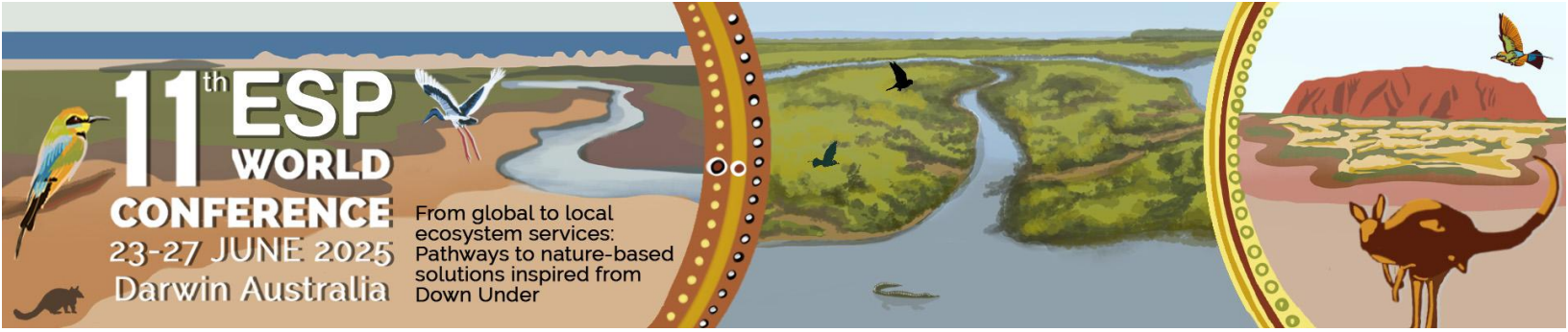


BOOK OF ABSTRACTS

I. SESSION DESCRIPTION

ID: T2b

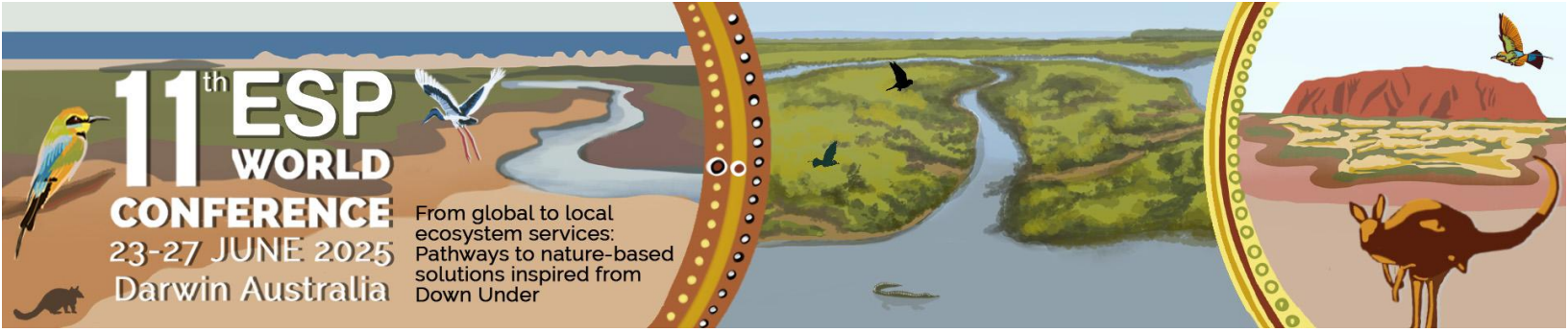
Urban Nature in the Global South: Exploring challenges and opportunities in shaping sustainable pathways

	Name	Organisation	E-mail
Host:	Noah Chongo	Climate Protection Zambia	ncnoahchongo@gmail.com

Abstract:

Urban areas are human-environment systems that depend fundamentally on ecosystems, and thus require an understanding of the management of urban ecosystem services to ensure sustainable urban planning. Nature-based solutions can provide a range of ecological, social and economic benefits and are increasingly positioned as practical solutions for addressing urban sustainability challenges. Despite the promise and growing evidence that Nature-based solutions can reduce urban vulnerability to climate change, to date the understanding and uptake of Nature-based solutions pathways particularly in the global south is limited. ESP 11 represents a unique opportunity to harness the collective power of a global network of ecosystem services partnership researchers, practitioners and policy makers to explore on the challenges and opportunities in shaping sustainable pathways for mainstreaming Nature-based solutions in the global south. The session will take into consideration of the perspectives from the global audience, as well as a horizon scan forward of desirable key nature-based solutions stepping stones and pathways for addressing both climate and biodiversity challenges. Through The Solutions Room session format of 60-90 minute's duration, participants will be facilitated to engage and connect together to discuss on the five (05) thematic topics on challenges, opportunities, urban ecosystem services, urban biodiversity and pathways. The workshop will set the tone for a peer collective paper publication, highlighting cross-sectoral understanding of challenges and opportunities of nature-based solutions uptake in urban ecosystems in the global south with perspectives from the global audience, as well as a horizon scan forward of desirable key nature-based solutions pathways for mainstreaming Nature-based solution for urban sustainability challenges. The session will further result into an in-depth related research information needed to communicate to a wider community of practice working in ecosystem services partnership.

Key Words: Urban Nature, Global South, Challenges, Opportunities, Nature-based solutions, Biodiversity, Sustainable pathways.



Goals and objectives of the session:

The aim of the workshop session is to foster publication of a scientific journal paper highlighting cross-sectional understanding of challenges and opportunities of nature-based solutions uptake in urban ecosystems in the global south with perspectives from the global audience, as well as a horizon scan forward of desirable key stepping stones and pathways for mainstreaming Nature-based solutions for addressing urban sustainability challenges. The session will also highlight the potential of urban ecosystem services and urban biodiversity. The session will further explore on an in-depth related research information needed to communicate to a wider community of users.

Planned output / Deliverables:

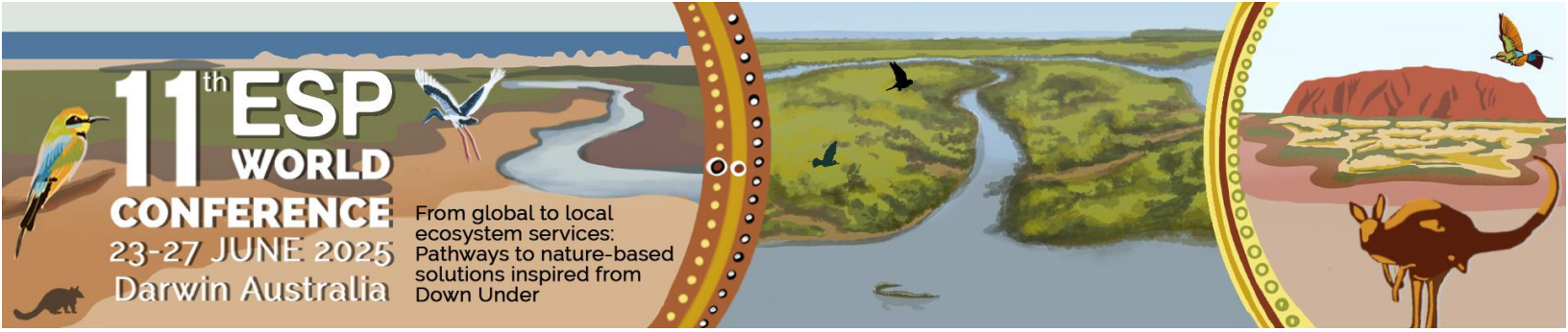
- The session will result in the publication roadmap/framing of a scientific journal paper on ''Urban Nature in the Global South: Exploring Challenges and Opportunities in shaping sustainable pathways''.
- The session will result in realisation and broader understanding of the key stepping stones and pathways for mainstreaming nature-based solutions in the global south.
- The session will avail an in-depth related research information among global participants engaged in real time and that will be needed to be communicated to a wider community of users.
- The session will result in enhanced understanding among participants of practical application of the ecosystem services and urban biodiversity concepts in relation to nature-based solutions for better informed decision making towards a more sustainable urban futures in the global south.

II. SESSION PROGRAM

Room: Waterfront 2
Date of session: 24.06.2024
Time of session: 15:30 – 18:00

Timetable speakers:

Time	First name	Surname	Organization	Title of presentation
15:30 – 15:35		Session host		Introduction
15:35 – 15:50	Manob	Das	Ramananda College	Understanding the seasonal pattern and factors affecting cooling effect of blue spaces: a case from a mega metropolitan area (India)



Time	First name	Surname	Organization	Title of presentation
15:50 – 16:05	Douglas William	Cirino	University of São Paulo	Mapping cultural ecosystem services in a global south megacity: the supply, the demand and the challenges
16:05 – 16:15	Avantika	Adhruj	Indian Institute of Forest Management	Citizens' perceptions of urban biodiversity and ecosystem services in Bhopal, central India
16:15 – 16:30	Noah	Chongo	Climate Protection Zambia	Urban Nature in the Global South: Exploring Challenges and Opportunities in shaping sustainable pathways.
16:30 – 16:40	Soubadra	Devy	ATREE	Sky Islands in the City: Reimagining Roofscapes for Urban Biodiversity and Human Well-being
16:40 – 16:55	Kakha	Nadiradze	Association for Farmers Rights Defense, AFRD	Strengthening Ecosystems in Georgia through Agroecology, Nature-Based Solutions, and Biodiversity Conservation
16:55 – 18:00		Session host		Session wrap-up

III. LIST OF ABSTRACTS

The first author is the presenting author unless indicated otherwise.

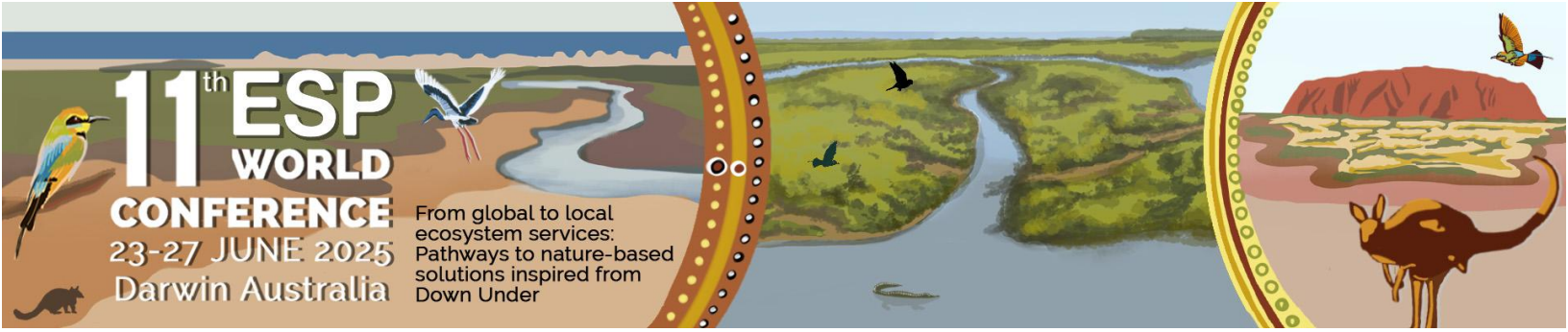
1. Understanding the seasonal pattern and factors affecting cooling effect of blue spaces: a case from a mega metropolitan area (India)

First authors(s): Manob Das

Other author(s): Arijit Das

First author affiliation: Ramananda College

Contact: dasmanob631@gmail.com



Keywords: Blue space; cooling intensity; metropolitan area: urban expansion; climate change.

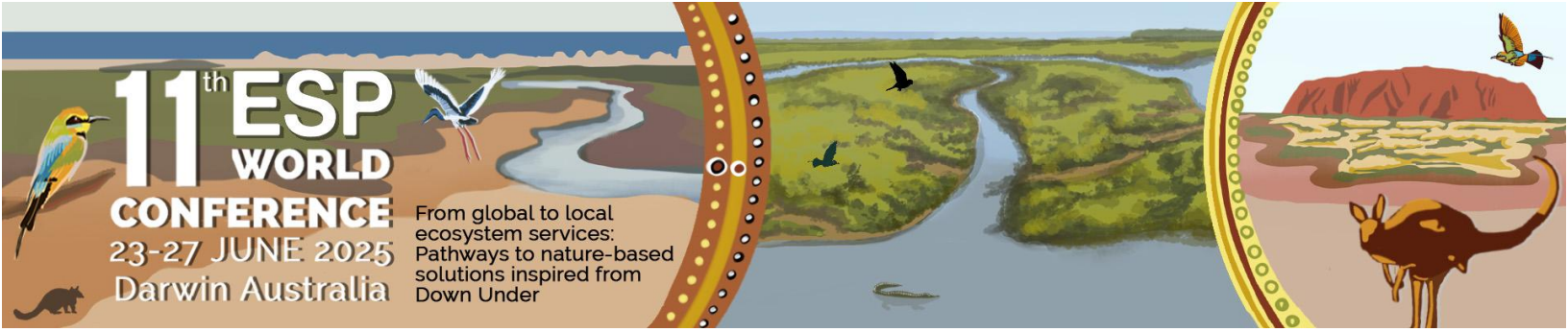
Assessing the seasonal patterns and factors influencing the cooling intensity of blue spaces is crucial for optimizing urban climate regulation. It helps identify how blue spaces mitigate heat stress during warmer periods, informs sustainable urban planning, and enhances resilience to climate variability, ultimately contributing to improved urban health and well-being. This study examines the seasonal variations in cooling intensity of blue spaces, and key factors affecting cooling intensity of blue spaces in Kolkata Mega Metropolitan Area, India. A total of 578 blue spaces were selected from the entire region and seasonal pattern of cooling intensity has been assessed based on the remote sensing and geo-spatial technology. Co-relation analysis, regression and principal component analysis (PCA) were performed to understand the key factors affecting cooling intensity of blue spaces and identify the bundles. The results showed that a) The highest LST values were recorded in summer (mean 62.07°C), b) in contrast, the post-monsoon season showed the lowest LST (mean 58.12°C), c) blue spaces demonstrated varying cooling intensities across seasons, with the highest during summer, d) there was a negative correlation between blue space area and LST was consistent across all seasons e) regression analysis revealed that socio-economic factors had the most significant impact on cooling intensity (R^2=0.72), and environmental factors also played a crucial role (R^2=0.46), f) PCA underscored the dominant influence of climatic factors, such as wind speed and precipitation, on blue space cooling efficiency. Thus, this study underscored the critical role of blue spaces in urban climate regulation and highlights the need for strategic urban planning to enhance their cooling benefits, particularly in warmer seasons.

2. Mapping cultural ecosystem services in a global south megacity: the supply, the demand and the challenges

First authors(s): Douglas Cirino

Other author(s): Nicolas Mouquet, L. Roman Carrasco, Jean Paul Metzger

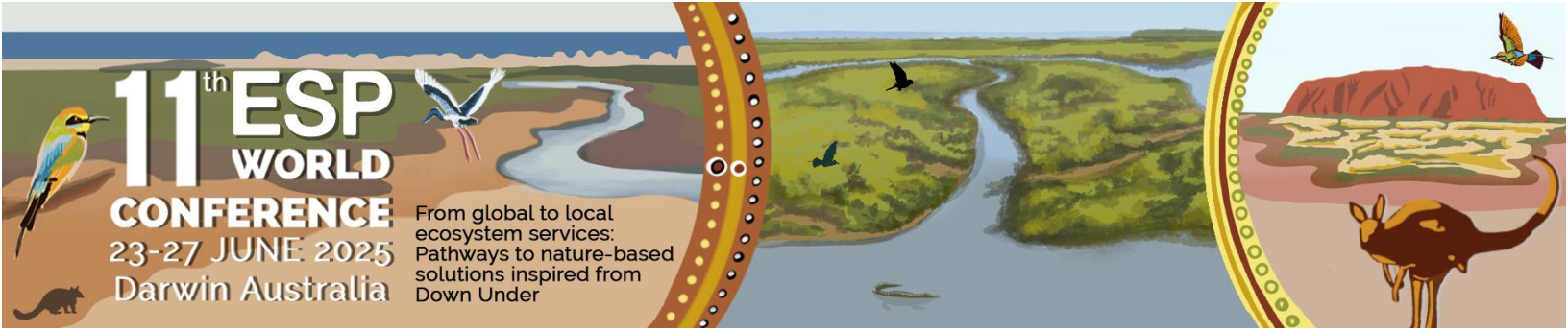
First author affiliation: University of São Paulo



Contact: douglas.cirino@usp.br

Keywords: urban green infrastructure; urban inequality; nature-based solutions; urban planning; ecosystem services mapping

The urban environment strongly shapes the quality of life, well-being, and health of its residents. Cultural ecosystem services (CES), such as aesthetic value, recreation, and mental restoration, are often underreported compared to regulating ecosystem services, yet they are fundamental to urban functioning. The main challenge in mapping CES lies in translating nuanced public perceptions into the ecosystem services framework. In this study, we generated a spatially explicit and high-resolution map of CES supply and demand across São Paulo, the largest megacity in the Southern Hemisphere, using spatial models, perception-based surveys, and deep learning approaches. The distribution of CES often reflects deep social and spatial inequalities, and our findings highlight critical supply-demand mismatches, reinforcing known urban disparities in the Global South. Our results reveal that while certain landscapes provide high CES value, their accessibility is uneven, often benefiting wealthier areas while leaving vulnerable communities underserved. CES provision is intricately linked to urban landscape configuration: aesthetic value is shaped not only by greenery but also by urban arrangement, structural complexity, and tree volume; recreation potential in parks is strongly associated with patches of lawns, leisure infrastructure, and park design; and mental restoration benefits depend on the contiguity of tree cover, effective park management, and diverse land uses. We reinforce the need for well-maintained and multifunctional green spaces, as supplying all three CES equitably requires diverse landscapes distributed throughout the city to ensure accessibility across socioeconomic groups. The challenges extend beyond the supply-demand mismatch, including the difficulty of bridging ecological assessments with social realities in highly dynamic and diverse urban landscapes. Our study investigates the intricate interplay between urban landscapes and human perception. By advancing data-driven decision-making, we provide actionable insights for urban planning and nature-based solutions, ensuring that CES contribute to more just, sustainable, and health-promoting cities.



3. Citizens' perceptions of urban biodiversity and ecosystem services in Bhopal, central India

First authors(s): Avantika Adhruj

Other author(s): Dhayna Bhaskar

First author affiliation: Indian Institute of Forest Management

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Keywords: Urban- rural gradient, Urban green spaces, Stakeholders, Urban perception, Urban local bodies

India's rapid urbanization places immense pressure on natural areas and biodiversity in urban spaces. Urban biodiversity and green spaces provide several ecosystem services for city residents, however systematic assessment of urban biodiversity is lacking, particularly in smaller Indian cities, which are expected to see significant urban growth in the future. This study was conducted across the rural urban gradient of Bhopal, a fast-growing Tier II city in Central India to understand the preferences for and attitudes towards urban biodiversity conservation. The study area was limited up to the municipal corporation boundaries and it was divided into grids; on the basis of built up area percentage, each grid were designated as urban/rural or peri urban.

A questionnaire survey was conducted with a sample size of approximately 120 households, selected randomly through ARC-GIS. Additionally, key informants interviews (KII) from different stakeholders representing, government, NGOs, and academic institutions was done to understand their perception on challenges, barriers and enablers of urban biodiversity conservation.

The mean score revealed that rural residents feel the importance of biodiversity a little more than the urban residents. Rural people were also more satisfied with greenery around them, and had more knowledge about local species compared to urban residents. There more such variables that shows a distinct difference between the perception across the gradient. Rural residents demonstrated a higher acceptance of biodiversity, including reptiles and amphibians. As per the KII, along with the urban local bodies, NOGs, forest department, academic institutes are playing

a key role for the biodiversity conservation through their initiatives. Strong policy framework and stakeholder collaboration has been effective for enabling any conservation related activities. However, there are few challenges such as limited public awareness, land encroachment issue and insufficient funding that has been faced by the stakeholders.

4. Urban Nature in the Global South: Exploring Challenges and Opportunities in shaping sustainable pathways.

First authors(s): Noah Chongo

Other author(s): Lydia Chibambo

First author affiliation: Climate Protection Zambia

Contact: ncnoahchongo@gmail.com

Keywords: Nature, Global-South, Challenges, Opportunities, pathways.

Urban areas are human-environment systems that depend fundamentally on ecosystems, and thus require an understanding of the management of urban ecosystem services to ensure sustainable urban planning. Nature-based solutions can provide a range of ecological, social and economic benefits and are increasingly positioned as practical solutions for addressing urban sustainability challenges. Despite the promise and growing evidence that Nature-based solutions can reduce urban vulnerability to climate change, to date the understanding and uptake of Nature-based solutions pathways particularly in the global south is limited. ESP 11 represents a unique opportunity to harness the collective power of a global network of ecosystem services partnership researchers, practitioners and policy makers to explore on the challenges and opportunities in shaping sustainable pathways for mainstreaming Nature-based solutions in the global south. The session will take into consideration of the perspectives from the global audience, as well as a horizon scan forward of desirable key nature-based solutions stepping stones and pathways for addressing both climate and biodiversity challenges. Through The Solutions Room session format of 60-90 minute's duration, participants will be facilitated to engage and connect together to discuss on the five (05) thematic topics on challenges,

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5. Sky Islands in the City: Reimagining Roofscapes for Urban Biodiversity and Human Well-being

First authors(s): Soubadra Devy

Other author(s): M Soubadra Devy, Chethana V Casiker, Nivedita Arumugasamy, Sunil G M, Pavan K Naik, Tamizhazhagan S

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Keywords: green roofs, nature-based solution, sky-islands , island biogeography, ecosytem services

Green roofs offer a viable solution to urban biodiversity loss and climate challenges by transforming rooftops into ecological "sky islands." These multifunctional spaces mitigate urban heat, enhance air quality, support wildlife, and promote biophilic engagement. Inspired by island biogeography, interconnected green roofs can function as biodiversity corridors, countering habitat fragmentation. Structural complexity, native and drought-resistant plant species, and circular waste-water management enhance resilience and sustainability. While barriers like structural limitations, costs, and governance gaps exist, policy incentives and community

involvement can drive adoption. Integrating green roofs into urban planning can create regenerative, climate-adaptive cities with thriving biodiversity and improved liveability.

6. Strengthening Ecosystems in Georgia through Agroecology, Nature-Based Solutions, and Biodiversity Conservation

First authors(s): Kakha Nadiradze

Other author(s): Nana Phirosmanashvili, Tekla Nadiradze

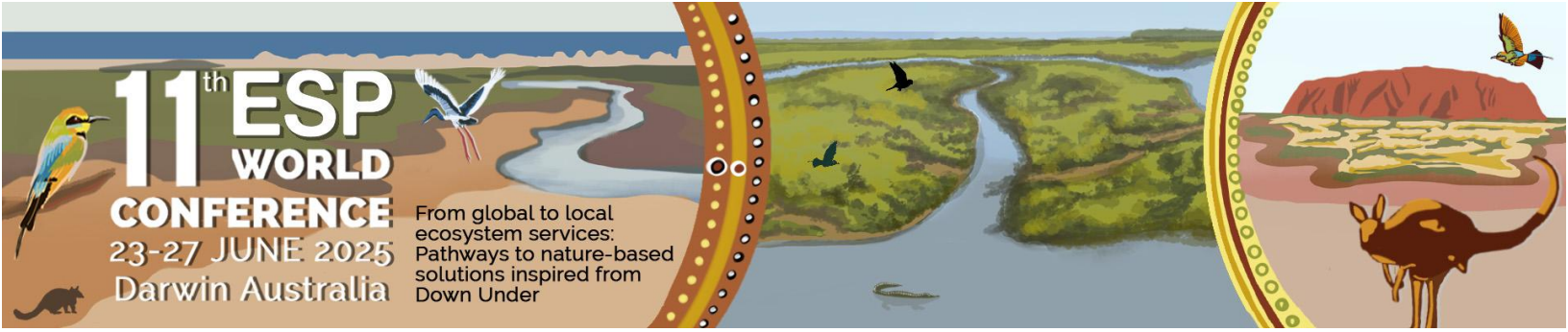
First author affiliation: Association for Farmers Rights Defense, AFRD

Contact: nadiradzekakha@gmail.com

Keywords: Keywords: Agroecology, Nature-Based Solutions, Ecosystem Management, Habitat Restoration, Overgrazing, Erosion, Gene

The Association for Farmers Rights Defense (AFRD) Georgia, a member of the Agroecology Coalition and a Task Force of the Global Genome Biodiversity Network (GGBN), is leading efforts to address critical environmental challenges and promote sustainable development. This paper explores AFRD's comprehensive approach to strengthening Georgia's rural and urban ecosystems through the integration of agroecology, nature-based solutions (NBS), and biodiversity conservation, with a focus on ecosystem management, habitat restoration, and the preservation of genetic resources.

Georgia's ecosystems are under increasing pressure from land degradation, overgrazing, erosion, and habitat fragmentation, which threaten biodiversity, food security, and climate resilience. Overgrazing and unsustainable land-use practices have exacerbated soil erosion, reducing agricultural productivity and weakening ecosystem services. AFRD's initiatives emphasize restoring degraded habitats through reforestation, sustainable grazing systems, and urban greening projects, which enhance carbon sequestration and mitigate climate impacts.



A key component of these efforts is the conservation and utilization of genetic resources through gene banking to protect endangered species and agrobiodiversity. Leveraging the GGBN framework, AFRD is advancing the preservation of Georgia's unique genetic heritage to ensure resilience against environmental stressors. By integrating traditional knowledge with cutting-edge science, AFRD fosters sustainable land-use practices that benefit rural livelihoods and urban communities alike. This presentation highlights case studies demonstrating the success of agroecology and NBS in combating erosion, regenerating ecosystems, and strengthening biodiversity conservation. It underscores the importance of ecosystem management and habitat restoration in aligning local actions with global frameworks such as the Sustainable Development Goals (SDGs) and the Post-2020 Global Biodiversity Framework. AFRD's innovative and inclusive approach offers replicable solutions for regions worldwide grappling with similar environmental challenges.