Romania

**Abstract:**

In the context of global warming, there has been an observable uptick in the frequency of extreme weather events, characterized by rapid shifts between periods of excessive precipitation leading to floods and phases of deficient precipitation causing drought. A comprehensive understanding of the spatiotemporal variability in the precipitation regime is fundamental for establishing extensive guidelines for river restoration endeavors. The main objective of this study centers around examining the variability alterations in the precipitation regime within Romania. In the study there were used monthly and maximum daily precipitation amounts from 23 weather stations belong to the National Meteorological Administration. The dataset spans the temporal continuum from 1981 to 2020. The analysis of alterations in the precipitation regime is supplemented by the computation of linear trends and their statistical significance, performed at both the annual and seasonal scales through the application of the Mann-Kendall statistical test. Variations in the average decadal precipitation values exhibit fluctuations from one decade to the next, yet without significant deviations. The predominant trend in average monthly precipitation amounts leans towards a decrease, although it does not attain statistical significance according to the Mann-Kendall test. In the transitional temperate continental climate of Romania, the substantial temporal variability in precipitation presents a potential impediment to the sustainable progress of river restoration initiatives.



## D. Water – Society – Environment

### **Reaching several SDG indicators in ecological restoration projects: a comparative analysis between Comana Wetlands and Gilort River projects**

*Gabriela Adina Moroşanu<sup>1,2</sup>; Gabriela Ioana-Toroimac<sup>2</sup>; Liliana Zaharia<sup>2</sup>; Cătălina Stoica<sup>2,3</sup>; Dana Maria Constantin<sup>2</sup>; Ionuţ Andrei Şandor<sup>2</sup>*

<sup>1</sup> Institute of Geography of the Romanian Academy

<sup>2</sup> Faculty of Geography, University of Bucharest, Romania

<sup>3</sup> National Research and Development Institute for Industrial Ecology, Bucharest, Romania

#### **Abstract:**

River restoration has been enjoying, in the last two decades, a growing visibility in Europe, yet, in some countries, there are still many more steps to be taken in this direction. This issue is particularly important, because it supports the sustainable management of water resources by using blue solutions to address climate change, attractive aquatic fauna habitats, and nature-based solutions to restore river connectivity. As a recent EU member state, Romania has to ensure the balance between the objectives for wetlands' conservation (in the RAMSAR convention context) and its compliance with the Water Framework Directive (to which, in the future, concrete plans for the restoration of some river sections could be included as part of watershed related management measures). So far, there are few local restoration projects in Romania that we could learn from. Among them, we mention the restoration project of the Comana Wetland, on the lower course of the Neajlov River (2011 – 2012) and the project implemented on the Gilort River, Jiu River's main tributary on the left (2017-2022, currently in its post-intervention monitoring stage). Starting from the different restoration objectives and environmental premises of these two projects, this study provides a comparative analysis of the context in which these projects were implemented and of the methods used. It aims to address the following issues: 1) The spatial scales at which the restoration sites are expected to operate and the anticipated effects they will have, considering their interdependence with the entire basin; 2) The types of SDG indicators reached in the two case studies; and 3) The direct or indirect effects of the restoration methods used to achieve relevant SDGs in these two projects.



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Environment at Crossroads: **SMART** approaches for sustainable future

**Groundwater sources in Eastern Romania between climate changes impact and social vulnerability**

*Ionut Minea<sup>1</sup>; Marina Iosub<sup>1</sup>; Oana-Elena Chelariu<sup>1</sup>; Daniel Boicu<sup>2</sup>*

<sup>1</sup> Department of Geography, Faculty of Geography and Geology, Alexandru Ioan Cuza University of Iasi, Iași, Romania

<sup>2</sup> Physical-Geographic Research and Environmental Quality Monitoring Station – Mădârjac, Alexandru Ioan Cuza University of Iași, Iași, Romania

**Abstract:**

In Eastern part of Romania, more than 50% of the population resides in rural areas, and only 10% of that rural population is currently connected to a centralized water supply system. Consequently, the main water supply is provided by groundwater, extracted mainly through individual wells. The anomalies that have occurred in the manifestation of hydro-climatic extremes add increasing pressure over the surface and groundwater resources. The current trends in the evolution of the groundwater level in the study area are correlated with the precipitation trends and tend to reach increasingly low levels in relation to the surface. Aside from these natural tendencies, the economic evolution of the area, seeing considerable investment in agriculture, can also bring additional pressure on the existing water resources.



**Characteristic and prognostic indicators of the breeze cell for the West coast of the Black Sea**

*Crina Radu<sup>1,2</sup>; Mihaela Caian<sup>2</sup>; Georgeta Bandoc<sup>1</sup>*

<sup>1</sup> University of Bucharest, Bucharest, Romania

<sup>2</sup> Meteo Romania, Bucharest, Romania

**Abstract:**

This study aims to identify the imprint of the sea breeze cell and its characteristics: occurrence, horizontal and vertical evolution, duration, intensity and impact in convective precipitation. This study conducts the first climatology of sea breezes for the west coast of the Sea Black, as there is a limited documentation for this type of circulation in this region so far. This circulation has multiple impacts such as the thermoregulator of the coastal zone, formation and amplification of convection, the transport of aerosols and recirculation of pollution plumes. The results of the study can be used in forecasting, in the estimation of long-term variability from identified precursors, and also in the calibration and development of numerical atmospheric and climate models. This study uses ERA5 reanalysis dataset in the breeze cell fingerprint identification and its analysis. A specific software package developed for breeze analysis (Shell scripts, CDO, GRADs) was implemented. The analyzed data have hourly temporal resolution and comprise surface parameters (10 m wind and surface temperature) and pressure level parameters (2d wind, vertical speed, temperature, geopotential, relative and specific humidity), between 1,000 and 200 hPa. The study defined relevant prognostic indicators of sea breeze (classified for genesis, development, amplification of cells), which have been compiled in a sea breeze database over 1991-2020 (2018 was used for analysis and validation). The prognostic sea breeze indicators can improve the weather prediction and the performance of climate models. This will facilitate the interpretation of convective processes associated to (i) the sea breeze front occurrence and (ii) the coupling with large scale atmospheric circulations. The documentation of sea breeze climatology is a prerequisite step in the analysis of climate scenarios and estimation of trends in sea breeze cell characteristics influencing the climate, convection and air pollution at local scale.



Environment at Crossroads: SMART approaches for sustainable future

### Some aspects to regarding protection measures in spa tourism in Romania

*Ana-Maria Roangheș-Mureanu; Amalia Mihaela Oglindoiu*

Faculty of Geography, University of Bucharest, Romania

#### **Abstract:**

Tourism plays an important role in the economy by generating new jobs. He making a major contribution to attracting surplus labor from other sectors and, implicitly, to mitigating unemployment. The spa industry is gaining importance in the context of changing lifestyle, the development of so-called health tourism and a increasing rate of population aging. The relationship between tourism and the use of labor is manifested quantitatively and qualitatively, directly and indirectly. Along with the increase in the number of tourists, there is also an increase in the number of employees in the tourism activity (in hotels and restaurants, travel agencies, leisure services, etc.). Hence the need to analyze the problems related to the development of tourist activities, in terms of the analysis of the categories of insurance addressed to tourists, the qualification level of tourism employees, as well as the measures provided by the legislation in the field. This study aims to highlight the most important preventive measures that exist and that have been proposed by decision-makers and adopted by national and international legislative bodies. A theoretical legal approach was applied, based on a systematic review of the national legislation, the analysis of the existing protection norms in the field of spa tourism, as well as their application on a territorial level.



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**Analysis of the dynamics of the Ialomița River in the lower sector (Alexeni-Copuzu) during 1980-2017**

*Ioana Alexandra Mirea; Adriana-Gabriela Ilie; Robert Răzvan Dobre, Alexandru Nedelea; Mădălina Teodor; Laurențiu Andrei Ilie, George Alexandru Moțoiu*

Faculty of Geography, University of Bucharest, Romania

**Abstract:**

The present study represents an analysis of the dynamics of the Ialomița river in its lower sector (Alexeni – Copuzu) over a period of 37 years (1980-2017), by referring to the basic elements that characterize the dynamics of river beds (morphographic characteristics, of the basin, indices of meandering, sinuosity, etc.). The purpose of the study is to determine how the bed of the Ialomița river evolved and the causes that generated this evolution, as well as the development of a system of facilities that will lead to the stabilization and balancing of the dynamics of the bed with the neighboring elements.



**Revisiting the Hydromorphological Priority Restoration Index: bringing new evidence from field work on small rivers**

*Gabriela Ioana Toroimac<sup>1</sup>; Gabriela Moroşanu<sup>2</sup>; Ionuţ Şandor<sup>1</sup>; Dana Constantin<sup>1</sup>; Cătălina Stoica<sup>3</sup>*

<sup>1</sup> Faculty of Geography, University of Bucharest, Bucharest, Romania

<sup>2</sup> Institute of Geography, Romanian Academy, Bucharest, Romania

<sup>3</sup> ECOIND

**Abstract:**

In order to systematically plan for river restoration, this paper explores a multi-criteria analysis that classifies rivers, based on their priority for hydromorphological restoration. The Hydromorphological Restoration Priority Index includes indicators for human pressures, channel changes, and river functionality. The priority is defined by severe human pressures within the erodible corridor of the river, drastic transformation of the river channel, and signs of intensity of river pattern functioning. This methodology is validated on braided sectors of rivers crossing the Curvature Subcarpathians (Romania). Compared to previous works, this study updates the layer of channel changes to present-day conditions. Out of 15 braided sectors, four rivers have moderate priority for hydromorphological restoration. One of them is Varbilau, an ungauged small river, with a discharge of approximately 0.7 m<sup>3</sup>/s (in spring and summer 2023). This river, together with its tributaries, have a low level of engineering works while their active channels are disproportioned when compared to their present-day flow. Recent field work showed that these rivers still use their entire active channel during high flows. This means that the analysis of channel changes depends on the water level at the moment of the analysis. Additionally, this finding encourages to continue investigate the flow patterns and trends in order to understand the natural attribution of channel changes.

👁 [PRESENTATION VIEW](#)



### Multicriterial approach to map the hydropower potential in Romania

*Mihnea-Ștefan Costache; Liliana Zaharia*

Faculty of Geography, University of Bucharest, Romania

#### **Abstract:**

Hydropower represents one of the most important sources of energy production in Romania (approximately 30%). However, in recent years, because of the negative impact of hydropower plants on the aquatic environment, the building of new dams has slowed down. This study aims to map the hydropower potential in Romania in order to identify the most favorable areas for the development of this type of energy. The study is based on GIS techniques used to perform a multicriterial analysis that integrates several factors influencing the hydropower potential of rivers. The influence of each selected factor is determined by the AHP method. The analysis was carried out using the ArcGisPro software. Several GIS sources and data derived from them were integrated in the multicriteria analysis such as NASA SRTM and Worldclim, as well as manually digitized data from different cartographic materials. The factors included in the multicriterial analysis to assess the hydropower potential are: the specific discharges, the slope, the precipitation, the drainage density, the distance from the protected areas and the distance from electricity network. All these parameters were resampled to the resolution of the 100 meters and using the Weighted Overlay Tool, 5 classes from lowest to highest hydropower potential resulted. ROC Curve and AUC value showed an accuracy of 71% of the final map. At country level, the areas with the highest hydropower potential are located in the Southern Carpathians, but also in the Northern Group of Eastern Carpathians, in Vâlcea and Baia Mare counties respectively. The multicriteria analysis based on GIS techniques proved to be useful tool to identify the areas with high hydropower potential in Romania, which could be exploited in the future, but in a sustainable way. In order to capitalize this potential, detailed technical studies, at finer spatial scale, are needed.

## E. Challenges of Environment and Human Dimension

### Movement ecology of Hermit beetles (*Osmoderma eremita*) in Eastern Romanian Carpathians

Marian Dumitru Mirea<sup>1</sup>; Laurentiu Rozyłowicz<sup>1</sup>; Steluta Manolache<sup>1</sup>; Iulia Viorica Miu<sup>1</sup>; Lavinia Pîndaru<sup>1</sup>; Viorel Popescu<sup>2</sup>; Silviu Chiriac<sup>3</sup>

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#### **Abstract:**

Saproxyllic beetles are fundamental components of numerous forest ecosystems, contributing to nutrient cycling and decomposition processes, but Romanian forestry practices aim to decrease the presence of saproxyllic species because they are considered pest species. Movement ecology can help protect saproxyllic beetles by identifying the key habitat features that they require for movement and dispersal. For example, saproxyllic beetles may require specific types of dead wood, such as logs or snags, for feeding or breeding, or they may need certain microhabitats within dead wood, such as moist or rotting areas. By understanding these requirements, we can develop new policies that aim to improve the protection of these species. Between 8 July and 29 August 2022, we monitored the movements of 28 Hermit beetles (*Osmoderma eremita*) using miniaturized VHF transmitters (Advanced telemetry systems Model T15). The study was carried out in an old-growth Beech Forest nearby Lepșa village (Vrancea county), on the right bank of Putna river. Beetles were captured using flight intercept traps baited with Decalactone (produced by Synergy Semiochemicals Corporation, Burnaby, Canada). We searched for individuals with transmitters three times a day using homing radiotracking and recorded their location, position, and behavior. The results showed that the beetles moved between 6 and 405 meters (median 21.43), with some remaining static or moving short distances. Individuals who remained in the same position moved vertically or were static in cavities.



**Assessing the development of collaborative and adaptive approaches in strategic urban green space planning context**

*Andreea Raluca Slave<sup>1</sup>; Ana Maria Popa<sup>2</sup>, Diana Andreea Onose<sup>2,3</sup>; Simona R. Grădinaru<sup>4</sup>;  
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**Abstract:**

Traditionally, local authorities represented main actors responsible of planning and managing the urban space. While local authorities continue to play an important role, local communities, private stakeholders and other non-governmental parties can be directly involved in the decision-making processes. Strategic spatial planning aims to formulate a coherent development strategy with an integrated logic regarding land use. Evaluation dimensions should reflect the fact that strategic plans are mainly seen as guideline for development. As cities grow rapidly and irreversibly, they face resource and capacity constraints in managing the urbanization process. The strategic urban planning of cities must have a clear long-term vision of future development. Urban green areas are a central part of those comprehensive development visions and provide important ecosystem services. This study attempts to fill this research gap by analyzing the quality of strategic plans in Romania in terms of the information they provide on green space management. As Romania joined the European Union in 2007, the first strategic plans were adopted at the municipal level. Since then, Romanian cities have updated their strategic plans, with several reaching the third generation. Our assessment focuses on evaluating the quality over the three generations of plans, respectively: 2007 – 2013, 2014 – 2020 and 2021 – 2027. An evaluation framework was developed along two dimensions of strategic plan quality: collaborative and adaptive oriented. Strategic plans were evaluated using a protocol with 20 items corresponding to two evaluation dimension plans. There have been reviewed plans belonging to 18 cities, containing three generation of documents. Following the analysis of the two dimensions mentioned, slightly significant changes were observed. Our evaluation used the strategic plans as the primary source of information. Thus, we did not follow the ways these plans are implemented and if collaborative and adaptive aspects are indeed reflected on the ground.



**Evaluating how environmental challenges are approached in Romanian urban management**

*Mihai Răzvan Niță, Athanasios-Alexandru Gavrilidis, Cristian Ioan Iojă, Diana Andreea Onose*

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Center for Environmental Research and Impact Studies, University of Bucharest, Romania

**Abstract:**

Cities are increasingly faced with a range of societal challenges; the environmental ones being exacerbated in countries with weak planning systems and institutions (such as Romania). The research questions based on which our study was conducted was whether local decision makers from Romanian urban areas are aware of the current environmental challenges the society is facing and what's their reaction to such issues. To answer these questions, we aimed at 1) establishing the environmental challenges urban authorities are most concerned of, 2) assessing the financial and administrative tools that urban managers rely on and 3) assessing the reaction of local decision makers if faced with major socio-economic and environmental issues. Out of the 326 urban administrations to which we have sent the survey, 124 answered our call (38.04%). With the exception of three counties, we have gathered answers from at least one urban administration in every county. Major issues identified were waste management (68%), climate changes (38%) or invasive species (33%), while for the priority investments 96% of the respondents indicated road infrastructure refurbishment and expansion, expansion and refurbishment of urban amenities (89.5%) or education infrastructure (77.4%). Such results are useful to policy and decision makers in establishing relevant national programs which respond to the needs of cities and present valuable funding schemes for achieving their environmental planning objectives.

👁 [PRESENTATION VIEW](#)



## **Present and future challenges of human-wildlife interactions in urban areas**

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### **Abstract:**

Human-wildlife interactions (HWI) in urban areas have huge socio-economic implications. A suitable level of coexistence between humans and wildlife cannot be reached in the absence of solid arguments accessible to decision-makers but also to the public. Within our study, we aimed to incorporate information on spatial relations between wildlife habitats and urban areas and society's expectations. To understand the present context of HWI at a national scale, we used quantitative and qualitative information from local public administrations, Environmental Protection Agencies, and 112 Emergency Calls. Structured questionnaires and semi-structured interviews with different stakeholders were also conducted to assess the present institutional collaboration. Our results showed that HWI are widespread in all Romanian cities, but their typology and frequency differ according to the geographical region and the species involved. The dynamics of interactions are influenced by landscape elements such as forest cover (in the case of bears), and agricultural land area (in the case of wild boar and roe deer) and social elements such as the percentage of the population with higher education. The present institutional and organizational framework is focused on the management of interactions, with less attention being given to how urban spatial development considers the integration of natural and semi-natural habitats into the urban space. The diversity of interactions in terms of species, outcomes, spatial and temporal distribution associated with stakeholders' perception and narrative suggest that the planning and management of HWI in urban areas should be carried out at the local level based on: (1) Proper documentation of interactions from an ecological and social perspective; (2) Creation of a collaborative structure based on clear responsibilities; and (3) Inclusion in strategic documents of objectives and measures to promote positive interactions and reduce negative ones.



### Drivers of songbird species richness in four urban parks - Bucharest, Romania

*Ciobota Andreea*<sup>1,2</sup>; *Ciobota Mihaela*<sup>1,3</sup>; *Murariu Dumitru*<sup>3</sup>

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<sup>3</sup> Romanian Academy, Romania

#### **Abstract:**

With cities rapidly expanding into natural habitats, anthropogenic green spaces could assume the form of important hotspots for avian diversity, propelling urban parks to potential stopover sites for migratory birds. Adopting a multi-species group approach, in the present study we investigated the main drivers that shape bird communities and affect songbird species richness and distribution in four urban parks, in Bucharest, Romania. For the identified songbird species, we analyzed the relationships between: (i) species habitat requirements and park plant composition, (ii) species feeding demands and habitat foraging opportunities, (iii) anthropogenic noise and songbird richness, (iv) artificial night light and species distribution, (v) park design and microhabitat availability. During our four-year study (2018-2021), we found that only a quarter of the observed songbird species are urban residents, the rest exploiting urban parks as stepping stones during migration. Three identified species have protected status, either in the Romanian Red Book (the Collared Flycatcher) or under the Birds' Directive, Annex I (the Red-breasted Flycatcher, the Collared Flycatcher and the Ortolan Bunting). Vegetation composition positively correlated with the presence of certain bird species in urban parks (e.g. Hawthorn and mistletoe influenced the presence and distribution of the Eurasian Bullfinch, while conifers modulated the occurrence of crossbills and siskins). Park surface area was irrelevant to species richness, while light pollution and park landscaping works appeared to partially affect songbird community composition. Furthermore, anthropogenic noise negatively impacted the distribution of low-pitched songbirds across the four investigated parks. In light of the rapid urban expansion and the urgency of biodiversity conservation alternatives, both resident and migratory songbird species could benefit from the foraging diversity and microhabitat heterogeneity set forth by an integrative architecture of urban parks.



## **The drums of war are beating louder: Media coverage of brown bears in Romania**

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### **Abstract:**

The increasing demand for resources to meet the needs of our society has transformed the environment and increased the likelihood of human-wildlife interactions. Romania has the highest density of brown bears in Europe, with more than 7000 individuals populating the Carpathian Mountains and neighboring areas. The large brown bear population in Romania inhabits ever-increasing human dominated landscapes, which frequently results in conflict with humans. The means and frequency by which the media communicates information to the readership influence the public perception of human-wildlife conflicts. This research is intended to contribute to the existing knowledge on human brown bear coexistence in Romania by (1) exploring how the Romanian media depicts human-brown bear interactions in terms of the main themes discussed, framing of issues (emotions and key messages), and likely impacts on public perception; (2) analyzing the changes in reporting on human brown-bear interactions following the transition of the legal status of the brown bear from game to strictly protected species; and (3) investigating suggested policy and management solutions. The results indicate that news stories related to brown bears became common in Romanian mass media after 2016, when a provisional one-year ban on culling was instated, after which it increased abruptly in 2021, following the whistleblowing of an alleged trophy hunting event. The focus on human-bear interaction and hunting/poaching themes has not changed; however, the position of the media toward brown bears has become increasingly negative, even when presenting news stories covering human-bear interactions that incur no harm. To facilitate human-brown bear coexistence in Romania, scientists and practitioners should communicate with media representatives and provide a supplementary context for news stories. Evidence-informed news can help authorities better understand conflicts and create bottom-up pathways toward an optimistic future for brown bears and Romanian society.

👁 [PRESENTATION VIEW](#)



**Determination of the radium content in Transdanubian spring waters by liquid scintillation spectrometry**

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University of Pannonia, Veszprém, Hungary

**Abstract:**

Various natural radionuclides are present in the environment, but they are not evenly distributed and are present in higher concentrations in some areas and rocks. If they get into drinking water and thus into the food chain, they can cause additional radiation exposure for the population. Springs as water intake points are usually not as strictly controlled, so we have much less information about them. The 5 selected springs are along frequented excursion routes and popular tourist spots in the Transdanubian region. The goal is to investigate the influence of the sample preparation parameters used for Ra-226 measurement.

During sample preparation, the parameters described in the BS ISO 13165-1:2013 standard were investigated for possible optimisation. The samples were set at different pH values (2, 3, 4, 5, 6, and natural). After acidification, the effect of the temperature (80 °C and 100 °C) of vaporization was examined. By increasing the quantity (200, 300, 400 and 500ml) of the samples, the effect of the duration of the heat treatment was tested at the same concentrating ratio (1:10).

Salt precipitation was detected in the sample during evaporation at 80 °C, at natural, 6 and 5 pH. At the temperature of 100 °C, salt precipitation appeared even in samples adjusted to a pH of 4.

ProScint Rn A/B scintillator cocktail and a TriCarb3170 TR/SL Liquis Scintillation Counter was used to measure the samples with the detection limit of 100mBq/L. None of the samples exceeded the activity concentration of 200 mBq/L, so their consumption does not represent a significant radiological risk.

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## **Entrepreneurial models of inclusive civil culture. The case of Zapopan Agro ecological Park**

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<sup>2</sup> Instituto Tecnológico Nacional de México, Cd. Guzmán

### **Abstract:**

This research aims to analyze the model of entrepreneurial inclusive civic culture created and developed in the Agro ecological Park of Zapopan (PAZ). Based on the need to rescue vacant urban land use with the participation of residents residing in the surrounding colonies, social movements, civil society and local government, they have designed and implemented actions to create PAZ (PEACE) as an area of green innovation. In addition to the cultivation of vegetables, medicinal plants and decoration under relations of cooperation, trust and community support, the formation of social capital that sustains a culture of peace based on environmental sustainability activities. The results of the implementation of this project, born from bottom of the social and power structures, constitute a significant experience in the regeneration of public spaces and green areas that provides greater economic efficiency in terms of family income, a greater relevance of equity, inclusion and social justice and improvement of environmental sustainability.



## **Landscape permeability: a review analysis**

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### **Abstract:**

In the context of land use conversion, habitat loss and climate change, landscape permeability becomes a useful tool in prioritizing conservation actions. It describes the extent to which land cover types (the landscape matrix) are conducive to wildlife movement and support ecological processes, while identifying areas that act as barriers to them. Our study aims to provide a better understanding of the concept of landscape permeability by conducting a synthesis of the scientific literature. We analyzed the articles published in international journals dealing with the concept of landscape permeability between 2000 and 2023 (n=111). Queries were made in the international database ISI Web of Science, and the search terms used were "Landscape permeability", "Landscape permeability and connectivity", "Landscape permeability and ecological process", "Landscape permeability and spatial analyses" and "Landscape permeability and fragmentation". The results revealed the presence of a number of 50 studies in the field of ecology and environmental sciences, most of them aimed at modeling the connectivity of mammal habitats at a regional scale using landscape permeability. The importance of the results lies in outlining an overview of the concept of landscape permeability.

👁 [POSTER VIEW](#)



**INTERNATIONAL CONFERENCE:**  
**17 - 18 November, 2023**  
**Bucharest, Romania**



Environment at Crossroads: SMART approaches for sustainable future

**Analysis of young people's perception of human-wildlife interaction (positive/negative)**

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**Abstract:**

We analyzed positive and negative human-wildlife interactions as perceived by the students. These interactions represent an important part of the services and disservices offered by the landscape. The purpose of the present study is to show the perception of middle school and high school students regarding their interaction with wildlife, according to different criteria (age/school cycle/environment/type of interaction), as well as to identify the correct behaviours and students' responsibilities in relationships with the natural environment. The method applied in this study is the questionnaire (investigation) method. A questionnaire with 16 perception questions (single or multiple answers, and open answers) was created and applied in 13 schools in Romania. The questionnaire aimed at identifying aspects such as: whether the students noticed wild animals (bear, wolf, wild boar) or their traces, where they discovered them, as well as the types of behaviours and reactions in relation to wildlife. The responses from the questionnaire suggest that the student's perception of their interaction with wildlife differs both according to the place in which they live (urban/rural) and their age. An interesting aspect is the correlation between the positive interactions perceived by the students and the environment in which they took place, most of them happening in a controlled place like the zoo.



**The impact and application of the Institutional Grammar Tool (IGT) in analyzing legislative documents**

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**Abstract:**

The Institutional Grammar Tool (IGT) is a framework or methodology utilized in academic and research contexts, particularly in fields like political science, public policy, and environmental studies, to analyze institutional and policy documents. IGT serves as a valuable tool for researchers and analysts to deconstruct and comprehend the structure and content of various documents, including legislation, regulations, policy declarations, and action plans. IGT typically involves the identification of key elements within these documents, encompassing statements, strategies, norms, and rules, which are then categorized for in-depth analysis. To understand the applicability of the Institutional Grammar Tool (IGT), a database was created that contains all the scientific literature on this subject. Scientific articles were searched for and downloaded from sources such as Web of Science, Scopus, and Google Scholar. This approach allowed the identification of the main domains in which IGT was used as the primary method of analysis, as well as the identification of other methods associated with IGT in the study of legislative documents. The main types of scientific articles that use IGT, such as case studies, methodological approaches, reviews, and theoretical studies, were also identified. The advantages and limitations of the method were examined. Analyzing the scientific literature related to IGT, it was found that the main method associated with IGT is the interview method. The domains in which IGT is used are diverse, but it is particularly prominent in the environmental domain. In addition to these aspects, there is a balance between the advantages and limitations of applying this method, and it makes a significant contribution to the analysis and understanding of the legislative domain. In conclusion, through this analysis of the scientific literature, important information about the use of the IGT method was obtained, including its global visibility.



**Involving local communities in assisting decisions regarding the Asinara Marine Protected Area (Italy)**

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<sup>4</sup> University of Craiova, Romania

<sup>5</sup> Integrated Analysis Center and Territorial Management (CAIMT)

<sup>6</sup> Innovyou

**Abstract:**

In the recent years, due to the rise of human activity, there has been an increasing aggression on the environment. Marine protected areas have suffered the most from pollution with various materials, originating because of the human activity. The purpose of this study is to show how local communities (and fishing communities in particular) can participate through an active involvement in combating, limiting and even reducing the impacts of these damaging activities on the natural environment. The study area is the Asinara Marine Protected Area, Sardinia (Italy). The study methodology consists of carrying out surveys on the fishing communities, as well as their involvement in the participatory mapping of marine litter and identification of wider interventional actions in the study area due to efficient local management. The fishing communities received GPS devices and were trained in how to collect data, in their actions of going out to sea, to fish, data related to the types of waste identified, as well as their possible sources, according to their nature. The results of the study identified a wide range of waste, most of which are of a non-degradable nature, such as plastic, multi-material, and as the main source, human activities. The studies concluded that the respective area is in real danger, in the future and without the active involvement of the local community, there are no solutions to reduce and limit the negative impact.



## **Human impact in the Postăvăru Massif. A multicriteria approach**

*Al-Taha Widad*

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### **Abstract:**

Human influence on mountain areas is increasingly developed, reflected changes in land use, urbanization, natural resource exploitation and recreational activities, often associated with impacts on biodiversity, soil erosion and natural risks. The study area, the Postăvăru Massif, faces significant human impact in terms of urban development and increased tourism activities, due to its natural attractiveness and proximity to the city of Braşov. The objective of this study is to identify and quantify areas of increased human impact using multicriteria analysis through GIS techniques. The method includes collecting and analyzing relevant spatial data, integrating impact factors, and applying the Human Influence Index (HII). The results highlight the distribution and intensity of human influence in this mountainous region, the areas with the highest levels of human influence being areas near human settlements, popular tourist routes and the mountain resort. Therefore, this study offers a perspective on human interaction with the environment.



**The resilience of traditional agricultural landscapes influenced by political support tools**

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**Abstract:**

**Introduction:** Traditional agricultural landscapes (TAL) are examples of resilience of agricultural forms and practices specific to the local landscape, maintained and adapted over time, being characterized by the dynamic interaction between food production and biodiversity, at landscape level. The New Common Agricultural Policy for the period 2023-2027 is oriented towards the support of farmers who contribute to protecting the environment.

**Methodology:** As a first step, the research aims to inventory the eligible areas for the practice of traditional agriculture, in accordance with the agro-environmental and climate measures, related to the National Strategic Plan 2023-2027 (NSP 2023-2027), for Romania, in a case study for the South-East Development Region, Buzău County and the delimitation conditions of the respective areas. The next step of the analysis involves identification of the correspondence on the ground of the analyzed areas, using the method of participatory mapping. Finally, the farmers' conception of the existing support mechanisms and the specific requirements, from the point of view of the resilience of traditional agricultural lands, is followed, through the application of Q-Methodology's statistical analysis.

**Result:** Compared to previous years, the NSP 2023-2027 brings changes related to the eligible areas related to agro-environmental and climate measures. For the Southeast Development Region, there are situations where the number of eligible administrative territorial units (ATU) has decreased, e.g. P.1: 60 ATU (2014-2020), 53 ATU (2023-2027) or increased, e.g. P.3.1: 0 ATU (2014-2020), 9 ATU (2023-2027), but the delimitation conditions are much more focused and detailed. In applying the Q-Methodology's, depending on the 'eigenvalues and factor variance, we focused on 4 factors, which collectively explained 59% of the study variance.

**Conclusion:** In Buzău county, at the local level, there is potential for traditional agriculture. There is misinformation among farmers regarding the financial benefits they can access for practicing traditional agriculture.



**Analysis of precipitation quantities anomalies during the summers from 1970 to 2000 in Bucharest, influenced by the urban heat island effect**

*Alexandru Ovedenie*

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**Abstract:**

Environmental challenges are one of the most pressing issues facing today's society. The context of climate change is one of the most debated environmental issues, whether we are talking globally, regionally or locally, it affects us and is increasingly making its appearance in everyone's daily life. This can be identified in the case of Romania. Urban areas represent the highest population densities in Romania, with 53% of the population living in urban areas and growing. Bucharest, the capital of Romania, is the largest urban fabric in our country. It experiences some specific meteo-climatic phenomena, but their intensity and frequency changes, due to the climatic context. One such relevant example is the urban heat island effect (UHI effect). The UHI effect is an increase in temperatures, even by a few degrees Celsius in city centres, with the effect diminishing towards the outskirts of cities. The phenomenon occurs in large urban agglomerations and is influenced by multiple variables such as location, built-up area vs. green spaces, air quality and atmospheric circulation. It occurs throughout the year, but its effects are most acute in summer. This paper aims to analyze if there is a correlation between UHI and precipitation quantities anomalies in Bucharest during the summers between 1970 and 2000. It is very important to know how certain extreme meteo-climatic phenomena influence other parameters, in order to be able to correctly determine how the local society should develop in order to have a high degree of resilience to the risks caused by climate change. To achieve the highest degree of sustainability, we need to understand the multiple components of the environment and how they interact in order to make the best choices when it comes to city planning and decisions making.



### Imaterial Heritage visibility from Bucovina in social media

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Faculty of Geography, University of Bucharest, Romania

#### **Abstract:**

In an era of intelligent technologies, of information circulating at an unbelievable speed, it becomes necessary to be aware of the cultural heritage existing in different areas, to see how it is being used and especially to try to protect it by various means. This study aims to clarify the social media visibility level of Doina, Măștișorul, the Art of the „cămașa cu altiță” and House and egg decoration, in the historical area of Bucovina. In order to obtain concrete results, existing data on the valorisation of the aforementioned elements of intangible heritage were analysed and interpreted, specialised publications were consulted and then the main points where these elements are present were spatialised. Given the limitation that there is no physical number of visitors per item, the results showed us that in the online environment their visibility is variable depending on multiple factors. Finally, in order to improve social media visibility, we have proposed a series of sustainable strategies that fully preserve the authenticity of each individual element and highlight the entire Bucovina area.

👁 [POSTER VIEW](#)



**Historical monuments - support for tourism in the Gorj Subcarpathians; case study the city of Tg. Jiu**

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Faculty of Geography, University of Bucharest, Romania

**Abstract:**

The existence of historical monuments is a starting point in the development of tourism. This type of objectives have attracted and will attract tourists of all ages. The current study aims to analyze the types of historical monuments between Bistrita Valcii and Tismana. As the analysis method, I used the empirical interview method. The questions were addressed to the tourists who visited these monuments. The purpose of this study is to achieve a classification of the main historical heritage monuments for this southern Subcarpathian area. The Subcarpathian area is a geographical area with many other tourist attractions. Precisely for that reason, these historical monuments come to complete the palette of attractions in a geographical area with a very attractive relief. The database used in establishing the historical monuments analyzed consists of the list of historical monuments created by the Ministry of Culture.

👁 [POSTER VIEW](#)



### Assessing the Romania's terrestrial protected areas network using connectivity metrics

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<sup>4</sup> Demographic Research Center "Vladimir Trebici", National Institute of Economic Research - Costin C Kiritescu, Romanian Academy

#### **Abstract:**

On a global scale, biodiversity is diminishing due to human activities and natural factors. The post-2020 Global Biodiversity Framework has established new conservation objectives and targets to mitigate threats to biodiversity. Consequently, under Target 3, a minimum of 30% of vital land and marine areas significant for biodiversity must be safeguarded through networks of protected areas characterized by a high degree of connectivity. Our study aims to assess the connectivity within the terrestrial protected areas network in Romania. To gauge the existing level of connectivity, we used a structural metric named the Protected Network metric (ProNet metric). We utilized Conefor 2.6 software and three threshold distances (1 km, 10 km, 30 km) to determine the components (clusters) included in the metric calculation. Our findings reveal that the connectivity of the terrestrial protected areas network remains limited for species with a short dispersal range: ProNet=0.181 (d=1km, year 2016) and ProNet=0.456 (d=10km, year 2016). Conversely, for species with a long dispersal range, the connectivity of protected areas is notably high: ProNet=1 (d=30km, year 2016), thus the protected areas network exhibits strong connectivity. The ProNet values, based on the various dispersal distance of species, increased in all situations between 2007-2016, especially for a dispersal distance of 10 km (in this case increased from 0.2 to 0.456 in analysed time period). This indicates that the establishment of new terrestrial protected areas at the national level contributed to the enhanced connectivity of the protected areas network, although not for all species.

This work was supported by a grant of the Ministry of Research, Innovation and Digitization, CNCS-UEFISCDI, project number PN-III-P1-1.1-TE-2021-1067, within PNCDI III.



### **Vacaresti Nature Park vs Tineretului Urban Park – visitors profile and perception towards ecosystem services**

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<sup>4</sup> Demographic Research Center "Vladimir Trebici", National Institute of Economic Research - Costin C Kiritescu, Romanian Academy

#### **Abstract:**

This study aimed to compare the visitor's perception towards the ecosystem services provided by nature parks and urban parks, two types of green spaces that serve distinct purposes. Ecosystem services refer to the benefits humans derive from nature, including provisioning services (e.g., food, water), regulating services (e.g., air quality, flood control), cultural services (e.g., recreation, education), and supporting services (e.g., soil formation, nutrient cycling). To conduct this comparative assessment, we selected one nature park - Vacaresti and one urban park – Tineretului of fairly similar size, located in the Bucharest, Romania. We used stakeholder interviews to assess the perception of the visitors towards provisioning, regulating, cultural, and supporting services provided by each park. We also analyzed the spatial patterns of ecosystem services and their relationship with park characteristics, such as size, age, and management regime. Our results show that nature parks and urban parks provide different sets of ecosystem services, reflecting their different ecological and social contexts. Nature parks are seen as providing more regulating and supporting services, such as carbon sequestration, biodiversity conservation, and soil formation, while urban parks are seen to provide more cultural services, such as recreation, social interaction, and aesthetic value. Provisioning services, such as food production and water supply, were limited in both types of parks.

This work was supported by a grant of the Ministry of Research, Innovation and Digitization, CNCS-UEFISCDI, project number PN-III-P1-1.1-TE-2021-1067, within PNCDI III



**Planning small for winning big: Small urban green space distribution patterns in an expanding city**

*Athanasios Alexandru Gavrilidis<sup>1,2</sup>; Ana-Maria Popa<sup>1,2</sup>; Diana Andreea Onose<sup>1,2</sup>; Simona R. Gradinaru<sup>3</sup>*

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<sup>2</sup> Swiss Federal Institute for Forest, Snow and Landscape Research WSL

**Abstract:**

While major urban areas are expanding, becoming more crowded, vegetated lands are shrinking. Built-up densification limits the planning of large urban green spaces, depriving urban dwellers of the benefits provided by such structures. In this context, small public urban green spaces (SPUGS) become of high value for urban landscapes, and their distribution throughout the city should aim to compensate the lack of larger green areas. The driving forces of SPUGS distribution may be linked to the urban functions they are usually paired with. The current study aimed to determine which are the urban functions that benefit of higher amounts of SPUGS in their proximities and to map the distribution and density of SPUGS within Bucharest, helping us expose the green deprived communities. Results revealed that multi-dwelling residential areas are the ones with higher share of SPUGS within walking distance. Nevertheless, analysis on SPUGS deprivation within the city showed that communist planned residential neighborhoods are greener than the ones developed in the past three decades. Healthcare and commercial functions within the city recorded smaller shares of SPUGS in their proximity, highlighting that vulnerable groups (such as ill people) are exposed to less vegetation, and that public planning documents are not encouraging developers to allocate more land for green feature development. These results are relevant for projecting the quality of outdoor environment throughout Romania's capital and for assessing potential future management challenges. The outcomes of this research provide local policy makers and planners with the vulnerable areas in which immediate action for expanding the green infrastructures should take place. At the same time, the methodological approach described in the study proved to be efficient in assessing the distribution of SPUGS throughout the city and the determinants of this distribution. It can be easily replicated in other cities by scholars and planners.

👁 [PRESENTATION VIEW](#)



**A Theoretical Inquiry into the Interplay of Cultural and Creative Industries and Sustainable Development**

*Mihaela Clinca*

Alexandru Ioan Cuza University of Iași, Romania

**Abstract:**

The paper explores the relation between sustainable development and cultural and creative industries based on a literature review study. The study focuses on the association of the two key concepts in the specialty literature and elaborates on the level of the interaction between the analysed terms. Relevant literature in the intersecting fields and previous theoretical foundations have been studied aiming to generate new arguments and theoretical basis for the relevance of studying the role of cultural and creative industries for the sustainable development. The current study was carried out in two successive stages. The first part consisted in a bibliometric analysis based on the association of the concepts sustainable development - cultural and creative industries in the Scopus and Web of Science databases. The second phase followed with an in-depth analysis on 30 articles published between 2014 and 2022 that address these interconnected concepts. Within the analysis, research articles and policy papers addressing issues related to cultural and creative industries and sustainable development have been identified. The findings underline the role played by cultural and creative industries in shaping the main dimensions of sustainable development, identifying as prominent themes closely associated with the two concepts, the creative economy, innovation, urban development, creative city, tourism, planning and policy and the cultural heritage. The most frequent and relevant associated concepts identified include the creative economy, cultural sustainability, economic growth, enabling environment, cultural dimension and cultural and creative cities. As a result of the two-fold analysis that combines the literature database exploration and the in-depth text analysis, it is observed the prevalent correlation between cultural and creative industries and sustainable development within the literature and that studying their relationship is a topic of interest, reflecting the growing importance of understanding their interplay.



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**Ecosystem Services Approach on the Way to Implementation – Inside View from Poland**

*Lowicki Damian; Fagiewicz Katarzyna; Stępniewska Małgorzata; Mizgajski Andrzej*

Department of Integrated Geography, Faculty of Human Geography and Planning, Adam Mickiewicz University in Poznań

**Abstract:**

We present selected results of the national-wide project 'Services provided by main types of ecosystems in Poland - an applied approach' (ECOSERV-POL) carried out in 2020-2023. Eight leading Polish research institutions, in cooperation with the Norwegian Institute of Nature Research, implemented an ambitious project involving improving their competencies in ecosystem services (ES) and developing ways to introduce this approach into practice. We focused on selecting indicators to appraise various ES categories following the CICES v.5.1 classification concerning basic types of ecosystems, including forest agriculture, urban, degraded, freshwater and marine ecosystems. In addition, we considered ES at the landscape level, as well as from the perspective of ecological, cultural, social and economic values. The research results are available on the website <http://www.ecoservpol.amu.edu.pl>. We published some results as a book in paper and electronic versions. After three years of work by research teams, we must admit, consistent with the findings of the latest literature on the subject, that despite significant progress, there are several challenges, the solution of which determines the implementation of the ES concept into practice at a satisfying level.

Acknowledgments: The project 'Services provided by main types of ecosystems in Poland - an applied approach' received funding from Iceland, Liechtenstein and Norway within the EEA Financial Mechanism 2014-2021.



**Urban agriculture's potential to minimize the effects of climate change in cities from the ecosystem service perspective.**

*Poniży Lidia*

Department of Integrated Geography, Faculty of Human Geography and Planning, Adam Mickiewicz University, Poznan

**Abstract:**

Climate change affects people in every corner of the globe, including city dwellers. In addition to such obvious ways of minimizing the negative effects of climate change, such as improving public transport, establishing green areas, and introducing green energy, there is one more, the potential of which can be significant in the fight against climate change. Urban agriculture, which has always existed in cities, is now gaining more and more popularity. These are not only monocultures cultivated within city limits, but also home gardens, allotments and horticultural farms. Although it may seem that only their users benefit from these types of farming, in fact all inhabitants benefit from their presence in cities. More than 90% of allotment gardens are unsealed, contributing to the infiltration of rainwater and the reduction of surface runoff. Unsealed areas covered with vegetation lower the city's temperature in the summer. In turn, food production as close as possible to the destination brings many benefits not only to the consumer but also minimizes the need to transport goods over long distances. Urban farming provides city dwellers with a range of benefits. The research identifies the ecosystem services provided by allotment gardens in Gorzów Wielkopolski (Western Poland). The study aimed to indicate the benefits related to collecting rainwater, food production, and biologically active surfaces, which may contribute to minimizing the negative effects of climate change. The indicative approach to ecosystem services made it possible to quantify the benefits provided by allotment gardens and their potential to counteract climate change. Provisioning services related to food production meet the demand of approx. 19% of Gorzów residents for fresh vegetables and fruits for 1/3 of the year, which allows for shortening supply chains and reduces the carbon footprint. On the other hand, rainwater retention minimises municipal water use by approx. 27%.



**Neoclassical architecture in the city of Tg. Jiu – component of the cultural landscape and resource for local cultural tourism**

*Constantin Alexandru Lupuleț<sup>1</sup>; Cristina Cruceru<sup>1</sup>; Darius-Stefan Nestoriuc<sup>2</sup>*

<sup>1</sup> Faculty of Geography, University of Bucharest, Romania

<sup>2</sup> National Institute of Geography, Romanian Academy

**Abstract:**

Examination of urban architectural landscapes elucidates the economic viability inherent in any municipality. In the particular context of Târgu Jiu, the indigenous architectural landscape distinguishes itself by upholding its intrinsic character, seamlessly aligning with the natural milieu, and resonating with the cultural essence of the locale. This study is poised to delineate these distinctive attributes via a comprehensive scrutiny of architectural structures and their idiosyncratic elements that have endured across successive generations. The research methodology employed in this investigation entails direct empirical observations as well as a meticulous review of pertinent scholarly literature. The resultant findings coalesce to proffer a lucid panorama of the neo-Romanesque architectural vernacular within the city, each edifice retaining the temporal imprint of its construction era. Leveraging the economic potential of Târgu Jiu hinges significantly upon the cultivation of cultural and historical tourism, given the wealth of informative value encapsulated by this architectural heritage. In doing so, the community augments its comprehension and reverence for its local legacy.

👁 [POSTER VIEW](#)



## **Architecture as an indicator of multiculturality. Case study the city of Brăila**

*Darius-Stefan Nestoriuc; Constantin Alexandru Lupuleț; Bogdan Petre*

Faculty of Geography, University of Bucharest, Romania

### **Abstract:**

When trying to capture the historical details of a city, the issue is approached, based on the architecture of civil and institutional buildings. The present study attempts to do so; analyzing the architecture of buildings, specific features, styles and elements of influence that the local population have raised. The author argues based on the method of analysis and observation with frequent links to the themed literature. The results provide a picture of the cultural influences found in a variety of architectural styles and building types - from residential to commercial and production buildings, even factories. However, all of them, preserve the traces of the epoch in which they were built and the ethnicity or cultural movement from the owners. Brăila is the city where eclectic architecture is dominant, commercial and harbour life is visible through decorative and structural elements. The activity that could be developed taking into account these specific features is cultural tourism, historical tourism, due to the load of information that can support the local knowledge.

👁 [POSTER VIEW](#)



**Cultural Heritage of Northern Prahova - accessibility, visibility, attractivity in the digital era**

*Teodor-Mihai Rotaru; Ionuț-Marius Repede*

Faculty of Geography, University of Bucharest, Romania

**Abstract:**

Considering we live in a fast-forward society of information and digital progress, we can travel thousands of kilometers just by pressing a button, thus rediscovering the treasure left by our forebears, namely our cultural heritage. This study aims to bring forward two cultural sites from the northern part of Prahova County to find out how visible they are online. The analysis method is based on the interpretation of the specific data in the digital era, the study of professional literature, and the comparison between the studied objects. The results confirm that the online environment is an adequate medium for promoting the elements of cultural heritage, the condition being to keep attention on them at all times. Sadly, the data referring to the number of physical visitors can be tracked only in the case of the “Iulia Hașdeu” Castle, which is a museum at the moment, contrary to the Cantacuzino Palace, known as “Little Trianon”, which is left to crumble. Despite some occasional visitors, we cannot gather the necessary data due to the absence of exploiting. Thus, a series of suggestions were brought to these problems for enhancing and fixing online visibility, which will help protect these impressive heritage items.

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### **Rexdan – A Research Infrastructure for Environmental Challenges**

*Cătălina Iticescu, Mirela Voiculescu, Constantin Apetrei, Maxim Arseni, Mădălina Călmuc, Valentina Călmuc, Daniel Constantin, Rodica Efroze, Adrian Roșu, Stefan Petrea, Mihaela Timofti, Cătălina Țopa, Lucian P. Georgescu*

University Dunarea de Jos of Galati, Romania

#### **Abstract:**

Between 2020 and 2023 a research vessel and an on-land research center were built. State of the art equipment will answer to science quests in domains as analytical chemistry, genetics, biology, atmospheric composition, climate, environmental science, ecology, bathymetry, topography, sustainable development, sediments, soil, air, biodiversity, bathymetry, hydromorphology. The vessel can cover a wide geographical area (2000 km of the Danube navigable sector including wide coastal areas). We will describe part of equipment and existing collaboration, as well as first results.



**From (National) Activism to (Localised) Technological Fixes: The Case of the Virgin Forests in Romania**

*Alexandru Gavriş<sup>1</sup>; Mircea Gherghina<sup>2</sup>*

<sup>1</sup> Bucharest University of Economic Studies, Romania

<sup>2</sup> University of Toronto, Canada

**Abstract:**

With the help of topic modelling we explore how the Romanian virgin forests transform under a post-political environmentalism direction. We attempt to capture the web of relations that set the scene for a consensus over managerial and non-extractivist agenda where elites are called to action towards setting a surveillance technology in public discourse. The painted picture of a system of surveillance that would replace a political governance system clashes behind a political spectacle that sees a network of NGOs, local governments, and members of the wood industry's supply chain reveal the shortcomings of technological fixes. It is therefore essential to clarify how networks endorsing the environment intervene and shape the forest governance, trying to advance specific views of ecological rationalities and national exceptionalism aligned within technologies of governance. First, we highlight this dynamic of valuation that may allow for a new imaginary to emerge, one where the local exploitative practices need to move along the treadmill of production towards the sustainability paradigm. A non-performing existing forest governance acts like a vacuum of power that allows alternative imaginaries of conservation to clash with a muddy, tacitly understood local informal economy that feeds into a global supply chain that takes virgin forest wood from hyperlocalized informal arrangements to a production pipeline that transcends borders. This renders virgin forests not only as a spatial dichotomy between localized yet global, but also as a space in need of intervention from actors removed from its materiality, with yet to be articulated stakes in its governance. Second, this research analyzes the struggle over meaning that we argue constitutes a strategy suited for harmonising a contested view on forest governance. The two endeavours allow us to uncover the insights of interactions framing power that advances in a context of (imaginaries projections over) environmental contentiousness



### **The Geopark - a vehicle for sustainable development**

*Cristina Toma<sup>1</sup>; Drăghici Constantin Cristian<sup>2</sup>*

<sup>1</sup> Simion Mehedinti Nature and Sustainable Development Doctoral School, University of Bucharest, Romania

<sup>2</sup> Faculty of Geography, University of Bucharest, Romania

#### **Abstract:**

Geoparks are based on three fundamental pillars: a territory with abiotic, biotic and cultural values that must be capitalized and with their help a brand of the territory can be created; a team and a budget that provides action plans and activities and partnerships to support the geopark and work with the team to implement the development strategy. In the paper we will provide examples of partnerships from Buzău Land UNESCO Global Geopark, which lead to sustainable development, with responsibility for the environment and local identity. The first example refers to the Artisans 21 project which became a program of the geopark and consists in collaborating with local craftsmen to create new products, useful for the 21st century, with old crafts, and their sale at an online store developed by geopark, but also at various regional and national fairs. The second example concerns the Artisans Market – Slow Food and Gourmet Hub, a concept that presents good practices in sustainable food from local products. A monthly fair is organized in the geopark with producers who support the Slow Food model. In conclusion, the UNESCO geopark brings several types of benefits to territories where they are established: direct economic benefits by supporting and promoting local products and producers, revitalizing local crafts and changing the perception of craftsmen on their own work; educational by educating the general public about responsible consumption of products and the material and intangible heritage of a territory; and conservation related to the preservation of traditional knowledge.



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### **Natura 2000 habitats in Romania: pressures and threats**

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<sup>1</sup> Faculty of Geography, University of Bucharest, Romania

<sup>2</sup> Institute of Biology, Bucharest, Romania

#### **Abstract:**

Based on the Habitats Directive (92/43/EEC), 88 natural habitats of community interest have been identified and described on the territory of Romania, of which 25 are priority natural habitats. In order to legally protect and conserve these habitats as well as species of community interest, special protection areas called Natura 2000 sites have been designated. The paper presents an analysis of the main pressures and threats on dune habitats, salt marsh vegetation and salt meadows, marshes and peatlands that have been identified following the activity of monitoring the conservation status of this group of habitats over the last five years, mainly in Natura 2000 Sites.



## Towards Green mobility: A survey on the use of bikes in Romanian cities

*Maria-Alexandra Calotă<sup>1</sup>, Mihai Răzvan Niță<sup>2,3</sup>*

<sup>1</sup> Simion Mehedinti Nature and Sustainable Development Doctoral School, University of Bucharest, Romania

<sup>2</sup> Faculty of Geography, University of Bucharest, Romania

<sup>3</sup> Centre for Environmental Research and Impact Studies, University of Bucharest, Romania

### **Abstract:**

This research examines the dynamic overlap between sustainable transportation, the critical importance of cyclist safety, and the instrumental role that cyclists play in catalyzing significant societal change. Focused on addressing the pressing need for sustainable commuting solutions, the study emphasizes the valuable contributions of cyclists in mitigating environmental impact and fostering healthier communities. The study emphasizes the contributions of cyclists towards minimizing environmental impact and building healthier communities, focusing on the urgent need for sustainable commuting options. Between the months of August and October 2023, we applied an online survey from which we garnered 167 responses. Our analyzes have provided us with valuable information referring to the behaviors, habits and current needs of cyclists. Also, we succeeded in measuring the risks and existing obstacles that cyclists encounter while using bicycles in cities across Romania. By emphasizing the link between sustainable transport and cyclist safety, and their advocacy, this research seeks to provide practical insights and recommendations for creating a more sustainable and secure transportation system for all. It also highlights how crucially important it is to put in place thorough safety measures and cyclist-friendly infrastructure in order to protect their wellbeing in the face of growing urban transportation issues.



**Natura 2000 sites in Carpathian ecoregion: landscape connectivity using multidata (Corine Land Cover/Sentinel 2)**

*Tudor Radu<sup>1</sup>; Ileana Stupariu<sup>1</sup>; Christine Fürst<sup>2</sup>*

<sup>1</sup> Faculty of Geography, University of Bucharest, Romania

<sup>3</sup> Martin Luther University Halle-Wittenberg, Germany

**Abstract:**

Landscape and ecosystem preservation represents an integrated approach for conserving healthy and interconnected ecosystems (Pop Mihai et al., 2017). In order to maintain high-quality habitats and maximising the ecosystem services is crucial to have a good bond between connected areas. Ensuring the high quality of habitats and maximizing ecosystem services requires strong connections between different areas. On both the Romanian and European levels, the backbone of these interconnected areas is formed by Natura 2000 networks (European Environment Agency, 2020). Our analysis will focus on the Romanian Carpathian ecoregion, known for its high concentration of protected areas and dense biodiversity. This ecoregion features low-mountains, below 2600 meters, and abundant vegetation. Our main focus is the predominantly forested protected areas. We aim to identify the protected areas directly connected by green infrastructures, promoting continuous connectivity, and analyse the connectivity of isolated protected areas, aiming to identify suitable connectors. To summarise our goal is to find the key role of forests in promoting connectivity among Natura 2000 protected areas as well as determining the ecological significance of these landscape connectors and identify vulnerable points within these corridors, specifically the barriers encountered within these forest pathways. In an attempt to identify the corridors that connect homogeneous landscapes, we will use opensource data and GIS techniques, especially the patch cost function. To initiate this process, we will implement a suitable methodology for our objectives on the Corine Land Cover 2018 data set because these data are much easier to use and after testing the methods, we will repeat the methodological steps on the Sentinel 2 - 2020 data set. Our expectation is to achieve precise results from the Sentinel 2 data, and the comparative analysis of both datasets will assist us in attaining optimal outcomes.



**Cotroceni National Museum: A new beginning, the digitization of exhibitions, and its online knowledge**

*Dobrescu Carmen Ileana<sup>1</sup>, Aleca Madalina<sup>1</sup>, Badulescu Adela<sup>2</sup>*

<sup>1</sup> Faculty of Geography, University of Bucharest, Bucharest

<sup>2</sup> Faculty of Medicine, University of Craiova, Craiova

**Abstract:**

The purpose of this work is to review four centuries of history at the Cotroceni. Cotrocenilor Hill being higher and protected from floods has been inhabited since ancient times, here there is a monastery complex built between 1679-1681 by the ruler Șerban Cantacuzino. Here were buried the ruler, his sons and daughter, whose graves can still be seen today. A new period began during the reign of Alexandru Ioan Cuza and the accession to the throne of King Charles I of Hohenzollern-Sigmaringen, when the palace became the official residence. Over the years it has suffered several earthquakes and each time an attempt was made to rebuild it according to the old plans. After 1949 it became the Pioneers' Palace. Following the earthquake in 1977, the complex was severely damaged and rebuilt, and a new wing was added, which today houses the headquarters of the Romanian Presidential Administration. By Romanian Government Decision No 478 of 10 July 1991, the Cotroceni National Museum was established as an institution of national representation. Today it is a modern institution, in sync with the new trends in contemporary museology, with diverse programmes and exhibitions. Besides being visited by many foreign and Romanian tourists, it is also known online through its website, Facebook pages, Instagram, youtube channel and many others (Google Arts and Culture), by organizing digitized exhibitions, both on its own and in collaboration with other cultural institutions.

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## **Housing Affordability and Urban Expansion: A Comparative Analysis of Neighboring Cities to Bucharest, Romania**

*Florin-Bogdan Petre; Camelia Teodorescu; Darius-Stefan Nestoriuc; Aurel Gheorghilas; Alexandra Cioclu*

Faculty of Geography, University of Bucharest, Romania

### **Abstract:**

The financial situation of families and individuals plays a significant role in their attitudes and behaviours towards home ownership. This study examines the behaviour of individuals who have already bought homes in cities near Bucharest, the capital of Romania. The focus is on their intentions of acquiring the property through a mortgage or home loan. The study aims to explore the factors that influence home acquisition and examine the potential implications of this phenomenon. A combination of research methods is used to investigate the factors influencing homebuyers' choice in one of the seven analyzed cities: Otopeni, Voluntari, Chitila, Pantelimon, Popesti Leordeni, Magurele, and Bragadiru. The analysis includes an economic study using banking statistics to examine specific loan grants based on property values. Graphical representations of each city's average price per square meter were designed based on this analysis. A social interview was also conducted to identify the main factors driving buyers' decisions. The results show that affordable prices in the housing market are a significant factor in buyers' decisions. It is essential to note the study's limitations, as it requires long-term data series for a more comprehensive analysis. The findings of this study can provide valuable insights for local development strategies and improvements in transportation infrastructure between Bucharest and neighbouring cities.



## F. Recent Dynamics and Challenges of Territorial, Economic and Social Processes

### Graffiti and street art, a tool for urban regeneration in Bucharest?

*Andreea-Loreta Cercleux*

Faculty of Geography, University of Bucharest, Bucharest, Romania

#### **Abstract:**

The study focuses on the analysis of graffiti and street art subculture from a geographical perspective, namely its participation in projects of urban areas transformation, starting from the idea that policies often rely on tools from cultural and creative activities when searching solutions in cities regeneration processes. As urban art, it contributes to the revival of forgotten, non-functional or simply monotonous places, having the power to introduce a series of changes. The research does not focus on the assessment of illegal graffiti effects at territorial level, but on graffiti and street art impact in socio-economic dynamics of some areas in Bucharest, Romania's capital. The methods used were the semi-structured interviews applied to providers of alternative guided tours, among which graffiti and street art represents an important part, questionnaires to the population, field research, documentation and data collection from various sources. In the results section, different situations in which graffiti and street art works play a role in the development of creative areas in Bucharest are identified. Some of these places, mainly from the city centre, gain touristic values becoming more attractive and visited than before.



**Is Sustainable Development of Small Towns Viable amid Population Contraction?**  
**Romania as a Case Study**

*Liliana Popescu<sup>1</sup>; Cristiana Vîlcea<sup>1</sup>; Alin Clincea<sup>2</sup>*

<sup>1</sup> Geography Department, Faculty of Sciences, University of Craiova, Craiova, Romania

<sup>2</sup> NETROM Software Company

**Abstract:**

Sustainable development has been a global concern, with a particular emphasis on the challenges faced by small towns, especially in regions experiencing population contraction. This article delves into the case of Romania, a country in Eastern Europe that has witnessed significant demographic changes in recent decades. Population contraction in small towns can significantly impact sustainable development, and this study explores its role through the analysis of existing statistical data on relevant demographic and economic indicators. As small towns experience a decline in population, there is often a corresponding decrease in economic activity. This is reflected in reduced local government budgets, which can limit investment in infrastructure, services, and community development. The paper examines the interplay between dwindling populations, shrinking budgets, and decreased investments in the context of sustainable development. It underscores the importance of addressing this issue to ensure the long-term viability and prosperity of small towns in Romania. By implementing targeted policies and strategies, such as incentives for local businesses, improving educational and healthcare facilities, and promoting entrepreneurship, small towns can mitigate the adverse effects of population contraction and pave the way for more sustainable and resilient communities.



**Profiles of the dynamics of the mega trend of population aging at the county level in Romania for the next 50 years**

*Cristina Lincaru<sup>1</sup>; Vasilica Ciucă<sup>1</sup>; Speranța Pîrciog<sup>1</sup>; Adriana Grigorescu<sup>2</sup>*

<sup>1</sup> National Scientific Research Institute for Labor and Social Protection – INCSMPS

<sup>2</sup> National University of Political Studies and Public Administration-SNSPA

**Abstract:**

Increasing demographic imbalances is one of the JRCs' of the European Commission identified Megatrends for the next 50 years. The ageing of the population is uneven across territories and regions, as well as in Romania. The ageing profile of a territory is a determining factor for the local labour market development. Ageing local labour markets with high speeds face challenges like lower capacity to learn and fast adoption of innovation, low occupational and geographical mobility, increasing poverty risks, deficits of labour, especially on caring services, etc. Our contribution is the characterisation of the megatrends of the ageing population at the county level (NUTS 3) from Romania, using Eurostat baseline projection data for 2019-2100 [proj\_19rdbi3]. We use the Curve Fit Forecast tool from GIS to identify the ageing profile (linear, parabolic, exponential or Gomperts) of the local labour market. This is a valuable input for the local labour market classification under the hypothesis of nonseasonal variation of "Median age of population" dynamics.

👁 [PRESENTATION VIEW](#)



**Spatial and temporal dynamics of tourism areas in Romania facing the new crises.**

*Mihai Bulai; Lucian Roşu*

Alexandru Ioan Cuza University of Iasi, Iaşi, Romania

**Abstract:**

The Covid-19 pandemic led to a generalized crisis in early 2020, with effects until mid-2022. While its effects started to diminish over the third year, Russia's war in Ukraine in early 2022 determined, especially for neighbouring Eastern European countries, a refugee crisis. This has consequently engendered an economic crisis that led to inflation and a lack of consumer trust to access tourism-related services. Despite all these events, many tourism localities and areas in Romania registered a growth in tourism arrivals or at least did not lose important arrivals, while in general the country was strongly hit during key moments of the crisis. This study hypothesizes that destinations that took advantage of the pandemic crisis are those that have featured isolated locations, opened new infrastructure recently or started to form contiguous tourism emerging areas. As for the war crisis, some border areas, seaside seasonal-occupied residential structures, or large complex urban destinations partially benefitted from the refugee crisis. Results will show tourism areas emergence, recomposition or decline, which will be useful for the future tourism strategies.



**The cultural-artistic concentration in Dolj County in the last decade (case study: The City of Craiova)**

*Alexandra-Lucia Zaharia<sup>1</sup>; Amalia Niță<sup>1</sup>; Andrei Schvab<sup>2</sup>*

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<sup>2</sup> University Ovidius of Constanța, Constanța, Romania

**Abstract:**

The cultural-artistic concentration in Dolj County in the last decade (case study: The City of Craiova) involves the identification of the forms of the phenomenon carried out in the period 2014-2023, the presentation of the main events of this kind, with reference to the existing human resources necessary for such manifestations. The main purpose of this research is to do a “radiography” of the cultural phenomenon in the city, in order to discover future trends that can lead to the development of the current, but also to propose some directions to diversify the existing supply based on which the number and diversity of tourists can multiply. The analysed period is that of the last ten years (2014-2023). It will be noted that the current cultural product is made up of various elements, with different forms (touchable or untouchable), services and infrastructure in a process of continuous development, which can outline together a future local brand (specific to human settlements), area or even county. The cultural – artistic manifestations generate cultural industry and default tourism. The cultural tourism is a unique and diverse economic phenomenon, which comprises a number of complex investments designed to attract, receive and satisfy the needs of consumers. the city of Craiova benefits from a strengthened cultural infrastructure, in which the brand of maximum visibility is the National Theatre "Marin Sorescu", alongside with The Philharmonic "Oltenia" and the Colibri Theatre for Children and Youth. Analyzing all the aspects, several poles and areas of cultural concentration can be outlined at county level in some of the urban centers of Dolj, the municipality of Craiova and its peri-urban sector thus becoming a major area of cultural concentration.



**Residential satisfaction between tourism development and housing quality. Case study:**  
**Mamaia Nord, Județul Constanța**

*Andreea Guțu; Mihaela Preda; Iuliana Vijulie; Ana-Irina Lequeux Dincă*

Faculty of Geography, University of Bucharest, Bucharest, Romania

**Abstract:**

The residential dynamics of the Mamaia Nord area is oriented in recent years towards a very rapid development, determined in particular by the very high demand for accommodation places in the conditions where the Mamaia is characterized as having exclusive tourist services oriented towards luxury. The study aim is to identify the residential satisfaction in the study area, in relation to the current standards of housing quality. The objectives of the study were: the identification within the study area of the typology of newly built residential nuclei in relation to the old ones, the analysis of living satisfaction among residents and the analysis of the perception of the current urban development among the population. The research methodology used in the first stage, the direct observation method, followed by the survey method, and as a tool the questionnaire, applied to the resident population, regardless of whether it is involved in the tourist activity. The results of the study highlighted the existence of a large number of areas dominated by new residential constructions, the tendency being continuous expansion, with inhomogeneous building-urban characteristics, some of which do not meet legislative requirements. From the point of view of residential satisfaction with the studied area, the research show up a series of factors that affect the quality of housing. The analysis of the population's perception regarding the current urban development displayed that, most of the time, non-compliance with the legislation and unplanned urban development represent the main problems that generate consequences in terms of residential satisfaction.



**The impact of the accelerated dynamics of services on the reuse of cultural heritage. Case study: urban protected area Căderea Bastiliei (Bucharest)**

*Florentina-Cristina Merciu; George-Laurențiu Merciu*

Faculty of Geography, University of Bucharest, Bucharest, Romania

**Abstract:**

The characteristics of uniqueness and irreversibility of historic buildings raise the issue of their sustainable use. Accelerated development specific to large cities and mass tourism can affect the sustainable use of historical monuments: e.g. inappropriate use, abandonment correlated with the high conservation costs of historical monuments. The problem of conservation of historical buildings and their proper use or reuse seems to be a barrier to urban development worldwide. In Romania the cultural heritage is underfunded, so the number of preserved historic buildings is low. The aim of this paper is to analyse the factors that influence the reuse of cultural heritage assets in the urban protected area Căderea Bastiliei from municipality of Bucharest. Several types of actions of intentional destruction of heritage buildings have been identified, such as: damage to the resistance structure of buildings by arson, demolition of parts (most often only the main facade is preserved), extension and repartitioning of heritage buildings for housing projects, demolition or conversion of heritage properties for the construction of office or commercial spaces, etc. The main results are represented by the identification of good practice model examples and negative models related to the adaptive reuse of heritage properties in the case study area.

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**INTERNATIONAL CONFERENCE:**  
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**Bucharest, Romania**

Environment at Crossroads: SMART approaches for sustainable future



**Measuring geographical accessibility to general practitioners in Ialomița County**

*Ana-Maria Zaharia (Taloș); Florin-Alexandru Zaharia*

Faculty of Geography, University of Bucharest, Bucharest, Romania

**Abstract:**

In the context of an intense promotion of wellbeing and a healthy life, accessibility to primary health care is considered an important facilitator of overall population health. The concept is present in several public health policies, studies, and research projects. Accessibility plays a fundamental role in public policies, and one of the main goals of decision-makers is to promote equal access for the population to critical infrastructure. The analysis is even more important and current, given the vaccination process of the population in Romania, where in mid-2021 GPs were involved in these procedures. The main objective of this paper is to analyze the geographical accessibility to general practitioners in Ialomița County. This analysis is carried out in a Geographic Information System (GIS), which allows the calculation and statistical modeling of accessibility indicators in close correlation with the transport system. This analysis took into account the distance and the time to be taken at the various points in the territorial system of Ialomița localities to the GPs. The results showed several inequalities in the spatial and territorial distribution of GP's in Ialomița County. In order to correct public health policies at the local level, it is important to find localities with low accessibility to health care services, as well as understand the size of the affected population. The analysis provides a quantitative statement of the quality of the primary health care system in Ialomița County. The method can provide the theoretical basis for an assessment that can create a new territorial development prospect for the primary health care system.



## **Evolution of cultural infrastructure and the accessibility of public libraries**

*Bogdan Pălici<sup>1,2</sup>; Liliana Dumitrache<sup>1</sup>*

<sup>1</sup> Simion Mehedinti Nature and Sustainable Development Doctoral School, University of Bucharest, Romania

<sup>2</sup> National Institute for Cultural Research and Training

### **Abstract:**

Over the last three decades, the number of active public libraries in Romania has decreased considerably. Inherently, access to the public library in the locality of residence has decreased. This analysis illustrates the territorial distribution of public libraries in interactive map available at administrative territorial unit. The main source of data used is the National Institute of Statistics. The focus of the analysis is the dynamic comparison of the evolution of public libraries at county level over the period 1995-2022, but also on the complementary topic of population access to the public library in their residence locality. Access to the public library is considerably lower in rural areas: in 21 counties, more than 40% of the rural population does not have access to an active public library and in 6 of these counties the percentage is even higher than 65%. In these 21 counties reside about 2.5 million people without access to an active public library in their place of residence.



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**The tourists' fascination for urban food markets – a new trend. Case study: Obor market, Bucharest**

*Iuliana Vijulie; Mihaela Preda; Ana-Irina Lequeux Dincă; Anca Tudoricu*

Faculty of Geography, University of Bucharest, Bucharest, Romania

**Abstract:**

In recent years, urban food markets have gained increasing attention from tourism researchers and practitioners. Thus, in many cities, food markets have become tourist attractions, allowing visitors to feel the sense of place through gastronomy. Bucharest is Romania's leading tourist destination due to its strengths as a cheap city break destination, vibrant nightlife, and controversial history. In this context, the paper aims to analyse the role of Obor Market from Bucharest in creating a tourist experience. The research methodology was based on the survey method, using the semi-structured interview guide as the main tool, applied to a sample of 100 foreign tourists visiting Bucharest. The study results show that this niche tourism has also become a trend in Bucharest. Tourists are looking for the local flavours and the particularities of the city, wanting to see what the daily life of ordinary Romanians looks like. Obor Market was one of their preferences, along with the popular Calea Victoriei (Victory Lane), the Old Center, the Palace of the Parliament, the Ceaușescu Mansion, and the Village Museum. Obor market is the largest and most famous of its kind in Bucharest, both for its history, product variety, and affordability. Tourists explore it with all their senses, from the aesthetics of seasonal fruits and vegetables to the ubiquitous smell of the traditional meat rolls (mititei) or the buzz of the crowd in the market. Most of the interviewed tourists (94%) said they were fascinated by the experience in Obor Market, highlighting at the same time the lack of promotion from the local authorities and the difficulties in getting information about it and hence finding it. In conclusion, Bucharest attracts a wide range of tourists looking for a non-conformist, affordable destination off the beaten track.



**Functional rural areas in Romania: between external polarization and internal homogeneity**

*Octavian Groza; Alexandru Rusu; Lilian Niacșu*

Alexandru Ioan Cuza University of Iasi, Iași, Romania

**Abstract:**

The complex socioeconomic processes of globalisation/deglobalisation and European integration require governments to seek innovative, adaptive and flexible administrative solutions that are able to mitigate risks and capture opportunities, while respecting the principles of sustainable territorial development. In Romania, the most recent signs of this approach are represented by Law no. 246 on metropolitan areas, in force since 28 July 2022, and by the introduction of the system of administrative consortia, initiated by Law no. 375 for the modification and completion of Government Emergency Ordinance no. 57/2019 on the Administrative Code, in force since 27 December 2022, which is currently being updated and completed in collaboration with the European Commission. In this context, the Ministry of Development, Public Works and Administration, together with ESPON-EGTC (European Grouping on Territorial Cooperation) have initiated a research on the Romanian rural areas, targeting the exploration and the definition of the functional rural areas. The research report, carried out at the Department of Geography of "Alexandru Ioan Cuza" University of Iași, was finalised in June 2022 and posted online in January 2023 (<https://www.espon.eu/topics-policy/publications/functional-rural-areas-romania>). The rural functional areas were defined on the idea of maximizing internal homogeneity, as opposed to traditional approaches, which privileged the idea of polarization gradients. Our communication continues and deepens the results of this investigation. The continuation of the research is justified by the fact that the idea of internal homogeneity is congruent with the principles of functioning of administrative consortia, seen as an instrument of territorial administration adapted precisely to Romanian rural areas.



**Perception of the local community regarding the monetization of the historical Oravița-Anina railway as a cultural resource**

*Florentina-Cristina Merciu<sup>1</sup>; Mircea Dorobanțu<sup>2</sup>; George-Laurențiu Merciu<sup>1</sup>*

<sup>1</sup> Faculty of Geography, University of Bucharest, Romania

<sup>2</sup> National Centre for Railway Qualification and Training

**Abstract:**

The value of historical railways and their important role in social, economic, technical, political, and cultural terms has led to their classification as industrial heritage attractions. Awareness of the heritage value of industrial heritage came late, in the context of deindustrialization, which led to underutilization, abandonment, and the deterioration of many industrial heritage sites, including those making up transport infrastructure. Abandoned railway lines are frequently found in areas where mining or heavy industry units are no longer operational. This study aims to assess the heritage value of the historical railway Oravița–Anina from the perspective of the local community. Oravița–Anina was the first mountain railway line on the current Romanian territory. The authors used a qualitative evaluation based on the perception of the values and reuse of the heritage railway from the perspective of the local community. The qualitative methodology facilitated understanding the voice of the local population in its attempt to sustainably reuse heritage railway as a tourist attraction. The attitude of the community in relation to the local cultural heritage is very important because it can influence the degree of its optimal capitalization. The results of the study reflect that members of the local community consider the Oravița–Anina railway to be a symbolic element of the local culture and history, and perceive it to be a tourist objective that could define the image of the two towns. The tourist reuse of the railway is seen by the community as an optimal solution, also justified by the large number of tourists who travel the route due to its particular attributes.

👁 [PRESENTATION VIEW](#)



**Investigating the potential multi-disciplinary research pathways for building socio-economic resilience in Romanian (former)-mining areas**

*Irena Roznoviețchi; Paul-Răzvan Șerban; Bianca Mitrică; Laura Lupu*

Human Geography & Regional Development Department, Institute of Geography of Romanian Academy

**Abstract:**

The paper will approach negative and positive aspects related to both (i) the current diverse and complex (former) mining local context (resulting from the specific distant past and from recent historic dynamics) and (ii) the future one, conditioned by the need to comply with the provisions and the application of the European Green Pact's commitments and impacted by the general funding opportunities, offered by the NRRP/PNRR (2021-2026). The multi-disciplinary approach (e.g. social geography, physical and environmental geography, GIS, local development) involves diverse methods, such as the community-based participatory research (for reducing gaps between research and practice within many community life domains), the case-study method (explaining complex issues for which the research and statistical data are missing or are overwhelming and where the territorial realities are challenging (or impossible) to explain with standalone quantitative analysis), living laboratories as innovation activity assuming the engagement of stakeholders into more socially and economically resilient post-mining territorial realities. For investigating the opportunities to be capitalized for rising the socio-economic resilience, several pathways will be possible to be followed through the multi-disciplinary research, such as: (i) to assess the population's acceptance of the new post-mining reality and the public awareness of the existence of alternative pathways for development, assuring their own socio-economic resilience; (ii) to evaluate the relationships between local stakeholders (e.g. economic actors, entities supplying social, cultural, educational services, local authorities etc.) in terms of their capability to be resilient; (iii) to analyse the stakeholders' (the locals included) awareness of alternative and sustainable activities (e.g. circular economy, tourism); (iv) to evaluate and to facilitate establishment of inter-community network between stakeholders (i.e. the innovative inter-community online platform, as a service/product derived from their interaction supporting the building of socio-economic resilience of former-mining communities).



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Environment at Crossroads: SMART approaches for sustainable future



**Fractal Fragmentation Indices - Areas of Applicability**

*Ion Andronache*

Faculty of Geography, University of Bucharest, Romania

**Abstract:**

This study aims to introduce three fractal fragmentation indices: the Fractal Fragmentation Index (FFI), the Fractal Fragmentation and Disorder Index (FFDI), and the Fractal Tentacularity Index (FTI). These indices are designed to operate across various spatial scales efficiently reporting fragmentation (FFI), both the fragmentation of images and their spatial disorder (FFDI), as well as tentacularity or ramification degree (FTI). These indices have been validated using hierarchically structured random map (HRM) multiscale images, along with several other categories of fractal and non-fractal test images from fields such as spatial economic data, tree cover, CT and MRI images (glioma, osteosarcoma, retinal ganglion cells), microglia images, retinal ganglion cells, and hydration belts of obsidian. The research underscores the relevance of fractal analysis in different fields, with the basic concepts and principles of fractal geometry being sufficient for developing models relevant to the studied reality. Furthermore, it highlights the need for ongoing interdisciplinary research based on established fractal indicators and the development of new analysis methods with translational potential across diverse fields.



### **Resources for creative cultural tourism development in Bucharest**

*Lequeux-Dincă Ana-Irina; Stoenică Mihaela; Teodorescu Camelia; Jipa Adrian-Nicolae; Vijulie Iuliana; Preda Mihaela*

Faculty of Geography, University of Bucharest, Romania

#### **Abstract:**

Creativity is a resource that is increasingly expanding nowadays and is involved in numerous urban development projects worldwide. The consumption of creative tourism and the demand for leisure based on creative industries is a stimulus and, at the same time, a new target of current urban development policies involving several categories of stakeholders. The present paper aimed to explore and identify opportunities and resources for developing creative cultural tourism in Bucharest from the perspective of three different groups of experts interested in the development of this leisure sector, namely: professionals in the tourism sector; professionals in the sector of arts and creative industries; academic staff interested in this topic. Two rounds of interviews took place in May – June, and October 2023. Based on a structured interview containing open-ended questions, a number of 12 answers, equitably balanced among the three categories of respondents, was obtained. Texts were further analyzed using qualitative software research methods, found particularly appropriate for social sciences and exploratory studies aiming to understand and deepen investigation on a research topic. The main results of this research show relatively convergent opinions among the three groups of stakeholders on the lack of local strategies and policies for the entrepreneurial initiatives in the creative sector of Bucharest, for which only the academic staff offered some examples. Regarding the possible resources for creative cultural tourism development in Bucharest, the professionals working in cultural industries mentioned the development of themed itineraries as stimuli for maintaining and developing artists' communities, whereas professionals in tourism mentioned the usage of social platforms in building and promoting marketing strategies to attract both local and international tourists.

👁 [PRESENTATION VIEW](#)



### **Sustainable urban mobility - a challenge for city planning in the present day**

*Mădălina-Teodora Andrei*

Ministry of Development, Public Works and Administration, Bucharest, Romania

#### **Abstract:**

At EU level, the EU Green Deal sets the goal of climate neutrality by 2050 by reducing greenhouse gas emissions from transport by 90%. The Sustainable and Intelligent Mobility Strategy contains measures to help achieve this goal, including measures to promote sustainable, smart, safe and healthy urban mobility and sustainable transport solutions - public transport, shared mobility, walking, cycling, etc. - that also contribute to the health and well-being of citizens. Sustainable urban mobility (SUM) contributes to a range of European policies aimed at promoting low and zero emission mobility, improving air quality and road safety, while generating co-benefits for citizens' health and well-being. In this context, rules for traffic in urban areas have been developed. These can also be considered as regulations, restrictions or bans, which are implemented to improve traffic and the quality of urban living and are included in sustainable urban mobility plans (SUMP). In Romania, the Law No 155/2023 on SUM is setting the general framework for the promotion and management of SUM at national level. The aim of this law is to establish the necessary conditions for a sustainable, equitable, efficient and inclusive mobility system to achieve better mobility conditions in urban and rural areas, reduce greenhouse gases from transport and increase road safety in urban areas, using green and digital solutions. Romania's cities face a number of problems caused by urban sprawl and inadequate public transport services, incoherent road networks, undersized pavements and inadequate parking solutions, but the major problem is traffic, which is very crowded and frequently congested. When we talk about mobility we need to consider not only the transport of people, but also the transport of goods, an important component of urban agglomeration. So, the urban planning needs to be rethought and adapted to the needs and principles of SUM.



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Environment at **Crossroads**: **SMART** approaches for sustainable future

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UNIVERSITY OF  
BUCHAREST

**Socioeconomic Dynamics in the Coastal Area of Romania: Between Long-Term Trends and COVID-19-caused Shocks**

*Igor Sîrodoev*

Ovidius University of Constanța, Romania

Faculty of Geography, University of Bucharest, Romania

**Abstract:**

The Romanian Coastal Area is a complex region with contrasting natural and economic conditions. Since the 1990s it has undergone a series of changes in its main social-economic variables, resulting in long-term trends. Some of the trends were positive to the economy of the region (such as tourism and trade development), while others (including demographics) are expected to be harmful to society in the long-term perspective. These trends were not uniform across the region but had significant spatial differentiation. In addition, the lockdown and restrictions imposed on the economy due to COVID-19 had a strong impact on the region. In our work, we examine the main trends and the impact of COVID-caused shock in the region on such domains as agriculture, main economic activities and demographic trends. We use satellite, economic and demographical data to highlight the dynamics of such variables as cropland area, turnover and number of employees by types of economic activity as well as population movement statistics. Our results show that the study area has three subregions, which have different long-term trends and different responses to shocks.



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Environment at Crossroads: **SMART** approaches for sustainable future

**Geographic maldistribution of physician workforce in Romania: urban –rural divide and need for better planning and retention strategies**

*Liliana Dumitrache; Mariana Nae; Cristian Cazacu*

Faculty of Geography, University of Bucharest, Romania

**Abstract:**

The spatial allocation of medical resources is closely related to population health outcomes. Health workforce shortage and maldistribution represent significant challenges for health systems functioning in many countries. Romania presently registered the lowest physicians per patient ratio in the European Union (EU); despite the increasing number of medical graduates, the number of practising doctors is decreasing, and shortages have become most critical over the past two decades with both out-migration of health professionals and intra-country disparities between large cities and rural areas or between primary and speciality care. Geographical imbalances in the health workforce distribution have adverse effects, particularly on the public healthcare sector. To address the issue of territorial imbalances, we consider that the maldistribution of physicians is contextually situated and might render several dysfunctions on the healthcare system: normative (the dual practice dilemma of practising both in the public and private sector), educative (programme of trainees, enrolment, and logistics), and social (emigration of physicians and retention policies). Therefore, for the effective functioning of the health care system, Romania still needs to implement effective policies to retain medical graduates and reduce physician outflows. Also, specific strategies regarding the size, structure and distribution of the physician workforce are required to alleviate issues related to access to care.



**Fitinspiration', recipes and diets in Romanian foods blogs: an exploration of digital foodscapes**

*Mariana Nae, Liliana Dumitrache*

Faculty of Geography, University of Bucharest, Romania

**Abstract:**

Food bloggers disseminate information about dietary products and behaviours and use variegated social marketing techniques. This article seeks to understand what constitutes 'healthy food and diets' in Romanian culinary blogs and how food bloggers use strategies in promoting healthy food recipes and products. A snowball sampling approach was used to find food blogs from search engines including Google, Bing, and Yahoo. A content analysis approach was applied to find characteristics of the promotion of healthy food and diets. These blogs were chosen based on three criteria: the presence of the 'healthy food and diets' topic/field, the topic has as its main objective the overall promotion of healthy foods and diets and the number of page views. Five popular blogs were followed over three months period (April – June 2022). In doing this, we raised questions about the relationships between the promotion of healthy foods, diets and products and the claims of their apparent knowledge of popular Romanian eating blogs. A total of 98 diet recipes were analysed for cooking variables, using a variety of methods including crosstabs with Chi-square tests, ingredients frequency and word clouds. Diet recipes showed differences in terms of methods of cooking, time preparation and principal ingredients. We examined the contribution of food blogs to discourse about healthy eating and diets seeking to understand how recipes are vehicles for the promotion of foods and products. Characteristics of these blogs were examined, and findings suggest that bloggers present themselves as passionate about food and give feedback to their followers.



## **Demographic Challenges for the Urban Poles of Economic Growth due to Technological Transformations and Artificial Intelligence**

*Avram Sorin<sup>1</sup>; Anghel Laura<sup>2</sup>; Nicolae Iulian<sup>3,4</sup>*

<sup>1</sup> Center for Demographic Research, INCE & University of Craiova, Romania

<sup>2</sup> INCE, School of Advanced Studies of the Romanian Academy

<sup>3</sup> Faculty of Geography, University of Bucharest, Romania

<sup>4</sup> Centre for Environmental Research and Impact Studies, University of Bucharest, Romania

### **Abstract:**

As cities struggle to maintain demographics or even experience rapid population growth, urban poverty is becoming a significant problem. This challenge is heightened amid technological transformations that may change the employment landscape. In addition, reaching a demographic development threshold in each urban space can amplify social and economic tensions. Technological progress has the potential to drastically alter the urban labor market. The emergence of robots and AI may lead to the loss of traditional jobs, with impact upon the unskilled workers and those with lower incomes. This can exacerbate urban poverty, as those in these categories may have difficulty adapting to the demands of a technological work environment and may need additional resources to catch up. At the same time, when a city approaches a threshold in terms of demographic development, additional pressures may arise on infrastructure and public services. This can lead to underinvestment in low-income neighborhoods, creating or perpetuating urban poverty. Rising housing costs in such cities already push the impoverished population into peripheral areas, where access to employment opportunities and basic services may be limited. We must consider that it will be essential to develop policies that promote workforce adaptability, ensure access to additional educational, and pursue equitable distribution of resources.



## **Demographic dynamics of Saxon settlements in Transylvania. Case study: Sighisoara**

*Bratu Daria - Petruța*

Simion Mehedinti Nature and Sustainable Development Doctoral School, University of Bucharest, Romania

### **Abstract:**

This paper is a study on the demographic dynamics of a medium level locality in Romania through the population indicators provided by statistical institutes. The chosen locality is the municipality of Sighisoara, a town with a long urban tradition in the old Romanian region of Transylvania. The time period for which this study was carried out is from 1990 to 2022, with comparative references for the period 1900 to 1989. For the demographic indicators presented in the paper, a network was structured based on their prioritisation and grouping by areas of interest. The analysis of the population of Sighisoara was carried out taking into account both the demographic changes (number, dynamics, structure) and the economic and social evolution of the locality. The results obtained by analysing the statistical indicators show a dynamic with decreasing tendencies of the values over the time interval analysed. The conclusions highlight the importance of studying the dynamics of demographic indicators in order to collect and provide data necessary for the elaboration of development strategies of an urban locality as well as the identification of its development axes, representing a useful tool for the analysis of the formation of polycentric urban systems.

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**Quantification of the main parameters with a role in the tourist development of the archaeological resources of Dobrogea**

*Vasile-Gabriel Dascălu; Cristian Constantin Drăghici*

Faculty of Geography, University of Bucharest, Romania

**Abstract:**

Starting from the existing statistical data, we propose a classification of the importance of the main parameters with influence in the development of heritage tourism. The analysis extends to the main archaeological resources in the historical region of Dobrogea. The area includes a relatively high density of ruins, ancient or medieval fortresses, fortresses, Roman forts, ancient cities, a fact that highlights the high potential for the development of a theme with historical valences in regional tourism. Although there is tourism infrastructure for some archaeological resources, many sites remain unutilized, being affected by shaping agents and human activities. Thus, through this study we want to extract the tourist potential of the archaeological sites without tourist facilities based on the tourist flow from the other exploited sites. Through documentation and field trips, we have extracted a series of parameters that we consider important in the tourists' decision to visit the archaeological resources of Dobrogea. By correlating these parameters with tourism success, we extracted the potential for tourism exploitation of those unpromoted and undeveloped historical vestiges. Our study is important for the creation of a plan for the sustainable development of archaeological tourism in Dobrogea by adding other archaeological sites to the official tourist circuits.



**Perspectives on wine-growing areas. A comparative analysis of land use between Argeş County and Galicia Region**

*George Secăreanu<sup>1</sup>; Schvab Andrei<sup>1,2</sup>, George Cracu<sup>1</sup>*

<sup>1</sup>Faculty of Natural Sciences and Agricultural Sciences; University „Ovidius” from Constanța, Romania

<sup>2</sup>Interdisciplinary Center of Advanced Research on Territorial Dynamics (CICADIT)

**Abstract:**

The wine sector is identified as one of the main resources with added value within the primary sector. This resource represents an important component in the development process of rural communities, having an essential role in the identity footprint of the place. However, in the territorial planning from the communist period, such land use had a major role in the economic support of communities. However, these surfaces suffered a drastic reduction after 1990, and in this context, by elaborating this study, it was analyzed whether this phenomenon is a common one or if it is specific to former centralized economies. By restricting the viticultural areas, the discrepancies between rural and urban spaces have increased, and the lack of jobs has led to an amplification of the demographic aging process. At the same time, through this study we wish to investigate how this culture brings its contribution to local communities through a comparative analysis at the level of Argeş County in Romania and Galicia Region in Spain. In this sense, we analyzed the inputs and outputs at the spatial level recorded in the years of 1990 and 2018 within these surfaces with the help of the Corine Land Cover database. The analysis takes place at the commune level, so it presents a granular component, with questionnaires and a series of interviews applied to the business environment. These methods have in the foreground the knowledge of the problems of these communities, as well as the introduction of non-quantifiable indicators in the local analysis.



## **Perceived barriers in accessing Romanian essential services for vulnerable migrant population**

*Liliana Dumitrache; Mariana Nae; Alina Mareci; Anca Tudoricu; Alexandra Cioclu*

Faculty of Geography, University of Bucharest, Romania

### **Abstract:**

Romania has been a country of transit rather than a destination for refugees and irregular migrants, translating into poorly developed instruments for dealing with and integrating such vulnerable populations. However, it has recently experienced an increased migration influx. As a result, such vulnerable populations often face difficulties when accessing essential services. This study explores the experiences and barriers of asylum seekers and people with refugee backgrounds in accessing healthcare and education services in Romania. It is an exploratory study with a qualitative research design. Thematic analysis was applied to grasp the difficulties and barriers that asylum seekers and people with refugee backgrounds experienced in accessing essential social services. The research was based on seven in-depth interviews with representatives of significant national or international non-governmental organisations assisting refugees and asylum seekers in Romania and 129 semi-structured interviews with different categories of people with refugee backgrounds from Southwest Asia, Eastern Africa and Ukraine. Two salient emerging themes were identified: access to healthcare and access to education. These themes provided insights into the challenges and barriers that asylum seekers and refugees experienced in accessing these essential services. Participants talked about what information they needed to access the healthcare system and education attainment, where they looked for it, and what barriers they faced. Financial, linguistic, structural and cultural barriers were perceived as the most significant. Improved public awareness, a better understanding of asylum issues, and strong community support are essential to addressing inequalities experienced by this vulnerable population.



### **The spatial allocation of high school network in Romania**

*Angelo Andi Petre*

Faculty of Geography, University of Bucharest, Romania

#### **Abstract:**

In Romania, the distribution of high schools is heavily concentrated in urban centers, while rural settlements face a scarcity of educational institutions, posing significant challenges to equitable educational access. Under the change of legislation between the national laws of education, 1/2011 and 198/2023, the importance of access to education prevails. The study focuses its analysis within the framework of human rights and the relevance of educational accessibility concerning the United Nations Sustainable Development Goals (SDGs), particularly Goal 4, which aspires to ensure inclusive and quality education for all. Recognizing the urgent need for policy interventions, the study advocates for the development of comprehensive public policies aimed at diminishing the urban-rural educational divide. These policies should encompass strategies for equitable high school distribution, innovative transportation solutions to facilitate rural students' access, and investments in infrastructure and technology to address the digital divide. The analysis of the spatial distribution shows that most of the high schools are located in urban settlements, as well as the better ranked schools. Admitting that the need is higher in urban settlements, the study emphasizes the need of better public transportation school system for the isolated communities. In conclusion, this study underscores the critical significance of high school educational accessibility in Romania and underscores the necessity for a robust policy framework. By aligning these policies with human rights principles and global development objectives, Romania can ensure that every student, regardless of their geographic location, enjoys equal access to quality education, thus promoting a more inclusive and prosperous society.



**The potential effect of video games on tourism in Romania. Case study: Transilvania-Resident Evil 8**

*Marian-Andrei Vintilă*

Simion Mehedinti Nature and Sustainable Development Doctoral School University of Bucharest, Romania

**Abstract:**

Tourism induced by video games presents a particular development potential considering the large number of players, even more so as video games present a challenging way of communication. The topic "The potential effect of video games on tourism in Romania. Case study: Transilvania-Resident Evil 8" was chosen based on the evolution of the video game industry in recent years and also based on the multitude of elements presented in video games that refer to Romania. Also, the motivation for choosing this topic was based on the impact that video games can have in terms of the development of a new type of tourism in Romania, namely tourism induced by video games. The purpose of this study is directly related to highlighting the elements of cultural identity presented in video games and the impact they can have in order to generate a new form of tourism in Romania. The methodology approached for the realization of this study referred to the analysis of specialized literature on the potential effect of video games regarding the influence on the image of tourist destinations and the in-depth analysis of particular cases related to Romania, which was completed by the method of observation and the method of processing the data collected the practical stage. The results of the study highlighted how video games can influence the development of a new form of tourism in Romania and Transilvania. At the same time, the research results in a variety of identity images as elements from video games, so through them numerous locations from Romania, respectively Transylvania, are presented.

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### **Tourism development in Orsova - Dubova area**

*Amalia Mihaela Oglindoiu; Ana-Maria Roangheș-Mureanu*

Faculty of Geography, University of Bucharest, Romania

#### **Abstract:**

Against the background of the changes in the current society (increasing well-being, free time, interest in protecting the environment and cultural heritage) we can note, in the studied area, an increase in the consumption of tourist activities reflected by the increase in the number of tourist reception structures (2 units per year 1990, 75 units in 2022), their diversification, an increase in accommodation capacity (375 accommodation places in 2001, 1319 accommodation places in 2022), the number of food and leisure facilities and the number of arrivals and overnight stays for tourists. The improvement of the technical and development infrastructure, of transports, the improvement of the quality of the tourist accommodation and leisure infrastructure, the promotion of the tourist potential of the Danube Gorge have generated an increase in the attractiveness of the region, which has had an impact on local economies and the creation of new jobs. The development of specific infrastructures and the increase of the quality of tourist services was done by setting up some natural tourist sites with tourist potential (Ponicova cave), by setting up access roads, marking tourist routes, installing information panels, tourist information points (Orșova), diversifying cultural events artistic (Eibenthal-Czech Village in Romania, etc.), the construction of new tourist reception structures and the modernization of existing ones. The number of arrivals increased from 4,576 arrivals in 2001 to 31,342 in 2021, and the number of overnight stays from 8,375 in 2001 to 62,786 in 2021. These measures are not sufficient as the duration of tourists' stay is still short, on weekends, numerous tourists only transit the area, so measures are still needed regarding: the diversification of tourist activities, the preservation of natural and cultural heritage, the provision of quality tourist services, respect for the way of life of the native populations, the way of designing



**The tourist attraction of the Subcarpathian relief between the valley of Ialomița and the valley of Prahova**

*Mihai Nuță*

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**Abstract:**

The objective of the doctoral thesis is the identification of the way in which the relief contributes to the development of tourism in the Subcarpathians between Ialomița and Prahova and the elaboration of some proposals for tourism capitalization. In the study area there are certain forms of relief that can be included in the geomorphosite category. They are those forms that, due to their rarity or spectacularity, impose themselves as sites of scientific interest. All these properties configure a certain tourist potential for the respective geomorphological sites. The relief forms to which I refer are conditioned by the petrographic and structural particularities, highlighted by specific modeling agents (fluvial erosion, torrential erosion) or by certain gravitational processes (surprises, landslides). This is the case of petrographic and structural steeps, of erosion or sliding ravines (often strongly affected by gullying), of prominent erosion witnesses (crag, ridges, tusks), of trovants revealed in relief. The value is given by those features of size and shape that make them impressive, spectacular, becoming tourist attractions. They can be classified according to the genetic criterion of relief forms: • Structural and petrographic cliffs, cut in friable, monoclinally or quasi-horizontally stratified sandstones: Malu de Răsună, from the upper basin of the Bizdidel Valley, in the upstream part of Bezdead commune; • Fluvial erosion escarpments, with the relief of the terrace structures, which highlight the succession of quaternary gravels, loess and fossil soils: the steepness carved by the Prahova river at the head of the Câmpina terrace. • Salt massifs: the salt massif from Ocnîța, modeled by dissolution, erosion and erosion. • Trovanti highlighted in relief, on the right slope of the Prahova valley near the Breaza locality. • Petrographic witnesses, Cetățuia Peak, on the Bărbulețu – Wide Valley interfluves

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## **The role of smart tourism in the sustainable development of tourism in EU Member States**

*Iuliana Tudose (Pop)*

University Alexandru Ioan Cuza, Iași, Romania

### **Abstract:**

Tourism is an activity that has seen a spectacular development up to 2019 and early 2020. The health crisis generated by the COVID-19 pandemic has hit this sector hard. Tourism's ability to recover in a relatively short timeframe has been demonstrated by continuing to operate and adopting solutions to help recover losses. Smart solutions have been both a useful tool for tourists and tourism in general, and a way to sustain sustainable tourism. In a globalised world where mobility is increasing and the world's population is growing, sustainable development is becoming a priority and sustainable tourism is an urgent necessity. Thus, smart tourism can support sustainable development in tourism. The EU is a supporter of sustainable development and is campaigning for a clean environment. EU countries are implementing smart solutions, including in tourism, on an increasing scale. The article aims to identify EU policy documents and strategies that target smart tourism in EU Member States with a view to sustainable development in tourism.



## G. Teaching Geography between tradition and modernity

### Effects of using learning activities in teaching geography

*Florentina Toma*

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“Mihai Eminescu National College“, Bucharest, Romania

#### **Abstract:**

School progress using standardized teaching-learning-assessment, based on the formation of specific skills for students, is a priority in ensuring the quality of the educational process. Thus, the use of learning activities for all students in a class as a teaching-learning technique represents an important goal in achieving school performance. Starting from an analysis of research on the integration of effective and student-approved tools in the educational environment, this study aims to present teaching opportunities for all students, referring to the discipline of geography, pre-university education. The design of the applied research includes mixed methods applied to some students during two years of study, based on the results obtained on the formative assessment form Kahoot!, to determine the knowledge level of middle and high school students in the discipline of geography. The present study evaluates the learning environment in which a successful integration of learning activities is anticipated for all students of a class with the help of ICT tools in the instructional-educational process, from the perspective of comparative measurement of the impact on the tests. The experiment carried out and the Google Forms questionnaires applied suggest, through the degree of involvement of all students, how maintaining the permanent attention of all students of a class through the technology used can facilitate the teaching-learning process. The results showed that there are statistically significant differences between the experimental and the control group and that the technique of using standardized learning activities for all students in a class through information and communication technologies (ICT) is an important method for capturing the attention of the whole class, improving performance and developing specific skills, having the opportunity to provide students with positive results.



### Application of Ayurvedic profile in the educational process

*Valentina-Mariana Manoiu*

Faculty of Geography, University of Bucharest, Romania

#### **Abstract:**

Ayurvedic medicine or ayurveda is a system of medical care, a form of alternative medicine. It developed in India about 5000 years ago. According to Ayurveda, similar to a unique fingerprint, each human being has a specific energy pattern, a particular combination of physical, mental and emotional characteristics. This inimitable structure or constitution is expressed as a specific manifestation of the 3 doshas (bioenergies or life forces): Vata, Pitta and Kapha. Each individual has this distinct structure from birth, which does not change, being called "Ayurvedic profile or type". Although there is a unique mix of the three doshas, one dosha is usually more influential in each person. The Web of Science database includes 4974 scientific articles on ayurveda, 2175 of which are open access. These articles are about treating various ailments applying ayurveda. Using the keywords "ayurveda" and "education", 564 scientific articles resulted in our search, 305 being open access, and they highlight the application of Ayurvedic principles in medical education. There is no article that refers to the use of Ayurvedic principles by teachers/professors for good knowledge and understanding of pupils/students, for the development of teacher-pupil/student interaction, stimulation of pupils/students' participation in educational activities, etc. The present work is based on the author's 23 years of academic teaching experience, during which the identification of each student's Ayurvedic profile contributed to harmonious relations with students. The purpose of the paper is to characterize the main Ayurvedic profiles and exemplify appropriate behavioral attitudes that should be demonstrated by teacher/professors, for each Ayurvedic type of pupils/students, for the purpose of their educational development. The paper mentions some of the hundreds of feedbacks received anonymously by the author from students at the end of each academic year, concluding the obvious benefits of Ayurvedic perception in the successful educational act.



## The subject GEOGRAPHY, where to?

*Mari-Elena Belciu*

ISJ Călărași

### **Abstract:**

Hours have been lost in the curriculum framework, norms at the level of school units/counties, and the future is unclear regarding the teaching of geography in high school. We are interested in the future because that's where we'll spend the rest of our lives, but we don't have the necessary strength to support ourselves. Maybe together we can identify solutions.



**Religious tourism in Bucharest - models of practical didactic approach**

*Cristina Maria Popescu*

Viilor economic Highschool

**Abstract:**

The main interest of the elaboration of this work was to capitalize culturally and especially educationally the religious and ecumenical potential of the city in which we live but also of its surroundings. The city of Bucharest represents a great religious heritage, with an architectural and cultural-religious heritage of particular importance, so it is my duty as a teacher to present it to the students in order to make them aware and also to actively participate in seeking of this wealth. That's why this work has been designed with exercises, portfolios, group work, lots of visuals, group projects, virtually, in the classroom or in the field. This paper mediates the transfer of information and skills from one discipline to another (geography/religion), students have access to tourism sources and resources seen as the main way to develop skills such as critical thinking, problem solving, communication, from the perspective lifelong learning. It is an excellent opportunity to awaken and encourage their pleasure to travel and meet new places and people, to communicate in different environments and situations, to enrich their knowledge and shape their personality through direct involvement. Multiple possibilities for formative, summative, creative assessment are offered. The learning activities are according to the particular conditions of the class as well as the individuality of the students. Learning contents are modularly grouped, students work in groups, field activities, group projects, simulations, classroom exercises.



**Teachers' perception on the implementation of „Green Week” National Programme in Bucharest**

*Mihaela Sima<sup>1</sup>; Laura Lupu<sup>1</sup>; Angelo Andi Petre<sup>2</sup>*

<sup>1</sup> Institute of Geography, Romanian Academy

<sup>2</sup> Faculty of Geography, University of Bucharest, Romania

**Abstract:**

Education is recognised as essential in preparing children and citizens in addressing environment and climate change challenges of the nowadays society. In this respect, there are several initiatives and recommendations worldwide (e.g. UNESCO ESD Programme) or at the European level (e.g. EU Green Deal) to integrate the study of climate change and sustainability aspects as part of the national curriculum framework and across countries' policies and programmes. Romania made several steps ahead by proposing, in the school year 2022-2023, a national programme entitled „Green Week”, to mainstream climate change and environmental education into schools. The objective of our study is to assess the experience of the teachers in Bucharest regarding the implementation of “Green Week” National Programme, in terms of challenges they faced, resources that have been used, activities performed and their perception on the effectiveness of the programme. In this respect, an online questionnaire has been distributed in the period June-October 2023 to public and private schools in Bucharest targeting primary and secondary education levels. The survey was attended by 390 teachers, around 24% being primary school teachers. Statistical analysis has been performed to explore the difference in perception among participants grouped by different socio-demographic and professional variables in the activities undertaken, resources used, the role of institutional support, the main challenges and confidence level in performing climate change and environmental-related activities. The main challenges identified by teachers deal with lack of financial resources to undertake some activities as for example traveling, lack of teachers training and experience to carry out some activities and lack of materials and resources in the community. In conclusion, teachers generally have a positive appreciation regarding the programme's outcomes: a medium-high influence on students, on their professional development and on the community and mostly agree that the programme should continue in the coming years.



## **The Green Week. How long is the road from theory to practice for schools in Romania?**

*Mioara Clius<sup>1</sup>; Daniel Vîrdol<sup>2</sup>*

<sup>1</sup> Faculty of Geography, University of Bucharest, Romania

<sup>2</sup> National Institute of Statistics, Romania

### **Abstract:**

In the 2022- 2023 school year Romania initiated a compulsory program for pre-university education named The Green Week. This program has the goal of implementing the national Strategy on the Education for the Environment and Climate Change 2023-2030 and contributes to – alongside with other institutional tools - student’ knowledge, teachers’ skills and attracting resources to support education. A matrix analysis, applied to 112 projects presented on the websites of secondary schools and high schools which totaled 1936 implemented activities, reveals: a lower percentage (37%) of overlap with the goals of the national program; inefficient use of the local learning resources (only 17%); poorly presented contents which bolster student’ ability to investigate the reality surrounding them (12%). Through the method of superimposing the activities implemented with the goal of the national project and of ODD4 it results in a lower value (18,68%), so the potential growth of this project is high. The causes of these results are the hasty preparation of the program, without a preliminary training of teachers and without providing them the necessary learning resources and tools, but also a poor representation in the analysis of schools in Romania under the conditions in which the information was collected from the schools’ websites. The positive outcomes/elements of the implementation of the program consisted in the visible support of the civil society and of public or private institutions with the skills and resources relevant to the subject of the project, furthermore the representation in the press generated a debate in Romanian society on topics such as: climate change, the investigation and evaluation of environmental problems and sustainable development.

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### **Geography teaching between traditional and modern**

*Elena Coca Tudose*

Videle Theoretic Highschool

#### **Abstract:**

Modern education rises above the level of knowledge and assimilation of knowledge, relying on the development of thinking, the formation of attitude and behaviour and the promotion of the student's personality. The use of modern technology and different applications is intended to stimulate pupils' interest and make them co-participants in their own learning, to increase interactivity and to integrate pupils' skills acquired in different contexts, in and out of school. Geography as an object of study has great opportunities to motivate pupils' cognitive activity as it reveals in its content the diversity of the nature of planet Earth, population and economic activity in different parts of the planet. An important role in motivating learning is played by the organisation of pupils' educational activities through the diversity of modern sources of geographical information. It is well known that various teaching aids are used in geography teaching. These means of geography learning have a positive effect on the formation of motivation for educational activities. Widespread use of information and communication technologies as an effective means of visualization in the study of geography not only facilitates the assimilation of educational content, but also provides new opportunities for the development of students' creative abilities and stimulates their cognitive activity. The computer in geography lessons has become an important means of achieving educational goals, which enriches the educational process and contributes to the development of the pupil's personality and the teacher's professional training, especially in the current period. All this offers greater clarity, dynamism, and a higher level and volume of information compared to traditional forms. Geography is, however, a science in which the fundamental medium of education remains the map, whether on paper or digital. A discipline which, in the age of digitalisation, provides almost instant access to information.



**INTERNATIONAL CONFERENCE:  
17 - 18 November, 2023  
Bucharest, Romania**



Environment at Crossroads: SMART approaches for sustainable future

**Collaborative learning, a modern form of teaching geography in higher education**

*Roxana Cuculici; Constantin-Răzvan Oprea; Marian Ene*

Faculty of Geography, University of Bucharest, Romania

**Abstract:**

The social, economic, and organizational changes, occurring in the daily life of each of us and felt both globally and locally in the last 5 years, have led to the need to find new methods of carrying out daily activities. Equally, the requirement to identify new teaching methods was highlighted, which would be more attractive and which would offer the student the opportunity to relate the theoretical part with the practical one and to find new skills, useful in a future job. This paper aims to highlight collaborative learning as a way of learning certain subjects in the field of geography, based on teamwork within partner institutions or companies within joint projects over a given period. This type of learning cultivates in the current student and future employee, a series of important skills such as teamwork, time management, and responsibility about a given theme and the group to which it belongs, assuming results and the desire to improve. In order to validate this new way of teaching, a representative sample of students from the Faculty of Geography, University of Bucharest was interviewed. The semi-structured interview was based on a questionnaire. The results obtained showed the possibility of approaching collaborative learning as a modern way of teaching geography in higher education in Romania. Keywords: geography, students, collaborative learning

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**INTERNATIONAL CONFERENCE:**  
**17 - 18 November, 2023**  
**Bucharest, Romania**

Environment at Crossroads: SMART approaches for sustainable future



**A project for the management of the affirmation of geography in pre-university education**

*Octavian Mândruț*

Universitatea „Constantin Brancusi”, Târgu Jiu, Romania

**Abstract**

The geography in pre-university education is in a new situation, with successive limitations. A brief historical overview of the last 50 years highlights what has been possible and what is currently possible. Currently, a project to support geography in pre-university education, at both theoretical and practical levels, needs to be continued with an efficient managerial project. Each action must be based on a well-conceived project. This project starts from a series of findings, some more or less known (programs, Olympiads, training support, social and media perception of geography), or other limiting findings (some of which are new). The premise of this project is the following assertion: 'every geographer or geography teacher must do what they know best.' Elements of this initiative include, among others: taking on a negotiated project to renovate geography in pre-university education, constant media affirmation of geography and its possibilities to change the current reductionist perspective, the possibility of affirming geography as a paradigm or even an ideology of our century, affirming the possibilities of educational geography to efficiently transfer the main concerns of the contemporary world into education, building a project for high school geography through modern programs that determine an appropriate configuration of the curriculum, involving societal actors in support of school geography (through an assumed articulated methodology), promoting innovative educational elements with media impact. The above can be transformed into a model that can be adopted following objective negotiations.



## H.01 SURE Workshop – Paradigm shift in urban ecology

### Mapping blue-green infrastructure connectivity in the metropolitan area of Bucharest

*Antonio-Valentin Tache; Oana Cătălina Popescu; Alexandru-Ionuț Petrișor*

#### **Abstract**

Currently, climate change is at the top of urban planning agenda in many cities and regions. Implementing green-blue infrastructures becomes an absolutely necessary condition in territorial planning due to habitat fragmentation that aggravates the potential impact of climate change and triggers negative phenomena, e.g., greenhouse effect, urban heat islands, soil erosion, or landslides. In order to conserve existing green infrastructure, planners must locate most urgent needs and optimal results of actions. Visualizing priority conservation areas supports decision-makers to optimally allocate limited existing resources for ecosystem preservation. Landscape connectivity is crucial to maintaining species dispersal and sustaining ecological processes and functioning. The project behind this study aims to implement a methodology for making the multifunctional analysis, assessment, and mapping of green infrastructure operational. This presentation describes an innovative methodology for identifying the connectivity of green-blue areas and designing the green-blue infrastructure in Bucharest metropolitan area. The methodology used a data set compatible with European environmental requirements and two very successful ARCGIS tools. To evaluate the characteristics of landscape in the study area, we accounted for biodiversity and socio-economic values, connectivity aspects, and type of ecosystem services offered. Mapping corridors also highlighted existing points of conflict between the continuity of connecting corridors and transport infrastructure. These conflict points were precisely identified using satellite images from Copernicus program. The use of high-resolution satellite images overlapped with processed geodata also led to accurate results in assessing spatial connectivity and green infrastructure components of Bucharest metropolitan area. Creating and implementing the methodology had two purposes: constituting a starting point for planning the green-blue infrastructure of Bucharest metropolitan area and representing a good practice model for integrating green-blue infrastructure in urban and territorial planning, contributing to sustainability. Finally, connectivity maps and use of information and data are crucial for decision-making processes concerning the green infrastructure.

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**INTERNATIONAL CONFERENCE:**  
**17 - 18 November, 2023**  
**Bucharest, Romania**



Environment at Crossroads: SMART approaches for sustainable future

**SURE Summer School İstanbul 2024: Planning and Using Urban Ecological Spaces for Education**

*Meryem Hayir Kanat*

Yildiz Technical University

**Abstract**

Urban ecological areas are important places planned to protect the natural environment and support natural life in modern city life. These areas include urban agricultural areas, urban parks, hobby gardens and urban wildlife areas. This study focuses on the diversity of urban ecological areas and their potential for use in education. This summer school project aims to protect the natural environment and ecosystems in cities, promote diversity and increase ecological awareness by addressing a wide range of elements of urban ecological areas, namely urban agricultural areas, urban parks, hobby gardens and wildlife areas in cities. Using ecological areas to raise awareness to eliminate the negative effects of global warming can contribute to the development of sustainable and nature-friendly cities. The project, which will take place in Istanbul, will focus on the sea and coastal parks in a coastal city where the amount of active green space per capita (around 2 M<sup>2</sup> per person) is well below international standards. The project is planned as an international summer school for senior undergraduate students and graduate students and will be hosted by Yıldız Technical University in cooperation with the Germany-based Urban Ecology Association (SURE).

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**Ecosystem services potential in the planning and management of urban areas. Case studies from Poznań, Poland**

*Iwona Zwierzchowska; Piotr Lupa*

Department of Integrated Geography, Adam Mickiewicz University in Poznań

**Abstract**

Ecosystem services are not yet frequently applied in spatial planning in Poland. Therefore, we aim to recognize which ES is viewed as the most crucial in the planning and management of urban space and how ES studies can support it. We present an example of CES and RES studies as a background for a broader discussion on the need for an ES integrated approach. A workshop with the city practitioners indicated that among the most important cultural and regulating ES are: the use of nature for rest and relaxation and temperature and humidity regulation. Therefore our examples reflect two approaches to the assessment of those ES in Poznań. The first case presents city residents' preferences concerning green space attributes within multifamily housing space expressed in a Discrete Choice Experiment (DCE) and spatial mapping of selected attributes of residential greenery. The second case presents an assessment of land surface temperature according to the distribution of NDVI as a proxy of vegetation presence and population density. The results showed that practitioners regard the space in a holistic way, while ES studies are often case-specific. On one hand, the diversity of approaches provides an opportunity for the recognition of various ES, and points of view but at the same time, it creates a challenge for implementation in practice.



## **Urban trees and climate adaptation**

*Angela Hof*

University of Salzburg, Department of Environment & Biodiversity, Research Group Urban and Landscape Ecology

### **Abstract**

Impact of built environment and climate change: Within urban areas, UHI intensities can have positive effects on the duration of ecosystem service provisioning. A recent study in Salzburg, Austria, showed that trees at sites with a low UHI intensity differed significantly from those on sites with a medium or high UHI intensity: Their bud break began later, leaf discoloration took longer and growing season was shorter. Subsequent analyses of five different species showed that UHI intensity can have a significant influence on the period of full foliage and hence the provisioning of ecosystem services. The findings will be discussed with respect to climate change adaptation and retrofitting the urban forest towards climate-fit species composition.