

PRESENTATIONS BOOKLET
LIBRO DE RESÚMENES



BIOPOLIS 2024

GLOBAL SYMPOSIUM

22 - 23 OCT CALI COLOMBIA

LIVING LANDSCAPES AND INFRASTRUCTURES
FOR HEALTHY COMMUNITIES



THE SCHOOL OF ARCHITECTURE AND URBAN DESIGN OF THE
 NATIONAL UNIVERSITY OF COLOMBIA (UNAL-BOGOTA)
 THE INSTITUTE OF PACIFIC STUDIES OF THE
 NATIONAL UNIVERSITY OF COLOMBIA (UNAL-TUMACO)
 AND THE COLOMBIAN ASSOCIATION OF FACULTIES OF ARCHITECTURE (ACFA)

IN ALLIANCE WITH:

THE ALEXANDER VON HUMBOLT INSTITUTE (IAVH)
 THE COLOMBIAN GREEN BUILDING COUNCIL (CCCS)
 THE U.S. GREEN BUILDING COUNCIL (USGBC)
 THE WORLD GREEN INFRASTRUCTURE NETWORK (WGIN)
 WGIN'S CHAPTER FOR EMERGING PROFESSIONALS (GICEP)
 THE INTERNATIONAL FEDERATION OF LANDSCAPE ARCHITECTS (IFLA)

PRESENT:

BIOPOLIS 2024
 GLOBAL SYMPOSIUM

22 - 23 OCT CALI COLOMBIA

**LIVING LANDSCAPES AND INFRASTRUCTURES
 FOR HEALTHY COMMUNITIES**

Organizing Committee

Andrés Ibañez (UNAL-BOG)
 Luna Rodríguez (GICEP)
 Daniela Baquero (GICEP)
 Deisy Peñuela (UNAL-TCO)
 Diana Ruiz (IAVH)
 David Brasfield (WGIN)
 Bruno Marques (IFLA)
 Carolina Suárez (ACFA)
 Angelica Ospina (CCCS)
 Francisco Ramírez (UNIVALLE)

Academic Committee

Andrés Ibañez
 Luna Rodríguez
 Daniela Baquero
 Diana Ruiz
 Manfred Köhler
 Benedict Essuman-Quainoo

Logo and Image Design

Andrés Ibañez
 Luna Rodríguez
 Daniela Baquero

Editor

Luna Rodríguez



This work is licenced under a
[Creative Commons Attribution-ShareAlike 4.0 International License](https://creativecommons.org/licenses/by-sa/4.0/)
 Universidad Nacional de Colombia, 2024

Recommended citation:

Ibañez A, Rodríguez L, Baquero D, Ruiz D, Kohler M, Essuman-Quainoo B. 2024. Biopolis 2024 Global Symposium - Presentations Booklet. Universidad Nacional de Colombia (UNAL). Bogota, Colombia.

The international Commission for Living Infrastructure (LINC) embraces the shift from grey to nature-based cities at the COP16. The frenzy of human-centered urbanization over the last two centuries drastically transformed life-supporting ecosystems into artificial environments failing to maintain the health of humans and non-humans.

At the tipping point of the current environmental crisis, there is an urgent need to design and build urban landscapes that integrate plants, birds, pollinators, microorganisms, and other non-human forms of life that are key to functional and resilient communities. This implies fostering our awareness of cities as a continuum of nature in man-made environments through new methods, approaches, projects and metrics that reflect how biodiversity contributes to achieving regenerative and inclusive urban landscapes which manifest the “human right to nature” motto, but also how buildings, public space and infrastructure meet the “rights of nature” and are recognized as a sound conservation strategy.

La Comisión Internacional para las Infraestructuras Vivas (LINC), en el marco de la COP16, apuesta por una transformación de las ciudades grises hacia ciudades basadas en la naturaleza. En los dos últimos siglos, el frenesí de la urbanización centrada en el ser humano ha transformado los ecosistemas que sustentan la vida en entornos artificiales, disminuyendo su capacidad para mantener la salud de los seres humanos y no humanos.

En el actual punto de inflexión de la crisis ambiental, hay una necesidad urgente por diseñar y construir paisajes urbanos que integren plantas, aves, polinizadores, microorganismos y otras formas de vida no humanas que son clave para sostener comunidades funcionales y resilientes. Esto implica entender las ciudades como un continuum de la naturaleza en los entornos artificiales, a través de nuevas metodologías, enfoques, proyectos y métricas que evidencien las contribuciones de la biodiversidad al desarrollo de paisajes urbanos regenerativos e inclusivos, que materialicen la aspiración del «derecho humano a la naturaleza», así como el aporte de los edificios, el espacio público y las infraestructuras a los «derechos de la naturaleza» y a las estrategias de conservación de la biodiversidad.



Table of Contents

| PRESENTATION | PAGE |
|---|------|
| THE BIG PICTURE: Biopolis Across Scales (Session 1) | |
| Keynote: From Visión to Action: Landscape Architecture's Contribution to a Biodiverse Future. BRUNO MARQUES, New Zealand. President, International Federation of Landscape Architects (IFLA). | 7 |
| Main Ecological Structure. GLORIA APONTE, Colombia. International Federation of Landscape Architects (IFLA). | 8 |
| Keynote: Landscape Architecture Solutions to 'Halt and Reverse' Biodiversity Loss. SOHYUN PARK, United States. University of Connecticut. American Society of Landscape Architects (ASLA). | 9 |
| Ecosystemic Cities: Reflections on the Adaptive Masterplan Proposal Applied to Belo Horizonte. ALINE VILELA, Brazil. Pontificia Universidade Católica de Minas Gerais, (PUC-MG). | 10 |
| The Ring City: Three Basic Patterns. ANTONIO FERNANDEZ, Colombia. | 11 |
| ENGAGING STAKEHOLDERS: Biopolis Across Communities (Session 2) | |
| Keynote: 1+1=3... Art, Science and Other Entanglements for Biodiversity. DAVID MADDOX, United States. The Nature of Cities (TNOC). | 12 |
| Keynote: From Watersheds to Urban Fabric: Fostering Active Citizenship. DIANA WIESNER, Colombia. Cerros de Bogota Foundation. | 13 |
| Keynote: Learning from Cities: People and Nature in the Urban Context. AUDREY TIMM U.K. Association Internationale des Producteurs de l'Horticulture, (AIPH). | 14 |
| Keynote: Living Landscape: The BiodiverCities Approach for Healthy, Resilient and Inclusive Communities. MARTHA FAJARDO, Colombia. International Federation of Landscape Architects (IFLA). | 15 |
| Urban Design: Integrating Nature and Community. A New Academic Scenario. JULIANA MONTOYA, Colombia. Universidad EAFIT. Área de Territorios y Ciudades. (URBAM) - Centro de Estudios Urbanos y Ambientales. | 16 |
| CONVERSATION PANELS | |
| Multi-actor Commission to Reconcile Public Spaces with Nature. ANA MIRANDA & ANDRÉS IBAÑEZ, Corteza Viva, Colombia. | 17 |
| A Conversation on Nature and the Built Environment. ANGELICA OSPINA & NATALIA TRUJILLO, Colombia. Colombian Green Building Council (CCCS) - Amarillo . | 18 |
| LOCAL STORIES: Biopolis Across Environments (Session 3) | |
| Keynote: 6 Strategies to Biodiverse Cities in Colombia. ANDRES IBAÑEZ, Colombia. National University of Colombia (UNAL), World Green Infrastructure Network (WGIN). | 19 |
| Urban Acupuncture for Amazonian Cities Connected to their Biodiversity. JUAN FELIPE GUHL, Colombia. Instituto Amazónico de Investigaciones Científicas (SINCHI). | 20 |
| Ritual Territory in Biogeographic Choco: Landscape, Ritual, Territory, Body and Architecture in the Pacific Coast. CARLOS ARIAS, Colombia. Guia Nomada Collective. | 21 |
| "Puttumika Mainki Pamparuz an Pianmika Inkal Awá". Waving Roots of the Inkal Awá Knowledge. ANGELO PAEZ CALVO & SOFIA GARRIDO, National University of Colombia (UNAL). | 22 |
| Biodiverse Urban Design Adapted from the Dry Forest in the Atlantic Coast. CARLOS CUELLO, DOROTHEA CARDONA et. Al, Colombia. Alexander Von Humboldt Institute (IAVH). | 23 |
| The Urban Ecological Structure as a Territorial Platform for Nature's Contributions to People in Medellin, Colombia. FRANCISCO VASQUEZ, Colombia. University of San Buenaventura. | 24 |
| Biodiversity Connectivity Systems as Structure of Urban Settings. FERNANDO CORTES, Colombia. National University of Colombia (UNAL). | 25 |
| Transdisciplinary Approach as an Opportunity in Housing Developments to Increase Biodiversity in Cartagena. DIANA SALAZAR & SOFIA LISSBRANT, Colombia. AED Constructores. | 26 |
| CLOSING LECTURES - DAY ONE (Session 4) | |
| Keynote: Green Building Rating Systems: a Framework to Accelerate Impact at Scale for Biodiversity. PETER TEMPLETON, United States. United States Green Building Council (USGBC). | 27 |

Table of Contents

| PRESENTATION | PAGE |
|---|------|
| NEW FRONTIERS: Biopolis Across Technologies and Spaces (Session 5) | |
| Keynote: Biodiversity for Health and Healthcare Infrastructure. DAVID BRASFIELD, Norway. World Green Infrastructure Network (WGIN). | 28 |
| Keynote: Building - Nature: Navigating how the Building Sector is Approaching Biodiversity. ELIZABETH BEARDSLEY, United States, U.S. Green Building Council. | 29 |
| Keynote: What if... Form Followed LIFE? Potential Lessons From a Radical Urban Design Experiment. OLIVIA BINA, University of Lisbon, Portugal. | 30 |
| Keynote: BIOPOLIS 2080: Architectures Beyond Human. ANDRES IBAÑEZ, Colombia. National University of Colombia (UNAL), World Green Infrastructure Network (WGIN). | 31 |
| The Owl Monkey Path: Metahuman Architecture Applied to a Wildlife Crossing Design in Rural Quindío. LUNA RODRIGUEZ, Colombia. World Green Infrastructure Network WGIN's Chapter for Emerging Professionals (GICEP) - National University of Colombia (UNAL). | 32 |
| Urban Microbiotopes. JUAN ARISTIZABAL, Colombia/Italy. World Green Infrastructure Network WGIN's Chapter for Emerging Professionals GICEP - National University of Colombia (UNAL). | 33 |
| Integrated Stormwater Management in the Context of Water Sensitive Landscapes and Cities. FERNANDA PEDRAZA, Colombia. National University of Colombia (UNAL). | 34 |
| Natural Processes for Water Regulation: Network of Rain Parks. JUAN GOMEZ, Colombia. National University of Colombia (UNAL). | 35 |
| Optimizing Green Infrastructure for Urban Sustainability: Insights from Brazil and Germany. ELAISE GABRIEL, Brazil. World Green Infrastructure Network WGIN's Chapter for Emerging Professionals (GICEP). | 36 |
| (Un)finished Landscapes for 2100: Multifunctional Infrastructure and Public Space on the Amphibian Border of Tumaco, Colombia. SERGIO CORTES, Colombia. National University of Colombia (UNAL). | 37 |
| Natural Cities: 5 Pillars for Green Infrastructure Implementation in Cities. LUIS SUAREZ, Colombia. HELECHO. | 38 |
| Biodiversity and Climate: The Green Future of Bogotá - Case Study of the Bogotá-Region, Science, Technology and Innovation Building (CTIB). LAURA MANTILLA and MARGARITA MARIA ROMERO ROJAS, Colombia. | 39 |
| Emerging Pedagogies in Sustainable Urban Design of a Reimagined Caribbean Mangrove Swamp in the Context of the Climate Crisis. CARLOS BUENO, Colombia. Universidad del Norte. | 40 |
| Spaces for Tropical Education Enbeded in Nature, Colombian Pacific Coast. LEONARDO ALVAREZ, National University of Colombia (UNAL). | 41 |
| Geography Mediations: Urban Approaching Systems to Nature. GUSTAVO SALAZAR, Universidad del Valle, Colombia. | 42 |
| CLOSING LECTURES - DAY TWO (Session 6) | |
| Keynote: The Lowline: The World's First Underground Park. JAMES RAMSEY, United States. RAAD ARCHITECTURE NEW YORK. | 43 |
| Keynote: Equatorial Architecture for Amazonic Biomes. LAURENT TROOST, Brazil/Belgium. TROOST+PESSOA Architects. | 44 |
| Keynote: Nature as Measure: How Eco-system Performance can Enable Nature Positive Cities and Infrastructure. AMANDA STURGEON, Australia. BIOMIMICRY INSTITUTE. | 45 |
| Keynote: Climate and Biodiversity Positive Design. EUSTACIA BROSSART, United States/Argentina. CLIMATE POSITIVE DESIGN. | 46 |



Bruno Marques NEW ZEALAND

International Federation of Landscape Architects (IFLA)

Landscape architect and educator with 10+ years of experience at Victoria University of Wellington, New Zealand. His research agenda focuses on developing frameworks for landscape rehabilitation, cultural landscapes, place-making, and Indigenous community health and wellbeing. Bruno is the current President of the International Federation of Landscape Architects (IFLA).

From Vision to Action: Landscape Architecture's Contribution to a Biodiverse Future

Summary. Landscape architecture plays a vital role in addressing the biodiversity crisis and shaping sustainable environments. This presentation explores the intersection of landscape architecture and biodiversity, emphasising the urgent need for action and highlighting innovative approaches to design, planning, and management. It examines the challenges and opportunities associated with biodiversity, emphasising the importance of the Global Biodiversity Framework and the role of landscape architects in its implementation. The presentation also showcases successful projects that demonstrate the transformative potential of landscape architecture in creating biodiverse, resilient, and liveable cities.

THE BIG PICTURE: Biopolis Across Scales (Session 1)





Gloria Aponte COLOMBIA

International Federation of Landscape Architects (IFLA)

Master of Arts in Landscape Design, University of Sheffield U.K. Directed her firm Ecotono, for twenty years, dedicated to planning, design and restoration of landscape and to Environment Impact Analysis. Co-designer and co-director of the *Arquitectura del Paisaje* magazine (1989-1991). Delegate of the Colombian Society of Landscape Architects SAP to the International Federation of Landscape Architecture, past Chair of the Education and Academic Affairs Committee in IFLA Americas Region. Honorary member of the Society of Landscape Architects of Ecuador, SAPE. Fifteen years ago, designed the Master in Landscape Design (only one in Colombia by now) for Universidad Pontificia Bolivariana en Medellín, which directed for eight years. Promotes landscape education in Latin America. Landscape lecturer at postgraduate programs in Universidad Nacional, Universidad Javeriana, Universidad del Valle, Universidad Pontificia Bolivariana, Universidad Jorge Tadeo Lozano, Universidad de Cuenca. Designed and directed a Diploma for Latin American landscape lecturers. Competitions jury, national and international speaker at numerous events on Landscape concept, design and management. Has published around 20 articles and other book chapters. She advises some leading firms in Colombia and directs academic research on landscape.

Main Ecological Structure

Summary. One of the first steps to make Peace with Nature, means to dialogue with her, recognize her. When we talk about urban scapes it's unavoidable to remember that nature was in every place, before settlements started. On the other hand, it is key to realize that biodiversity is not just green, because it comprises water (usually blue) and all colors of fauna, at least in high biodiverse territories.

The concept that perfectly fits in here is that of Main Ecological Structure (MES), developed and applied in Colombia, during the present century, an appliede during the last ten years. As "Structure", it guaranties continuity of green areas from rural to urban environments. Our work in landscape design started there and combines with man-made work and particularly with the perception expected by human users of the space.



Sohyun Park UNITED STATES

American Society of Landscape Architects (ASLA)

Dr. Sohyun Park is an Associate Professor in the Department of Plant Science and Landscape Architecture at the University of Connecticut (UConn). Prior to UConn, she was with the Department of Landscape Architecture at Texas Tech University. She also held positions as a Research Director and Research Fellow in both the public and private sectors.



Zahra Ali UNITED STATES

University of Connecticut (UConn)

Zahra Ali is a PhD student in the Department of Plant Science and Landscape Architecture at the University of Connecticut (UConn) and a research assistant in Dr. Sohyun Park's Sustainable Urban Planning Camp; Ecology Research Lab. Her research focus is on ecocultural heritage landscapes and local ecological knowledge in South Asia. Through methods of visual storytelling, walking and making, she aims to illuminate multispecies relations and how local ecological knowledge, land relations, and sense of place are entangled with onto-epistemologies, language, learning environments, and social structures.

Landscape Architecture Solutions to 'Halt and Reverse' Biodiversity Loss

Summary. Biodiversity loss threatens global ecosystems, endangering planetary stability. Countries have set a goal of protecting and restoring 30% of the world's terrestrial and aquatic areas by 2030. However, a gap remains between biodiversity research and its practical application. This session presents research funded by a national grant from the American Society of Landscape Architects (ASLA). Our review of nearly 70 scholarly articles and case studies identified ways to enhance biodiversity through green infrastructure and nature-based solutions designed by landscape architects. We discovered significant patterns and gaps in current design practices. The discussion will address the implications of our findings, propose a future research agenda, and offer strategies for creating more biodiverse landscapes through planning, design, and maintenance. We will propose key strategies to achieve biodiversity net gain and advocate for bold actions to promote biodiversity-positive design.

THE BIG PICTURE: Biopolis Across Scales (Session 1)



COP16
COLOMBIA
PARTICIPANTES

LA CASA
HUMBOLDT



comfandi

UNIVERSIDAD
NACIONAL
DE COLOMBIA

CCCS
CONSEJO COLOMBIANO DE
CONSTRUCCIÓN SOSTENIBLE



WGIN
WORLD GREEN
INFRASTRUCTURE NETWORK

IFLA
INTERNATIONAL FEDERATION
OF LANDSCAPE ARCHITECTS



A.C.F.A.





Aline Vilela **BRAZIL**

Pontificia Universidade Católica de Minas Gerais (PUC-MG)

Architect and Urban planner, postgraduate student in 'Parametric Design for Architecture' at the Pontifical Catholic University of Minas Gerais - Brazil. She undertook an academic exchange programme at the Pontificia Universidad Javeriana in Bogotá, Colombia. She currently works as a Sustainability Certification Consultant for Architecture and Urban Planning projects at "Ares Sustentabilidade".

She has experience in the development of Building Information Modelling (BIM) projects, Computational Design and Sustainability in Architecture and Urbanism. With a degree in Dance from the Federal University of Viçosa, she has also worked in the field of cultural production and management, with an emphasis on the production and programming of shows, cultural and academic events related to the arts in general.

Ecosystemic Cities: Reflections on the Adaptive Masterplan proposal applied to Belo Horizonte - MG

Summary. Based on the idea that urban problems require interdisciplinary solutions, the article proposes a reflection on sustainability practices in the production of space, presenting a design methodology, mediated by emerging digital tools, which aims to generate positive impacts for the environment. The proposal of this work combines the concepts of 'Eco-Incremental' cities, the principles of 'Blue Green Infrastructure' and the concept of 'Sponge Cities'. Through the use of parametric computational design tools, it formulates guidelines for urban design, applied to the Horto region and its surroundings, in Belo Horizonte - MG. Its aim is to assess whether the measures proposed by the city's Master Plan are sufficient to generate improvements in the quality of urban space. As a result, to generate design solutions aimed at increasing the availability of ecosystem services, promoting human well-being and preserving biodiversity and local ecosystems.

THE BIG PICTURE: Biopolis Across Scales (Session 1)



COP16
COLOMBIA
PARTICIPANTES

LA CASA
HUMBOLDT



comfandi

UNIVERSIDAD
NACIONAL
DE COLOMBIA

CCCS
CONSEJO COLOMBIANO DE
CONSTRUCCIÓN SOSTENIBLE



WGIN
WORLD GREEN
INFRASTRUCTURE NETWORK

IFLA
INTERNATIONAL FEDERATION
OF LANDSCAPE ARCHITECTS



A.C.F.A.





Antonio Fernández COLOMBIA

Over the past 37 years, Antonio has completed over 150 projects that collectively contribute to building a greener, more efficient city with safe public spaces for pedestrians and cyclists. He has been instrumental in the development of one of the world's most recognized sustainable transportation systems, overcoming challenges of space and budget. A graduate of Javeriana University in Bogotá (1987), Antonio specialized in Urban Planning at the Polytechnic University of Barcelona's School of Engineering. He worked on Barcelona's Metropolitan Territorial Plan and later contributed to Bogotá's first mass transportation project, Troncal Caracas. Since then, he has accompanied the system's evolution, completing 10 trunk lines, stations, terminals, airports, and various civil works, prioritizing pedestrian and cyclist infrastructure.

The Ring City: Three Basic Patterns

Summary. There are three basic patterns of territorial planning: 1. The Block City: Larger cities are more attractive and powerful but marginalize green spaces, leading to long commutes and high costs of living. 2. The Linear City: Shares environmental benefits with moderate costs but marginalizes life on the outskirts. 3. The Archipelago City: Lacks gravitational force and is weak.

The Ring City: Combines the benefits of the linear city with efficiency, equity, and territorial integration. Three radial links connect opposite sides in minutes. The core houses major infrastructure and integrated centers of thought, recreation, and leisure. Once the Territorial Ecological Structure is organized, the populations to be integrated through one or multiple rings are identified, forming a sustainable national housing system.

THE BIG PICTURE: Biopolis Across Scales (Session 1)



COP16
COLOMBIA
PARTICIPACIÓN

LA CASA
HUMBOLDT



comfandi

UNIVERSIDAD
NACIONAL
DE COLOMBIA

CCCS
CONSEJO COLOMBIANO DE
CONSTRUCCIÓN SOSTENIBLE



WGIN
WORLD GREEN
INFRASTRUCTURE NETWORK

IFLA
INTERNATIONAL FEDERATION
OF LANDSCAPE ARCHITECTS



A.C.F.A.





David Maddox UNITED STATES

The Nature of Cities (TNOC)

David loves urban spaces and nature. He loves creativity and collaboration. He loves theatre and music. In his life and work he has practiced in all of these as, in various moments, a scientist, a climate change researcher, a land steward, an ecological practitioner, composer, a playwright, a musician, an actor, and a theatre director.

1+1=3... Art, Science and Other Entanglements for Biodiversity

Summary. Can we tell better story about biodiversity? Yes. This talk highlights the power of combining art, science, and community engagement to create compelling narratives that inspire action for biodiversity. By blending scientific insights with creative expression, this approach makes complex ecological issues more relatable, human scale, and emotionally resonant. Engaging communities through participatory art projects fosters a sense of shared responsibility and connection to nature. This synergy offers new ways to communicate the urgency of biodiversity loss and encourages collective action. Through these entanglements, we can craft evocative stories that motivate deeper understanding and drive meaningful change for environmental preservation. Plus, art is fun.



Diana Wiesner COLOMBIA

Fundación Cerros de Bogotá

Activist, architect, and landscape designer based in Bogotá, known for her leadership in socio-ecological issues and her innovative designs in urban ecology and landscaping. Her work has been recognized in national and international architecture and landscape architecture biennials. Beyond her design achievements, she is deeply committed to the preservation and management of Bogotá's natural systems, actively engaging in citizen-led initiatives to shape the city's future in harmony with its landscape. She leads the Fundación Cerros de Bogotá, a children's node of the Latin American Landscape Initiative, which promotes environmental awareness among younger generations. She has also served as the past jury director of the prestigious IFLA Sir Geoffrey Jellicoe International Prize.

From Watersheds to Urban Fabric: Fostering Active Citizenship

Summary. The talk presents a series of projects that integrate participatory processes with biodiversity as a central focus, while also highlighting activism in promoting the right to territories and amplifying stories of regenerative life. These projects are centered on the concept of "regenerative citizens" and the development of biodiverse cities. A key aspect is the active participation of children and young people in watershed management, democratizing the administration of Bogotá's eastern hills, a critical transition zone between urban and natural areas. The talk introduces a living laboratory, situated on the urban-rural edge, that implements adaptive management practices and tests hypotheses on sustainability, citizen appropriation, and water-centered planning. Additionally, art and ecological pedagogy are used as tools to foster participatory restoration and provide viable solutions for integrating biodiversity into the urban fabric, promoting a critical and active citizenry.

ENGAGING STAKEHOLDERS: Biopolis Across Communities (Session 2)



COP16
COLOMBIA
Participación Ciudadana

LA CASA
HUMBOLDT



comfandi

UNIVERSIDAD
NACIONAL
DE COLOMBIA

CCCS
Consejo Colombiano de
Construcción Sostenible



WGIN
WORLD GREEN
INFRASTRUCTURE NETWORK

IFLA
INTERNATIONAL FEDERATION
OF LANDSCAPE ARCHITECTS



A.C.F.A.





Audrey Timm UNITED KINGDOM

Association Internationale des Producteurs de l'Horticulture (AIPH)

Horticultural scientist specialised in ornamental horticulture. Spanning many aspects of horticulture, Audrey's career has covered academic research in South Africa, industry support, training and on-farm research and development in Australia, and promoting the connection between design and ecology in urban landscapes with the University of Sheffield in the UK. Audrey is Technical Advisor of the International Association of Horticultural Producers (AIPH).

Learning from Cities: People and Nature in the Urban Context

Summary. Cities are dynamic ecosystems that play a valuable role in global conservation through integration of nature into the urban environment. Increasing green spaces through city-wide planning enhances biodiversity, supports diverse flora and fauna, and fosters conservation-minded citizens. Public and private spaces alike can contribute, making nature an integral part of urban life and education. Bringing biodiversity into cities requires a combination of attention to detail and broad scale vision. There are many global organisations that support city biodiversity such as Biophilic Cities, ICLEI CitiesWithNature, IUCN, and ISUH. Local and national authorities are recognising the importance of urban biodiversity, and this is reflecting in policies, agendas and planning resulting in tangible action. The International Association for Horticultural Producers, AIPH, advocates that plants have the capacity to provide multiple benefits, combining functionality and supporting biodiversity. Case studies from the AIPH World Green City Awards demonstrate how cities that can be highly successful in protecting biodiversity and restoring urban ecosystems.

ENGAGING STAKEHOLDERS: Biopolis Across Communities (Session 2)



COP16
COLOMBIA
Participación Ciudadana

LA CASA
HUMBOLDT



comfandi

UNIVERSIDAD
NACIONAL
DE COLOMBIA

CCCS
Consejo Colombiano de
Construcción Sostenible



WGIN
WORLD GREEN
IN HORTICULTURE NETWORK

IFLA
INTERNATIONAL FEDERATION
OF LANDSCAPE ARCHITECTS

GTCEP

A.C.F.A.





Martha Fajardo COLOMBIA

International Federation of Landscape Architects (IFLA)

Colombian Architect with a Master's degree in Landscape Design and honorary Doctor of Letters (D'Litt) from the University of Sheffield, England. Co-director of Grupo Verde, a pioneering private firm in Colombia, alongside Japanese urbanist Noboru Kawashima. The company specializes in environmental urbanism and landscape architecture projects across various scales and approaches (built

landscapes, planning frameworks, research, activism) aiming to connect people with their immediate environment and create dynamic, adaptive landscapes. With over 35 years of global leadership experience, she has played a key role in shaping the profession and landscape approach worldwide (Latin America, Africa, Asia), contributing to safeguarding the viability of the natural environment and cultural heritage.

Living Landscape: The BiodiverCities Approach for Healthy, Resilient and Inclusive Communities

Summary. In the wake of the Kunming-Montreal Global Biodiversity Framework, cities are at the forefront of reversing biodiversity loss and regenerating urban ecosystems. This presentation explores the BiodiverCities approach through the lens of the Ciénaga Mallorquín revitalization and regeneration project in Barranquilla, Colombia, a prime example of integrating nature-based solutions into urban design to create climate-adapted communities. The project highlights stakeholder collaboration, combining the knowledge of local communities and policymakers. It demonstrates the power of uniting diverse expertise in a complex environment. Developed under the Cities and Climate Change Program of the French Development Agency (AFD), the Banco de Desarrollo de América Latina (CAF), and the LAIF agreement on Cities and Climate Change in Latin America, this initiative showcases innovative strategies for urban resilience. Attendees will learn about cross-disciplinary collaboration, nature-based infrastructure, governance, and financial strategies aligned with biodiversity goals. The focus is not only on halting resource degradation but also on reversing damage to create positive outcomes for ecosystems, biodiversity, and human well-being.

ENGAGING STAKEHOLDERS: Biopolis Across Communities (Session 2)



COP16
COLOMBIA
Participación Ciudadana

LA CASA
HUMBOLDT



comfandi

UNIVERSIDAD
NACIONAL
DE COLOMBIA

CCCS
Consejo Colombiano de
Construcción Sostenible



WGIN
WORLD GREEN
INFRASTRUCTURE NETWORK

IFLA
INTERNATIONAL FEDERATION
OF LANDSCAPE ARCHITECTS



A.C.F.A.





Juliana Montoya COLOMBIA

Universidad EAFIT. Área de Territorios y Ciudades (URBAM)

Architect with a Master's degree in Conservation and Use of Biodiversity. She has worked as a lead researcher at Humboldt Institute, focusing on biodiversity in urban-regional environments. Her experience includes collaborating on urban projects with prominent institutions such as Urban Studies and Environmental Center at Universidad EAFIT, Urban Projects Office, and Laboratory of Architecture and Urbanism at

Pontificia Universidad Bolivariana. Currently, she serves as the undergraduate program director in Urban Design and Habitat Management and graduate program director in Urban and Environmental Processes at Universidad EAFIT.

Urban Design: Integrating Nature and Community. A New Academic Scenario

Summary. In Colombia, there are very few academic programs that combine the relevance of living in the tropics, one of the places with the greatest biodiversity, and, at the same time, with serious problems due to informal settlements and poverty typical of the Global South. The programs that exist are on the master's level, but there are very few professions (bachelors or undergraduate) capable of combining the greatest number of disciplines and talents to redesign the world and the ways in which we relate to our own species and coexist with other forms of life. For this reason, we created a new academic program, thinking of training the new transdisciplinary professionals needed by an urban world: Urban Design. This undergraduate program assumes the call to action in the face of these challenges, with the hope of promoting the well-being and sustainability of territories and cities through collaborative work, harmony with nature, new technologies and commitment for Designing and Building a better world. It is the first undergraduate program of its kind in Colombia, combining architecture, ecology, urban planning, landscape, design and management. Being aware of all these processes in a time of environmental, social and urban crisis, implies claim the vital role of design and management in the creation of a more livable, biodiverse and equitable world.

ENGAGING STAKEHOLDERS: Biopolis Across Communities (Session 2)



COP16
COLOMBIA
PARTICIPANTES

LA CASA
HUMBOLDT



comfandi

UNIVERSIDAD
NACIONAL
DE COLOMBIA

CCCS
CONSEJO COLOMBIANO DE
CONSTRUCCIÓN SOSTENIBLE



IFLA
INTERNATIONAL FEDERATION
OF LANDSCAPE ARCHITECTS

GTCEP

A.C.F.A.

Universidad
de la
Calle





Ana Miranda COLOMBIA

Corteza Viva

Architect with Master's in Landscape Architecture (Univ. of Sheffield, UK) and Sustainability specialization (MIT, USA). In roles at Bogotá's Botanical Garden and urban tree design projects, she has created vibrant, sustainable spaces. Her expertise focuses on urban green infrastructure planning, optimizing ecosystem services and community benefits from trees and parks.



Andrés Ibañez COLOMBIA

Universidad Nacional de Colombia (UNAL). World Green Infrastructure Network (WGIN)

Architect and educator, he directs the School of Architecture and Urban Design at the National University of Colombia. He is a Board member of the World Green Infrastructure Network and the Colombian Association of Faculties of Architecture. Andrés has co-authored key publications on Green Infrastructure and Ecogenerative Architecture, including Colombia's National Green Infrastructure Policy, the book Biodiversities by 2030, and the Technical Guidelines for Green Roofs of Bogota.

Multi-actor Commission to Reconcile Public Spaces with Nature

Summary. The conversation proposes a shift from top-down planning to participatory stewardship. It brings Academics and neighborhood communities together to reconcile urban spaces through landscape interventions and activities that involve people in the design, maintenance and appropriation of natural and seminatural spaces in urban settings, and how the NBSAPs can achieve the KMBF's goal 12 via an integrative dialogue and action platform across groups and communities.

CONVERSATION PANELS



Angélica Ospina COLOMBIA

Consejo Colombiano de Construcción Sostenible (CCCS)

With over 18 years of experience, Angélica is a renowned leader in driving sustainability in the construction industry. Her strategic vision, technical expertise, and collaborative approach have bridged gaps between government, private sector, and academia. She is co-founder and current Executive Director of the Colombian Council for Sustainable Construction, university professor, and LEED Fellow since 2017.



Natalia Trujillo COLOMBIA

Amarilo

Attorney with expertise in Public Management and Public Law. 15+ years of experience managing infrastructure housing projects. Former Deputy Minister of Waters and Concessions, and Manager of Lagos de Torca. Currently, VP of Operations at Amarilo, driving efficient resource management and high-quality operations.

A Conversation on Nature and the Built Environment

Summary. During this session Angelica Ospina will present the role of the private sector as key player in terms of preserving and restoring biodiversity as part of the built environment intervention. Then she will have a conversation with Natalia Trujillo Amarilo’s VP of Operations who will show a practical example of the biodiversity policy of the company. Natalia will present how the company has taken biodiversity as part of the pillars of their business strategy and how they move from this strategy to impact their construction projects.



Andrés Ibañez COLOMBIA

Universidad Nacional de Colombia (UNAL). World Green Infrastructure Network (WGIN)

Architect and educator, he directs the School of Architecture and Urban Design at the National University of Colombia. He is a Board member of the World Green Infrastructure Network and the Colombian Association of Faculties of Architecture. Andrés has co-authored key publications on Green Infrastructure and Ecogenerative Architecture, including Colombia's National Green Infrastructure Policy, the book *Biodivercities by 2030*, and the Technical Guidelines for Green Roofs of Bogota.

6 Strategies to Biodiverse Cities in Colombia

Summary. The lecture proposes six visions of cities aimed at improving the living among spaces, human inhabitants and non-human inhabitants, presented in the international book *Biodivercities by 2030*, transforming cities with biodiversity, 2022. These are conceptual approaches that address cities from a systemic perspective in which nature and biodiversity can be integrated in the urban matrix. They can improve the quantity and quality of habitats for diverse species as well as considering how citizens perceive and reclaim biodiversity, encouraging citizen participation, and promoting equitable access to nature's benefits. *Biodivercities* highlight the necessary transitions in the traditional urban development narratives and practices for creating scalable policies and actions that allow us to take advantage of the opportunities offered by biodiversity in the construction of fairer, healthier, mores sustainable and resilient urban futures: 1) The meta-human city, 2) the wild city, 3) the un-finished city, 4) the overlapping city, 5) the bioperformative city, and 6) the biomimetic city. This exalts the hybrid nature of cities, the role of built infrastructure and technology as mediators of society-nature relationships, the importance of recognizing local capacities, and each context's biological and cultural capital. Beyond being tools to solve specific urban challenges, they are scenarios in which diverse actors' interests, values, and expectations converse and disciplines such ecology, planning and urban design meet.

LOCAL STORIES: Biopolis Across Environments (Session 3)



COP16
COLOMBIA
PARTICIPACIÓN

LA CASA
HUMBOLDT



comfandi

UNIVERSIDAD
NACIONAL
DE COLOMBIA

CCCS
CONSEJO COLOMBIANO DE
CONSTRUCCIÓN SOSTENIBLE



WGIN
WORLD GREEN
INFRASTRUCTURE NETWORK

IFLA
INTERNATIONAL FEDERATION
OF LANDSCAPE ARCHITECTS



A.C.F.A.





Juan Felipe Guhl COLOMBIA

Instituto Amazónico de Investigaciones Científicas (SINCHI)

Anthropologist with an emphasis in Biology (Univ. Los Andes), MA in Amazonian Studies and Ph.D. in Social Anthropology (Univ. Nacional de Colombia). Expertise in urbanization, sustainable cities, intercultural health, socio-environmental conflicts, and human rights in Amazonian contexts. He currently coordinates the Socio-Environmental and Cultural Dynamics Program at SINCHI Institute.

Urban Acupuncture for Amazonian Cities Connected to their Biodiversity

Summary. To understand the urbanization dynamics of the Colombian Amazon, research has focused on the settlement ring, characterized by anthropic forest, roads, silvopastoral economic systems, and economic integration with society. Between 2002 and 2022, this ring expanded from 19.17% to 27.15% of the Colombian Amazon, demonstrating the significant impact of cities on ecosystem transformation. If unchecked, this trend will lead to an irreversible point and global catastrophe. Rapid urban growth has concentrated 54.21% of the population in the capitals of the six Amazonian departments by 1985, increasing to 73.96% by 2018.

Through participatory urban acupuncture interventions in two Amazonian cities, Leticia and San José del Guaviare, we have revitalized and restored ecologically significant areas.

LOCAL STORIES: Biopolis Across Environments (Session 3)



COP16
COLOMBIA
PARTICIPACIÓN

LA CASA
HUMBOLDT



comfandi

UNIVERSIDAD
NACIONAL
DE COLOMBIA

CCCS
CONSEJO COLOMBIANO DE
CONSTRUCCIÓN SOSTENIBLE



WGIN
WORLD GREEN
INFRASTRUCTURE NETWORK

IFLA
INTERNATIONAL FEDERATION
OF LANDSCAPE ARCHITECTS



A.C.F.A.





Carlos Arias COLOMBIA

Colectivo Guía Nómada

Architect focused on collaborative work, design, and experimental procedures in architecture, landscape, and urbanism with diverse communities, groups, and territorialities in Colombia. Co-founder of Guía Nómada, a platform promoting participatory architecture, transdisciplinary creation, and interdisciplinary approaches to art, memory, and territory.

Ritual Territory in Biogeographic Choco: Landscape, Ritual, Territory, Body and Architecture in the Pacific Coast

Summary. This research presents the findings of an ongoing investigation initiated in 2017, conducted in collaboration with Black communities along the Yurumanguí River in Colombia's Pacific region. Through multiple case studies, this work adopts a biocultural perspective to reconstruct the traditional urban-rural settlement system of Colombia's Pacific region. It examines its structure, transformation, and endurance over time. Rituality emerges as a vital element in spatial occupation, memory, landscape formation, and ecosystem conservation. This perspective also provides a deeper understanding of cultural archetypes developed in response to the region's ecology, biodiversity, and cultural diversity, as well as its unique modes of habitation.

LOCAL STORIES: Biopolis Across Environments (Session 3)



Angelo Páez COLOMBIA
Universidad Nacional de Colombia

Architect with a Master's degree from National University of Colombia, Bogotá. Researcher and professor at National University (Theory of Architecture, Vertical Project) and Catholic University (Architectural Design, Theory). Member of CIFAR Research Center's Integrative Design and Habitat research group.



Sofia Garrido COLOMBIA
Universidad Nacional de Colombia

“Puttumika Mainki Pamparuz an Pianmika Inkal Awá”. Waving Roots of the Inkal Awá Knowledge

Summary. This proposal reflects on pedagogical architecture through the lens of indigenous cultural dimensions, specifically focusing on the binational Inkal Awá community. Located in the Telembí subregion, between southwestern Colombia and northeastern Ecuador, this region boasts one of the world's most biodiverse and biologically rich corridors, the Chocó Biogeographic or Pacific Lowlands. For the Awá people, biodiversity is integral to their cosmovision, "katsa su," emphasizing interdependence among living beings, ecosystems, and ways of life. Architecturally, this entails designing spaces that respect and promote natural environment conservation, using local materials and ancestral, sustainable construction techniques. The creation of an educational space that incorporates traditional and cultural educational practices, reflecting the Awá cosmovision, values, and ways of life, integrates biodiversity, preserving ecological balance while educating and strengthening the culture-nature connection. Integrating biodiversity into architectural projects considers how habitable spaces can coexist with local fauna and flora, ensuring design does not disrupt natural cycles.

LOCAL STORIES: Biopolis Across Environments (Session 3)



COP16
 COLOMBIA
 PARTICIPANTES

LA CASA
 HUMBOLDT



comfandi

UNIVERSIDAD
 NACIONAL
 DE COLOMBIA

CCCS
 Consejo Colombiano de
 Construcción Sostenible



WGIN
 WORLD GREEN
 INFRASTRUCTURE NETWORK

IFLA
 INTERNATIONAL FEDERATION
 OF LANDSCAPE ARCHITECTS



A.C.F.A.





Carlos Cuello et Al. COLOMBIA

Instituto Alexander Von Humboldt

Architect (University of Valle, 2015) and Director of Cosme Arquitectura y Paisaje. Award-winning architect, recognized internationally: Holcim Awards 2023 (Sustainable Architecture); Latin American Landscape Biennial 2024; Leopoldo Rother Award (XXIX Colombian Architecture Biennial); Santa Cruz Bolivia Biennial 2024. Specializing in landscape architecture, his work prioritizes environmental restoration and adaptable public spaces to mitigate climate change impacts.

Other Authors:

Alexander Von Humboldt Institute. Álvaro Alfonso Cogollo Pacheco, Juana Marcela Leal Simbaqueba, Dorotea Cardona Hernández, Carolina Alcázar Caicedo, Wilson Ariel Ramírez Hernández, Diana Marcela Ruíz Ríos, Paola Johanna Isaacs Cubides, Paola Morales Ramírez, María Alejandra Beltrán Castaño, Paula Andrea León Peraza.

Grupo Argos SAS. Mildred Cuentas, Catalina Monroy, Oscar Patrón Vega, Carlos Cuello, Ilva Gómez Crespo, Daniel Sarabia Mancini, Luz María Velásquez.

Biodiverse Urban Design Adapted from the Dry Forest in the Atlantic Coast

Summary. The Central Park Ciudad Mallorquín, located in Puerto Colombia-Atlántico, was designed to address challenges like climate change and biodiversity protection through nature-based solutions. Three floristic strategies were implemented: Urban forest representation; Green strips or hedges; Ecological memory spaces.

These strategies promote biodiversity and ecosystem services for local well-being, while fostering connectivity and resilience against droughts and intense rainfall. The park hosts 92 species representative of the dry forest, including one critically endangered, and becomes a living memory space and sustainable urban development.

LOCAL STORIES: Biopolis Across Environments (Session 3)



COP16
COLOMBIA
PARTICIPACIÓN

LA CASA
HUMBOLDT



comfandi

UNIVERSIDAD
NACIONAL
DE COLOMBIA

CCCS
CONSEJO COLOMBIANO DE
CONSTRUCCIÓN SOSTENIBLE



WGIN
WORLD GREEN
INFRASTRUCTURE NETWORK

IFLA
INTERNATIONAL FEDERATION
OF LANDSCAPE ARCHITECTS



A.C.F.A.





Francisco Vásquez COLOMBIA

Universidad de San Buenaventura

Natural Resources Engineer from the University of Chile and Master's in Urban-Regional Studies from the National University of Colombia. He conducted research on nature-based solutions at the Humboldt Institute and the National University of Colombia. He has provided consulting services to ICLEI Colombia, the Development Bank of Latin America (CAF), and the United Nations Development Programme

(UNDP), and advised various organizations on urban and territorial biodiversity planning in South America. He has taught at the University of Chile and the Pontificia Universidad Bolivariana of Medellín. Currently, he is an Associate Professor in Territorial Management at the University of San Buenaventura in Medellín.

The Urban Ecological Structure as a Territorial Platform for Nature's Contributions to People in Medellín, Colombia

Summary. The Ecological Structure is a strategically designed network of natural and transformed spaces, crucial for biodiversity conservation and nature's contributions to people in urban areas. It also serves as a territorial platform guiding the current and future management of essential spaces supporting human and non-human life in cities. Focusing on Medellín, this study discusses how decision-making regarding ecological structure care is achieved through co-design among public, private, and community actors, via a social and ecological co-construction process.

The findings conclude that a broader approach is required, beyond a static image of the territory's natural elements. To integrate this renewed ecological structure focus, incorporation into the territorial ordering plan, local biodiversity action plan, participatory budgets, and local city planning is necessary.

LOCAL STORIES: Biopolis Across Environments (Session 3)



COP16
COLOMBIA
Participación Ciudadana

LA CASA
HUMBOLDT



comfandi



CCCS
Consejo Colombiano de
Construcción Sostenible





Fernando Cortés COLOMBIA

Universidad Nacional de Colombia

Architect from the University of Los Andes, Master's in Architecture from the University of Paris VI and Urbanism from the University of Paris VIII. Advanced studies in Historic Center Management - La Chambre. Associate Professor at the National University of Colombia's School of Architecture and Urbanism since 1981. Coordinator of agreements with Vienna Technical University and the Free University of Brussels. He coordinated the Master's program in Urban Design. He has been a conference speaker at national and international academic events on landscape, architecture, urbanism, heritage, and public space. Internationally, he has been a visiting professor at Vienna Technical University, Polytechnic University of Valencia, Prague Technical University, and the Free University of Brussels. In Colombia, he has taught at the University of Los Andes, Rosario, Javeriana, and Libre de Pereira. He has directed and developed various projects and management plans in Heritage, Urban Design, Public Space, and Landscape.

Biodiversity Connectivity Systems as Structure of Urban Settings

Summary. This conference presents two projects that integrate green public spaces as structural axes of the territory, connecting to Bogotá's two Main Ecological Structures - the Eastern Hills and the Bogotá River. These projects consolidate a biodiversity fabric, a fundamental component of the urban fabric. The first project, Paseo Urbano Carrera 15, is a pilot plan for implementing a public space construction policy, complementing the primary ecological structure of the Eastern Hills. The second project, Ciudadela El Porvenir, was developed for a Social Interest Housing policy and implements a strategic piece of the Western Border Plan for the Bogotá River, proposed for an informal housing sector. Both projects incorporated participatory processes with local communities and social organizations during their development.

LOCAL STORIES: Biopolis Across Environments (Session 3)



COP16
COLOMBIA
PARTICIPACIÓN

LA CASA
HUMBOLDT



comfandi

UNIVERSIDAD
NACIONAL
DE COLOMBIA

CCCS
CONSEJO COLOMBIANO DE
CONSTRUCCIÓN SOSTENIBLE



WGIN
WORLD GREEN
INFRASTRUCTURE NETWORK

IFLA
INTERNATIONAL FEDERATION
OF LANDSCAPE ARCHITECTS



A.C.F.A.





Sofia Lissbrant COLOMBIA

AED Constructores

Agronomist from SLU, Sweden, and Ph.D. in Agronomy from Purdue University, USA, with 16 years of experience working towards food security, rural development, and ecosystem conservation and restoration in Colombia, with an international perspective. Sustainability Director at AED Constructores.



Diana Salazar COLOMBIA

AED Constructores

Architect (2003) and Landscape Architect Master's (2014). Over 15 years of experience in landscape architecture, urbanism, and planning for public and private companies. Currently, independent landscape design consultant in Colombia.

Transdisciplinary Approach as an Opportunity in Housing Developments to Increase Biodiversity in Cartagena

Summary. The largest impacts of urban expansion include ecosystem transformation and biodiversity loss due to the difficulty of integrating urban design with preservation strategies. The Baia Kristal project applied a transdisciplinary approach involving AED Constructores, the Cartagena Botanical Garden, and landscape architecture, resulting in the design of a 1.5-hectare tropical dry forest within the project. This new landscape generates spaces that provide wellness for residents, increases wildlife presence, preserves endangered species, and creates educational scenarios to raise environmental awareness about the tropical dry forest (TDF). The strategy was made viable through the creation of a forest nursery that propagates native species used in landscaping. The approach applied in Baia Kristal can be replicated in other contexts to turn urban projects into opportunities to enhance biodiversity.

LOCAL STORIES: Biopolis Across Environments (Session 3)



Peter Templeton UNITED STATES

U.S. Green Building Council (USGBC)

Peter Templeton has worked for more than 25 years to accelerate global adoption of practices that enhance human and environmental health, resiliency, equity, and quality of life for all. As president and CEO of the U.S. Green Building Council (USGBC) and Green Business Certification Inc. (GBCI), he directs efforts to strengthen the reach and impact of green building and green business market transformation activities

globally. Peter previously served as president and CEO of the Cradle to Cradle Products Innovation Institute, working to scale Cradle to Cradle Certified as the globally recognized mark of materials and products optimized for human and environmental health, circularity, and social fairness. He has held leadership roles across USGBC and served as the first president of GBCI, which administers third-party project certification and credentialing in 150+ countries for the LEED green building rating systems and other respected standards. Peter holds a MEUP from the University of Virginia and a B.A. from Vanderbilt University.

Green Building Rating Systems: a Framework to Accelerate Impact at Scale for Biodiversity

Summary. How can green building strategies help societies better reconcile humanity with nature? Adoption of green building strategies is expanding and accelerating around the world, and the green building community of practice and stakeholder groups are growing. How do we put these strategies into action and implement proven solutions at large scale? Frameworks like rating systems and credentialing can help standardize and implement green building strategies, technologies, and best practices to help mobilize the building and construction sectors and their professionals to achieve outcomes such as reduced environmental degradation, biodiversity protection, ecological conservation and restoration, and enhanced human and environmental health.



David Brasfield **NORWAY**

World Green Infrastructure Network (WGIN)

David is a recognized expert in sustainable healthcare infrastructure, inducted into the European Healthcare Climate Council (2019). Chairman, Norwegian Association for Green Infrastructure (2018-present). Board Member/Secretary, World Green Infrastructure Network (2017-present). He has been involved in projects driving eco-friendly urban development and climate change mitigation, and advancing sustainable healthcare solutions globally.

Biodiversity for Health and Healthcare Infrastructure

Summary. The Kunming Montreal Global Biodiversity Framework target 12 aims to increase area, quality, connectivity, access to and benefits from green and blue spaces in human populated areas. Through urban biodiversity enhancements HUMAN HEALTH AND WELL-BEING AND CONNECTION TO NATURE will be improved.

The healthcare sector is a vital stakeholder in the collective effort to fulfill this target. Despite progress in recent decades, there is still significant potential within the healthcare sector to embrace the benefits of nature contact. Healthcare professionals rank high in surveys about trust in professions. Through the implementation of biodiversity enhancements at healthcare facilities, and building understanding and perceived need of evidence based design with biophilic quality, healthcare professionals will be motivated to join us as allies in our advocacy for fulfillment of target 12.



Elizabeth Beardsley UNITED STATES

U.S. Green Building Council (USGBC)

5+ years of professional experience working on environmental and climate issues both as an engineer and lawyer. In her current role, she serves as Senior Policy Counsel at the U.S. Green Building Council, a global nonprofit best known for LEED, the world's most widely used green building rating program. She provides strategic green building law and policy guidance and direction across the international, federal, state and local spectrum.

Building - Nature: Navigating how the Building Sector is Approaching Biodiversity

Summary. Ms. Beardsley will highlight best practices for nature and biodiversity in buildings and constructed landscapes. These practices can be applied to preserve and restore land for increased nature benefits, to conserve and contribute to clean water, and reduce resource use. The remarks will also highlight how the buildings sector is paying attention to materials to reduce pressure and impacts on nature. Ms. Beardsley will explain how governments can leverage these proven practices to encourage and require them through policies and programs, for example using government buildings to showcase ways to increase biodiversity, supporting education of the building industry on green infrastructure, and more.



Olivia Bina **PORTUGAL**

University of Lisbon

Olivia Bina is Senior Researcher at the Institute of Social Sciences of the University of Lisbon (Portugal), and Fellow of the World Academy of Art and Science (WAAS). Olivia is an interdisciplinary 'policy-engaged' researcher, with a longstanding interest in understanding our changing relationship with nature, and how that relates to the many challenges facing urban areas in the 21st century.

She explores the drivers of (un)sustainability of our socio-economic and socio-technical models and their effect on all life, working through the lens of ecological economics, sustainable futures, systems change and transition/transformation theories. Her overall focus is on worldviews and pathways that can balance our dependence on 'ever smarter' growth and technology with a recovery of the unlimited potential of prosperous human-nature connectedness. Recent projects explore urban futures and imaginaries, nature-based (urban) transformations, and nature-based solutions (including URBACHINA; CONEXUS; NATURESCAPES). Before returning full time to academia, Olivia worked as Senior Consultant for Environmental Resources Management, London, and as Policy Officer at the Royal Society for the Protection of Birds in the United Kingdom.

What if... form followed LIFE? Potential lessons from a radical urban design experiment

Summary. Wisdom traditions, critical scholarship and policymaking are converging, calling for an end to 'humans-nature' dichotomies, foregrounding Earth as uniquely capable of ensuring the conditions for life. Such conditions are at risk in cities across the planet. Rising attention towards renaturing cities, and positive nature-based urban futures are emblematic of changing onto-epistemologies flourishing through the fractures of dominant modes of making cities. Convinced of the need for more bold, generous visions of the urban form we launched a worldwide crowd-sourcing experiment: the 'FORM FOLLOWS LIFE' competition. Understanding, respecting, and enabling life's web of relationships through better design is vital for promoting bioculturally diverse, healthy, and thriving cities in the 21st century. I will critically discuss the results and the extent to which such interpretative lens can contribute to seed more radically positive stories of urban futures, inviting an integrative worldview that might undo the basic ontology of separateness dominating cities.





Andrés Ibañez COLOMBIA

Universidad Nacional de Colombia (UNAL). World Green Infrastructure Network (WGIN)

Architect and educator, he directs the School of Architecture and Urban Design at the National University of Colombia. He is a Board member of the World Green Infrastructure Network and the Colombian Association of Faculties of Architecture. Andrés has co-authored key publications on Green Infrastructure and Ecogenerative Architecture, including Colombia's National Green Infrastructure Policy, the book Biodivercities by 2030, and the Technical Guidelines for Green Roofs of Bogota.

BIOPOLIS 2080: Architectures Beyond Human

Summary. The talk presents a series of explorative projects on biodiversity-oriented landscape transformations in coastal settlements of the pacific mangrove region of Colombia threatened by the sea level rise. The experiment results in living infrastructures that co-evolve with nature, meet the need of non-humans and upcycle materials and structures, colonize concrete structures, and allow nature to nest in hard surfaces that are transformed in biotopes and regenerative ecosystems over a 5-decade transformative process.



Luna Rodríguez COLOMBIA

Universidad Nacional de Colombia (UNAL). World Green Infrastructure Network Chapter for Emerging Professionals (GICEP)

Luna is an architect graduated from the National University of Colombia. Co-founder and current vice-president of the World Green Infrastructure Network Chapter for Emerging Professionals - GICEP. Her research focuses on "Architectures for non-humans" for the protection of wildlife and biodiversity, with an emphasis on green infrastructure, biomimicry, and nature-based solutions. She participated with her final degree project in the XXIII Annual Student Exhibition of the Colombian Society of Architects - SCA (2023); and was a speaker at the VI Colombian Congress of Zoology (2023), receiving recognition for best presentation at the Symposium on the Impact of Infrastructure on Fauna. Since 2019, she has been involved in various seedbeds and research projects, contributing her nature-centered vision as a structuring axis in any academic, pedagogical, social, and/or community initiative.

The Owl Monkey Path: Metahuman Architecture Applied to a Wildlife Crossing Design in Rural Quindío

Summary. *Aotus lemurinus*, the Andean night monkey, is an endemic species declared vulnerable by the IUCN. In a rural area of La Tebaida, Quindío, a small group of *A. lemurinus* is under threat due to high landscape fragmentation, ongoing habitat loss and degradation caused by human activity, the proximity of their sleeping site to a nationally important road, and the overlap of power lines with their home range and regular passage route. This work developed an architecture project for non-human animals with ecological conservation purposes, based on the case of La Tebaida, taking wildlife crossings as the design object and *A. lemurinus* as the target user. Detailed species characterization and environmental analysis, biomimicry, and TRIZ were applied as design methodologies. Six intervention points were proposed to restore functional connectivity at the site. The proposal highlights the use of local, biotic, and recyclable materials, "tension" systems, and dual-function structures that enable coexistence of human and non-human activities.



Juan Esteban Aristizábal COLOMBIA/ITALY

Universidad Nacional de Colombia (UNAL). World Green Infrastructure Network Chapter for Emerging Professionals (GICEP)

Architect graduated from the National University of Colombia (2022). He has worked in various private sector companies and at the Presidency of Colombia, as part of a social appropriation team for peace. Since 2021, he has been an executive member of the World Green Infrastructure Network Chapter for Emerging Professionals. Currently, he is pursuing a master's degree in Sustainable Architecture at the Polytechnic University of Turin, focusing his studies on urban rewilding.

Urban Microbiotopes

Summary. "Urban Mocibiotopes" is a research project focusing on spontaneous urban vegetation growth in cities like Bogotá. It aims to counteract climate change through small green interventions. In response to limited green spaces and neglect of natural components in urban planning, this initiative proposes a shift in focus, observing nature's growth in hostile environments.

By integrating resilient vegetation into existing urban design, the project seeks to create a healthier, environmentally friendly city where urban flora thrives. The goal is to promote sustainable architecture that fosters natural vegetation growth, contributing to a more balanced and resilient urban environment.



Fernanda Pedraza COLOMBIA
Universidad Nacional de Colombia (UNAL)

Architect (National University of Colombia) and current Habitat and Housing Studies master's student. She has expertise in sustainable architecture and community development. Her collaborations include: Mushola construction in Indonesia (UIN Syarif Hidayatullah Jakarta); Ecotourism planning in Sucre (Ikal Natural Architecture); Peace school design in Tibu and La Guajira (David Delgado Architects). she contributed to Probogota's smart city initiatives and researched innovative urban water management solutions with "Agua más Ciudad".

Integrated Stormwater Management in the Context of Water Sensitive Landscapes and Cities

Summary. This study explores the challenges of building water-sensitive cities (WSC) in Bogotá, Colombia, through an ethnographic analysis of a case study. It examines historical and current public policy and urban design frameworks, identifying opportunities to integrate rainwater management into territorial development plans.

From a holistic perspective aligned with the principles of Good Living and political ecology, an integrated approach to water management is proposed. Guidelines and strategies are outlined for implementing nature-based solutions (NBS) and community-based solutions, aiming to promote more resilient and sustainable cities.

Analyzing successful international experiences highlights the role of green and blue infrastructure in building more habitable and climate-resilient cities, where connections between ways of living and water promote quality of life and ecosystem services.



Juan Gómez COLOMBIA

Universidad Nacional de Colombia (UNAL)

Architect with experience at Niro Arquitectura and Diana Wiesner Arquitectura y Paisaje. Notable projects include: Ciudadela Colsubsidio Maiporé public spaces and parks (Soacha); Tunjuelo and Bogotá River linear parks; Urban parks and Metro de Bogotá's First Line parks. Raised surrounded by nature, he explores Bogotá's ecosystems and city streets on foot and by bike. This fuels his passion for water-centric design, harmoniously integrating nature, urban landscape, and city culture.

Natural Processes for Water Regulation: Network of Rain Parks

Summary. Urban areas face severe flooding problems due to the alteration of the water system and permeable ecosystems resulting from urbanization processes. This issue affects the health of natural systems and the quality of life of populations living near water bodies and in informal sectors with inadequate rainwater regulation, such as the Tibabuyes sector in Bogota.

This session invites participants to develop integral solutions and strategies for mitigating and adapting informal urban areas through the design of rain parks. It highlights the importance of natural purification, retention, storage, and infiltration processes in reestablishing the hydrological cycle amidst climate variability. Additionally, it emphasizes the need to restore the relationship between cities, people, and nature.



Elaise Gabriel BRAZIL

World Green Infrastructure Network Chapter for Emerging Professionals (GICEP)

Civil Engineer with a degree from the State University of Mato Grosso (2018), complemented by a sandwich exchange program at Michigan State University (2013-2014). She holds a specialization in Occupational Safety with a focus on Environmental Sustainability from Ateneu Higher Education Institute (2018) and a teaching degree from the Federal

University of Santa Maria (2021). She earned both a Master's (2020) and Ph.D. (2023) in Civil Engineering from the Federal University of Santa Maria, specializing in Environmental Comfort, Water Resources, and Environmental Sanitation, with a sandwich Ph.D. at Hochschule Neubrandenburg, Germany (2022). Her expertise spans hydro sanitary and electrical projects, green walls, and green roofs. An active member of the Executive Committee of the Chapter for Emerging Professionals (GICEP - CEP) of the World Green Infrastructure Network (WGIN), she currently serves as an Adjunct Professor of Architecture and Urbanism at the Federal University of Santa Maria, in southern Brazil.

Optimizing Green Infrastructure for Urban Sustainability: Insights from Brazil and Germany

Summary. Green infrastructure, including green roofs and vegetated walls, plays a crucial role in improving environmental quality and sustainability in urban areas. In Brazil, where affordable housing often prioritizes cost over quality, green solutions like these can significantly enhance indoor environmental quality and reduce energy costs for low-income populations. However, Brazil lacks national standards for green roofs, leading to varied designs that may not suit local climates. A study comparing six green roofs in Santa Maria, Brazil (humid subtropical climate - Cfa), and Neubrandenburg, Germany (temperate oceanic climate - Cfb), found similar cumulative water retention despite different rainfall patterns, emphasizing the need for location-specific guidelines. Additionally, research on a vegetated wall in a Brazilian affordable house showed it reduced conductive heat by 83% during summer, lowering surface temperatures by 8.6°C. These findings underscore the importance of adapting green infrastructure to local conditions for optimizing environmental benefits and sustainability in developing regions.



Sergio Cortés COLOMBIA

Universidad Nacional de Colombia (UNAL)

Sergio Cortés Aya is an architect graduated from the National University of Colombia. He has collaborated with renowned offices such as FCL Proyectar Ciudad, Arquitectura Más Verde, Florida Building Plans, and Be+Maarch, standing out in various national and international competitions with the latter, including third place in the Borde de Río de Apartadó (2021), second place in the Milan Navigli Canal Challenge (2022), first place in Tactical Urbanism Now! III (2023), and second place in the New Institutional Headquarters of CMAC Huancayo, Peru (2024). He participated in the Solar Decathlon LAC (2019), leading the construction of a sustainable housing prototype in Cali. Additionally, he was recognized in the 2020 Student Architecture Annual and presented his thesis at the III Teaching and Research Meeting on Landscape (2021). Since 2019, he has volunteered at the Víctor Jara Popular Cultural Center in Usme, combining his commitment to community and sustainability.

(Un)finished Landscapes for 2100: Multifunctional Infrastructure and Public Space on the Amphibian Border of Tumaco, Colombia

Summary. This presentation proposes a project for the resettlement of Tumaco by 2100, a city exposed to tsunamis, floods, earthquakes, and soil liquefaction. With 125,000 inhabitants, Tumaco is located in an amphibious habitat between the sea, mangroves, and several rivers, facing constant tension between the natural and artificial. The proposal includes the integration of five low-cost, modular, and amphibious systems designed to protect Tumaco from natural disasters, regenerate its ecosystem and recover the bay's water basin. Materials from old Tumaco will be reused, and public spaces will be created to reinforce the relationship between the natural and built environments.

The project will be implemented in six phases by 2100, combining large-scale strategies with incremental solutions to transform the urban environment.



Luis Suárez COLOMBIA

HELECHO

Urban sustainability expert with a degree from University of Florida and a Master's from UCL's Bartlett School. As Helecho SAS General Manager, Luis has led hundreds of green infrastructure and sustainable drainage projects, reducing stormwater runoff and improving water quality. Passionate about urban biodiversity, he innovates solutions like green roofs, vertical gardens, and permeable pavements to reconnect humans with nature, creating resilient and healthy cities.

Natural Cities: 5 Pillars for Green Infrastructure Implementation in Cities

Summary. This presentation outlines key pillars for achieving natural cities: green spaces connecting us to nature; sustainable drainage systems protecting water resources; promoting urban biodiversity; and urban agriculture. Discover how to build balanced, natural cities for all.



Laura Mantilla COLOMBIA

Architect with over 22 years of experience in landscape, urbanism, and architecture, focusing on urban environmental management. She has led projects in public and private sectors, including educational institutions, parks, residential and industrial developments. Notably, she served as Director General of the Bogotá Botanical Garden.



Margarita Romero COLOMBIA

Colombian architect specializing in sustainability, with over 20 years of experience in architecture and extensive expertise in bioclimatic and energy-efficient projects nationally and internationally. For the past 16 years, she has served as Manager and Technical Director of ArquiAmbiental Ltda., developing over 350 environmentally adapted projects.

Biodiversity and Climate: The Green Future of Bogotá - Case Study of the Bogotá-Region, Science, Technology and Innovation Building (CTIB)

Summary. Vegetal cover utilizes natural processes to enhance urban resilience against environmental challenges, highlighting the creation of ecological corridors that connect urban grids, strengthen biodiversity, mitigate the urban heat island effect, and regulate climate. The CTIB acts as a connector for these corridors through integrating vegetation of diverse heights, promoting fauna mobility, improving air quality, and optimizing rainwater management. Additionally, biodiversity indicators are proposed to assess impacts. The building's bioclimatic design incorporates various ventilation strategies, double facades, operable devices, and green roofs, allowing for natural adjustment of indoor climate according to user comfort. Incorporating photovoltaic panels, thermally insulated materials, solar control systems, and assisted ventilation contributes to energy efficiency and reduced mechanical climatization needs. Collectively, these strategies promote a more efficient and sustainable design compared to conventional projects.



Carlos Bueno COLOMBIA

Universidad del Norte

Architect and designer (Piloto University of Colombia), researcher, and educator with over 15 years of experience in architectural and urban design. Currently, he is a professor and coordinator of the architectural visualization and representation area, combining his solid academic background with a Master's in Design and Innovation (Istituto Europeo di Design) and a Master's in Education (University of the North), focused on climate change. His methodology integrates cultural identity, creativity, and biodiversity, leading projects that promote environmental awareness and landscape architecture at various scales. His current research focuses on incorporating climate change into architectural design curricula, promoting biodiversity conservation and ecological resilience in Latin American and Caribbean cities.

Emerging Pedagogies in Sustainable Urban Design of a Reimagined Caribbean Mangrove Swamp in the Context of the Climate Crisis

Summary. How can urban design educational strategies address climate change understanding in vulnerable ecosystems? This study explores integrating green infrastructure and nature-based solutions into university architectural education, focusing on the Mallorquín Ciénaga in Colombia's Caribbean region.

Over a semester, research investigated how students' ecological design strategies integrated biodiversity and public space, fostering cultural and ecosystem identity with mangroves. Qualitative methods, including reflective observation and project-based learning, identified territorial and ecological restoration variables from urban imaginaries and speculative futures of the vulnerable Caribbean ecosystem.

Findings reveal immersive educational experiences increase awareness and foster intentional climate adaptation solutions. The study also highlights incorporating Environmental Education into architectural curricula to cultivate resilient and sustainable communities.



Leonardo Álvarez COLOMBIA

Universidad Nacional de Colombia

Leonardo is an Architect and Associate Professor at National University of Colombia since 1997. Guest lecturer at universities worldwide. Award-winning architect with over 50 competitions, including first prizes and mentions in over 30. Notable projects include mass transportation systems and academic buildings. Over 20 built projects, such as the Nursing Building at National University. Winner of Colombia's Architecture Biennial and international awards like Cémex 2012.

Spaces for Tropical Education Enbeded in Nature, Colombian Pacific Coast

Summary. Under the nation's policies for education coverage and quality growth, the University Council created the Tumaco campus in 1997 as part of a group of border campuses. These campuses aim to reach remote regions with educational deficits and high potential for future development due to their cultural and geographical context. Like all university campuses, Tumaco will engage in teaching, research, and extension activities, focusing on the Pacific region's needs. The goal is to establish itself as the region's primary development and knowledge hub. A significant challenge in designing the campus was balancing the need for high-quality infrastructure with environmental considerations. The site's natural and cultural conditions, characteristic of the Pacific and Atrato helobiome, feature native forests, secondary vegetation, and Pacific mangroves. However, human interventions have altered some areas for semi-permanent crops, cattle grazing, and pasture. The site is also home to numerous archaeological sites with remnants of the pre-Hispanic Tumaco-La Tolita culture, which inhabited the region over 2,350 years ago.



Gustavo Salazar COLOMBIA

Universidad del Valle - COSME Arquitectura y Paisaje

Architect from the University of Valle (2015), Director of Cosme Architecture and Landscape, has received international recognition through prestigious awards: 2023 Holcim Awards for Sustainable Architecture; 2024 Latin American Landscape Biennial (unbuilt regional project category); Leopoldo Rother Award for Urban and Regional Planning (XXIX Colombian Architecture and Urbanism Biennial); 2024

Santa Cruz Bolivia Biennial (unbuilt category). He has secured first place in various landscape architecture competitions. His work focuses on restoring natural environments and geographies through interventions addressing urban pressures on ecosystems and developing adaptable public spaces to combat climate change challenges.

Geography Mediations: Urban Approaching Systems to Nature

Summary. Colombian cities' natural geographic systems have been impacted by neglectful planning and urban developments that increasingly pressure their surrounding ecosystems. Many cities have previously opted to canalize rivers, divert streams, or build on high-risk slope soils, resulting in habitability conflicts now exacerbated by climate change.

This presentation showcases three landscape architecture projects that understand and respond to their territories' geographic dynamics. These projects demonstrate interventions that can help mitigate climate change effects and reconcile urban processes with natural geographic conditions.

NEW FRONTIERS: Biopolis Across Technologies and Spaces (Session 5)



COP16
COLOMBIA
Participación

LA CASA
HUMBOLDT



comfandi

UNIVERSIDAD
NACIONAL
DE COLOMBIA

CCCS
Consejo Colombiano de
Construcción Sostenible



WGIN
WORLD GREEN
INFRASTRUCTURE NETWORK

IFLA
INTERNATIONAL FEDERATION
OF LANDSCAPE ARCHITECTS

GTCEP

A.C.F.A.





James Ramsey UNITED STATES
RAAD ARCHITECTURE NEW YORK

Founder of RAAD Studio, a team of architects, designers, and inventors, Ramsey has designed and built hundreds of global projects. He's also the visionary behind the Lowline, the world's first underground park. A Yale Architecture graduate and former NASA satellite engineer (Pluto and Saturn missions), Ramsey pioneered a revolutionary solar technology to bring sunlight underground, making the Lowline a reality in Manhattan.

The Lowline: The World's First Underground Park

Summary. Underneath New York City is a vast network of abandoned infrastructure that represents a unique opportunity for the greening of our cities and the creation of public space. Through the application of a new solar technology, sunlight can be introduced into one of these spaces to create The Lowline, the world's first underground park. The Lowline, in turn, is a prototype for the creation of green spaces in a huge variety of new environments, representing a new way of looking at unused spaces and a new way of thinking about our relationship to nature.



Laurent Troost BRAZIL/BELGIUM

TROOST+PESSOA Architects

Troost + Pessoa Architects is a practice based in Manaus, Amazonas and São Paulo, Brazil, offering creative ecologically and economically responsible solutions for the real estate and hotel markets. In recent years, they have won numerous international awards, such as Oscar Niemeyer Award, Akzonobel Award, St Gobain Asbea, Dezeen Award, Architecture Masterprize and the IAI Most Creativity Award.

Equatorial Architecture for Amazonic Biomes

Summary. Belgian architect Laurent Troost will share challenges, potential and realities of working in equatorial Brazil. Using the Amazon as his main focus, Laurent will discuss climatic and environmental issues specific to this biome, addressing innovative architectural strategies to overcome local challenges.



Amanda Sturgeon AUSTRALIA

Biomimicry Institute

Regenerative and Biophilic Design strategist and award winning Architect with global experience as a thought leader in bringing Regenerative, Zero Carbon and Biophilic buildings, infrastructure and cities to life. Author of 'Creating Biophilic Buildings' and TED speaker on Biophilic Design. Board member Climate Action Network Australia, Commissioner for the World Economic Forum's BiodiverCity Commission.

Nature as Measure: How Eco-system Performance can Enable Nature Positive Cities and Infrastructure

Summary. What if every city performed like its natural context in terms of air and water quality as well as in terms of biodiversity? The good news is that because every place is unique, quantifying the ecological performance of local healthy ecosystems provides a fingerprint of what a thriving nature positive environment looks like in that place. This place-based data provides the foundation for a shared understanding and vision of the nature positive outcomes all stakeholders in a community can strive toward. This session will outline how nature as measure can be implemented at scale through case studies, tools and knowledge sharing.

CLOSING LECTURES - DAY TWO (Session 6)



Eustacia Brossart UNITED STATES/ARGENTINA

Climate Positive Design

Landscape Architect & Research Director at Climate Positive Design, Eustacia helped to develop the Pathfinder app and Climate Positive Design Challenge in 2018. She translated her background in Hollywood art departments into over 12 years of experience designing resilient and innovative landscapes at a variety of scales around the world, including the San Francisco Waterfront Resilience Plan, Facebook headquarters and Constitution Gardens in Washington DC. In recent years, she has combined her expertise in landscape carbon with her passion for nature and cultures worldwide, to begin expanding Pathfinder and Climate Positive Design into the realms of biodiversity, equity, and resilience. Fellow, SPUR & UC Berkeley. MLA, UC Berkeley; BA, USC School of Cinematic Arts.

Climate and Biodiversity Positive Design

Summary. “The climate and biodiversity emergencies are not distinct, but two aspects of one crisis.... Our response to these emergencies must be mutually reinforcing.” Marseille Manifesto (IUCN, 2023)

Climate Positive Design came about because we as landscape architects wanted to measure the carbon footprint and sequestration potential of our projects, and found no means to do so. We developed Pathfinder (<https://app.climatepositivedesign.com/>) as a free, accessible tool and call to action to the profession to reduce emissions and increase the sequestration of our projects, and be a collective global force for carbon drawdown. With support from the ClimateWorks Foundation and Architecture 2030, we've just launched an expanded climatepositivedesign.com and [Pathfinder](#), with metrics, information and toolkits related to benefits including water, cooling, equity and biodiversity. Since designers of the exterior built environment are uniquely positioned to bridge design, ecology, and human wellbeing in our projects, we are providing tools to help enable urbanists, planners, engineers and designers to meaningfully contribute to halting biodiversity loss and creating climate- and biodiversity-positive cities for everyone.