



FIVE EXPERIMENTS IN URBAN NATURE:

Narratives from a Niche
in Bogotá's Eastern Hills

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Abstract

Bogotá is home to one of the largest urban nature reserves in Latin America: the Eastern Hills (*Cerros Orientales*). While its 14,000 hectares of urban green spaces benefit the entire city indirectly, a study conducted by Greenpeace Colombia in 2020 revealed that 80% of Bogotá's residents experience a deficit in green spaces. Out of the city's nineteen localities, thirteen face this shortage. These findings highlight the challenges Bogotá faces in terms of equitable distribution and access to nature and its associated benefits. Moreover, the city has been at the forefront of significant civic movements advocating for urban nature, particularly concerning wetlands and the Eastern Hills. In this dynamic context, the *Fundación Cerros de Bogotá* (FCB) developed a technical proposal to create the largest and most diverse socio-ecological corridor in the region: 57 kilometres of biodiversity and social connectivity. This article showcases three urban acupuncture experiments designed to turn that vision into reality.

Over the past eight years, more than 6,500 people have participated in activities led by the fcb at the Umbral Cultural Horizontes Reserve, focusing on three key areas: I) ecological restoration and infrastructure development to recover soil, water, and biodiversity; II) fostering a civic ecological culture by integrating art as a tool for transformation; and III) influencing public policy. This article outlines the main methodological approaches developed for each area of action, along with recommendations we hope can be replicated.

Keywords: Umbral Cultural Horizontes Reserve; public use; socio-ecological corridor; Eastern Hills of Bogotá; experimentation; territory; living lab

Cinco experimentos de natureza urbana: Relatos de um nicho nos Morros Orientais de Bogotá

Resumo

Bogotá abriga uma das maiores reservas naturais urbanas da América Latina: os Morros Orientais (*Cerros Orientales*). Embora seus 14.000 hectares de áreas verdes urbanas beneficiem indiretamente toda a população da cidade, um estudo realizado pelo Greenpeace Colômbia em 2020 concluiu que 80% dos habitantes de Bogotá apresentam déficit de áreas verdes. Das dezenove localidades da cidade, treze sofrem com essa carência. Esses resultados evidenciam os desafios enfrentados por Bogotá em termos de distribuição equitativa e acesso à natureza e seus benefícios.

Além disso, a cidade tem sido protagonista de mobilizações cidadãs emblemáticas em defesa da natureza urbana, especialmente em relação aos pântanos e aos Morros Orientais. Nesse contexto dinâmico, a *Fundación Cerros de Bogotá* (FCB) desenvolveu uma proposta técnica para criar o maior e mais diverso corredor socioecológico da região: 57 quilômetros de biodiversidade e conexão social. Este artigo apresenta três experimentos de acupuntura urbana que buscam transformar esse sonho em realidade.

Nos últimos oito anos, mais de 6.500 pessoas participaram de atividades lideradas pela fcb na Reserva Umbral Cultural Horizontes, com foco nos seguintes aspectos: I) restauração ecológica e construção de infraestrutura para recuperar o solo, a água e a biodiversidade; II) promoção de uma cultura ecológica cidadã, integrando a arte como ferramenta de transformação; e III) incidência em políticas públicas. Este artigo apresenta as principais diretrizes metodológicas desenvolvidas em cada frente de ação, juntamente com recomendações que esperamos que possam ser replicadas.

Keywords: Umbral Cultural Horizontes Reserve; public use; socio-ecological corridor; Eastern Hills of Bogotá; experimentation; territory; living lab

Cinco experimentos de naturaleza urbana: relatos desde un nicho de los Cerros Orientales de Bogotá

Resumen

Bogotá cuenta con una de las reservas naturales urbanas más grandes de América Latina: los Cerros Orientales. Benefician indirectamente a toda la población de la ciudad, un estudio realizado por Greenpeace Colombia en 2020 concluyó que el 80% de los habitantes de Bogotá tienen un déficit de áreas verdes. De las diecinueve localidades de la ciudad, trece presentaron esta carencia. Estos resultados ponen en evidencia los desafíos que enfrenta Bogotá en términos de distribución y acceso a la naturaleza y sus beneficios.

De otra parte, la ciudad ha sido protagonista de movilizaciones ciudadanas emblemáticas en defensa de la naturaleza urbana, especialmente en relación con los humedales y los Cerros Orientales. En este escenario dinámico, la Fundación Cerros de Bogotá (fcb) desarrolló una propuesta técnica para crear el corredor socioecológico **más grande y diverso de nuestra región: 57 kilómetros de biodiversidad y tejido social. Este artículo presenta tres experimentos de acupuntura urbana que buscan hacer realidad ese sueño.**

En los últimos ocho años, más de 6500 personas han participado en actividades lideradas por la fcb en la Reserva Umbral Cultural Horizontes enfocadas en los siguientes aspectos: i) restauración ecológica y construcción de infraestructura para recuperar el suelo, el agua y la biodiversidad; ii) fomento de una cultura ecológica ciudadana, integrando el arte como herramienta de transformación, y iii) incidencia en política pública. Este artículo presenta los principales lineamientos metodológicos que hemos desarrollado en cada frente de acción, junto con recomendaciones que, esperamos, puedan replicarse.

Palabras clave: Reserva Umbral Cultural Horizontes; uso público; corredor socioecológico; cerros orientales de Bogotá; experimentación; territorio; laboratorio vivo



Development

Bogotá has one of the largest urban nature reserves in Latin America: the Eastern Hills, officially called the Reserva Forestal Protectora Bosque Oriental de Bogotá (RPBOB). This area covers 14,000 hectares — about the same size as Tayrona National Park in Santa Marta (Colombia), 3.5 times bigger than Tijuca National Park in Rio de Janeiro (Brazil), and almost 41 times the size of Central Park in New York City (USA). The Eastern Hills are a natural and cultural treasure that many cities around the world would love to have as a place for learning, experimenting, and transforming. They also contain rare ecosystems, like the páramo archipelago in the south of the city.

Even though these 14,000 hectares of green space benefit everyone in Bogotá, a 2020 study by Greenpeace Colombia showed that 80% of people in the city don't have enough access to green areas. Out of Bogotá's 19 local districts, 13 were found to have a shortage of green space. This shows how unequal the access to nature is in the city. A tree inventory of over 300,000 urban trees also revealed that...

(Quote begins) “People with higher incomes have much better access to the services provided by the city's urban forest, while people with lower incomes benefit less because there are fewer and smaller trees in their neighborhoods.” (Escobedo et al., 2015) (End of quote).

For example, it was found that the ability to remove pollution was almost twice as high in wealthier areas compared to poorer ones. These results show that ecosystem services in Bogotá are not equally shared. Regarding the three experiments, two important opportunities that shape them are highlighted.

First opportunity: create biodiverse areas within historically marginalized neighborhoods, as well as provide greater access for citizens to the Eastern Hills

The city has been part of iconic cases of citizen mobilization to defend urban nature. A notable example is the almost three-decade fight to protect the urban wetlands of the Capital District (Ramírez et al., 2020). In addition, in 2013, the country issued a ruling in response to a public action filed in 2005 by a citizen who demanded that the government ensure an ecological balance in the Eastern Hills of Bogotá (Council of State, 2013). Specifically, the Ministry of Environment and Sustainable Development, the environmental authority (Regional Autonomous Corporation [CAR]), and the Capital District were ordered to jointly create, implement, and fund a management plan for the buffer zone, to be completed within a year (Mesa & Ramírez, 2016). For an infographic representation of this case, we recommend checking our article “Fragmentation in the management of urban-regional ecosystems” (Mejía et al., 2014).

Second opportunity: rethinking the eastern edge of Bogotá as a way to control city growth while also supporting biodiversity and the well-being of the community

In this exciting and challenging situation, the Fundación Cerros de Bogotá (FCB) created a plan to build the biggest and most diverse nature and community area in our region, called the “Edge Pact”: 57 kilometres of nature and social connections. Here are three simple projects that will help make this happen:

- Restoring nature and creating green spaces to improve the soil, water, and biodiversity.
- Encouraging a culture of caring for the environment, using art to bring about change.
- Influencing public policies.

We hope that these community-driven projects, working together in a city-wide plan, will lead to a more sustainable and balanced city. As Julio Carrizosa Umaña (2013) said, we aim for “new cities that offer real alternatives for young people [...], cities that show older generations that it is possible to design and organize urban spaces that are models of ecological sustainability, social inclusion, and economic growth” (Carrizosa, 2013).



Figure 1 Cátedra Paisaje Bogotá with environmental leader Sofía López, from Las Delicias creek, 2018

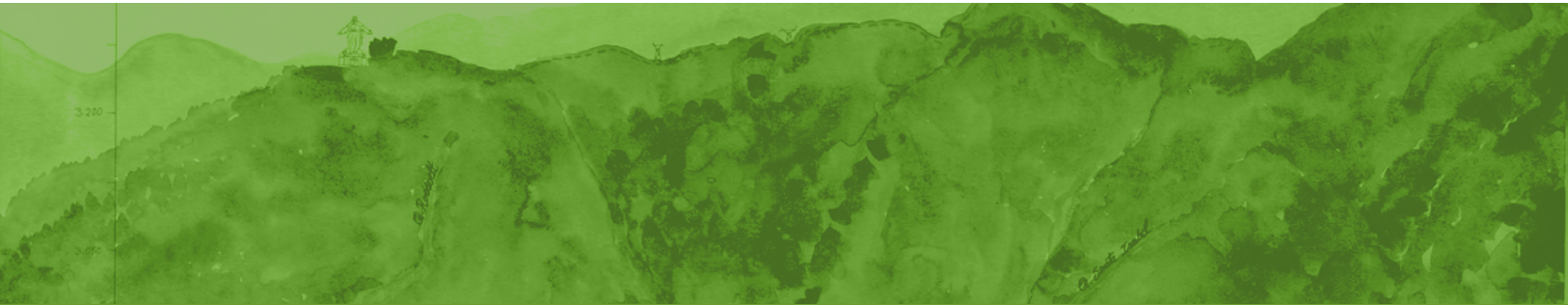
Every experiment needs its own laboratory: Umbral Cultural Horizontes reserves

The Umbral Cultural Horizontes Reserve was declared a Civil Society Nature Reserve by Resolution 101 on July 30, 2015, becoming the first of its kind registered in Bogotá. This space is dedicated to community enjoyment and serves as a pilot project for the management of the Eastern Hills. The reserve has implemented a management model that enables public use of a privately-owned property, with the aim of demonstrating that nature restoration in Bogotá is possible through privately held lands with a public purpose. Furthermore, this model ensures public use of the hills without requiring the Mayor's Office to acquire all properties, fostering joint management where private landowners place their land at the service of the public, generating shared benefits.

In this sense, the Umbral Cultural Horizontes Reserve acts as a laboratory for ecological, social, cultural, and artistic restoration, not only for the FCB but for all residents of the city-region (Wiesner et al., 2016).



Figure 2. Map of the Umbral Cultural Horizontes Reserve as a living lab, designed by Paula Erazo for FCB



1. Participatory Ecological Restoration and Green Infrastructure Development to Recover Soil, Water, and Biodiversity

Main Ideas

- Nature restoration and care foster civic transformation.
- Territories must be structured and planned around water.

Key Achievements

- Consolidation of collaboration networks with local communities, research centres, visiting researchers (Robson et al., 2019), and authorities, enabling the adoption of areas for participatory restoration.
- Implementation of participatory restoration days, leading to the planting of 4,260 plants from 115 native species over nine years.
- Creation of the most biodiverse citizen nursery for propagating over 115 native species. Our goal is to reach up to 400 species and establish a network of community nurseries in the urban-rural periphery of the Eastern Hills.
- Construction of infrastructure that benefits the water cycle and walkers (e.g., biofilters), as well as soil regeneration through composting (e.g., digestion bundles) and gardens, among other interventions.

Notable Methodological Aspects

Participatory Ecological Restoration

- The “Planting Units of Life” strategy within the *Sustainable Use and Management Program*, according to the Environmental Management Plan (PMA), involves the joint planting of a native tree, a shrub, and native ground cover, forming an ecological unit.
- Through the Sustainability Agreement signed with the District Environment Secretariat in 2022, the FCB

provided technical support to the *Mujeres que reverdecen* (“Women Who Regreen”) program, through eight sessions that strengthened the community garden, controlled invasive species, and enhanced participant knowledge and capabilities.

- A pedagogical program was implemented for neighbors and visitors on the following topics:
 - » *Tree Cutting*: Explains the need to gradually replace high-risk trees (due to leaning, exposed roots, trunk damage, etc.) in collaboration with trained volunteer arborist firefighters. This process includes the gradual replacement of invasive foreign species such as eucalyptus, acacia, black-eyed Susan, and Scotch broom with native Eastern Hills species, adapted to rocky soils and attractive to local fauna.
 - » *“Walk Your Dog to the Park” Campaign*: Encourages visitors to take their pets to nearby parks instead of the reserve, to help restore the habitat of native species families such as the Andean guan (Hernández, 2014), crab-eating fox, coati, and woolly ocelot, which have been sighted in the reserve via camera traps.

Green infrastructure to restore soil, water, and biodiversity

- Separate paths for people and water.
- Create biofilters to capture water and plant material, helping reduce the impact of rain on lower areas. The reserve is a dry, rocky place with no fertile soil.
- Treat water as an important part of the land, one that needs to be respected, managed, and used carefully.

On the FCB website, you can find lists of native species in the hills, their birdlife, a guide on creating compost digesters (“Paca Digestor: A Revolutionary Alternative for Organic Waste,” n.d.), a fire prevention guide, and other resources.



Figure 2. *Planting with citizens and homeless people in 2017, part of the initiative: A Forest for Juan.*

Note: Activity held in memory of a biologist murdered in Bogotá. Photo: Andrés Peña for FCB.



Figure 3. *Compost digester (Photo: Carlos Lince)*

2. Promoting an ecological citizen culture, using art as a tool for transformation

Main Ideas

- Knowledge and ecological culture are key for citizens to connect with nature.
- Art is a way to create landscapes and teach through fun and learning.

Main Achievements

- 363 sessions of the Cerros de Bogotá Course, with more than 35,000 attendees in 8 years, offering accessible weekly education to everyone.
- Creation of a community of experts, local leaders, students, and professors who share their environmental and urban knowledge.
- The course has inspired other initiatives like *Historias para lo que viene* (Los Andes University, 2016), involving professors from the History Department at the Los Andes University, and *Diplomado Ambiental en Bici* (2015).
- Promotion of thesis and research on Bogotá's biodiversity through the course, motivating students and professors to explore these topics (e.g., Javeriana University's Architecture Faculty, Los Andes University Anthropology Department, and Rosario University's Biology Program).
- Outdoor classes by teachers from different schools (Helvetia, Biology course; Rochester, Sustainability class).
- Transformation of habits through gardening workshops, where participants apply what they've learned at home.
- Citizen participation in the mobile app Naturalist, with 2,736 observations of 482 species in the reserve —strengthening biodiversity governance—, an activity traditionally done by scientists.
- Creation of collective artworks, like *Elogio a la descomposición*, with artists and ecologists such as Brigitte Baptiste, focused on the life and decay processes in nature. *El Nido*, woven by artist María Margarita

Jiménez from the Futuros Primitivos Collective, and ephemeral works by artists like Juan Fernando Herrán, Alejandro Frieri, María Cecilia Galindo, and Fernando Cruz, among others.

- Recognition of FCB's work with first place in the "Community" category at *The Next Green Awards* (2016) and an honorable mention at the Bogotá Public Space Biennial (2019).

Methodological Highlights

- Consistency and Permanence: Activities carried out regularly and consistently.
- Diversity of Knowledge Systems: Experts, social leaders, and academics are invited as speakers.
- Gender Equity: Most activities in the Cultural Threshold Reserve have balanced gender participation, led mostly by women, promoting equity in environmental management.
- Interdisciplinary: Offering lectures on topics like urban farming, sustainable mobility, green waste management, circular economy, ecological restoration, water management, and more.
- Collaborative Work: Speakers trust FCB's open platform and offer their time and knowledge. Some talks are shared publicly on FCB's social media platforms like Instagram (25,000 followers), Twitter (7,690), Facebook (17,528), and LinkedIn (850).
- Participation of Recognized Artists: Artists guide participants in creating ephemeral collective artworks using natural materials from the reserve.
- Playful and Creative Approach: Engaging various social groups, including those less interested in conservation.
- *Land Art* Approach: Where the landscape and the artwork are closely connected, using natural materials (wood, rocks, natural pigments, plants, etc.) that do not pollute.

FCB has a channel with most of the recorded and edited courses available for public consultation on FCB YouTube Channel.



Figure 4. Learning Lab Cerros Bogotá Course, 2019. The origin of water in Bogotá (Photo: Fundación Cerros Bogotá)



Figure 5. Traces, collective artwork (Photo: Carlos Lince)

3. Influencing public policy

Main Ideas

- All city-region residents have the right to find a sustainable territory in the Eastern Hills of Bogotá, with opportunities for respectful public use.
- Access to the hills must be guaranteed, and duties and commitments should be established for all citizens.
- Citizens must support and monitor processes in the hills to ensure their care and sustainability.
- Small actions like creating urban gardens, help shape the city's agroecological structure.

Main Achievements

- FCB is part of the verification committee for the Council of State's ruling on the Eastern Hills, participating in all sessions for ten years.
- The Cultural Threshold Reserve is a public-private collaboration model, offering private land for public enjoyment.
- A private sustainability model has been developed with the San Luis community, implementing restoration and care activities.
- Partnerships with public entities like the Botanical Garden and the District Environmental Secretariat to showcase and integrate their actions into public management.

Methodological Highlights

- **Expertise:** Some FCB Board members support our participation in Council of State sessions, offering legal and regulatory guidelines. Including the respect of governance and the proposal of an autonomous management entity for the hills, similar to those in place for other strategic issues in the city, to coordinate all responsible agencies. Other initiatives proposed include the creation of a unified information portal and a land management proposal for the urban-rural fringe, among others.
- **Documentation:** The FCB website maintains a record of all communications sent and received, as well as recordings and citizen complaints, which ensures transparency in the process and provides access to information for the public.
- **Integrated Vision:** The FCB points out how important it is to see Bogotá's Eastern Hills as a key part of the city's natural, cultural, and scenic heritage, shaped by the many traditions and ways of life of its people. The goal is to support a joined-up way of managing the hills that includes education and community involvement. This approach helps protect and restore the area, ensures people can enjoy it respectfully, and gives visibility and support to local community efforts.

Foundational Principles

- All residents of the city-region have the right to find in the Eastern Hills of Bogotá a sustainable territory, with the possibility of respectful public enjoyment and use.
- Access to and enjoyment of the hills must be guaranteed, along with shared responsibilities from all.
- Citizens must support and monitor the processes taking place in the hills.
- Small actions —such as the addition of urban gardens— contribute to building the city's agroecological structure.



Main Achievements

- The Cerros de Bogotá Foundation is part of the verification committee for the Council of State ruling on the Eastern Hills and has maintained a 100% attendance record in the ruling sessions over the past 10 years.
- The “Horizontes Cultural Threshold Reserve” is a model of public-private collaboration: a private property made available for public enjoyment.
- A sustainable private management model has been consolidated with allies from the San Luis community to implement restoration and care activities.
- Partnerships with public entities —such as the Botanical Garden and the District Secretariat for the Environment— aim to highlight their work and reintegrate it into public management efforts.

Notable Methodological Aspects

- Expertise: Some members of the Foundation’s Board of Directors support our participation in the Council of State’s ruling sessions by offering legal and regulatory guidance. For example, they advocate for governance solutions such as the creation of an autonomous management body for the Hills —similar to those managing other strategic urban issues— to coordinate the efforts of all responsible entities. Other proposals include the creation of a unified information portal and land management strategies for the urban–rural boundary, among many others.
- Documentation: The Foundation’s website keeps a record of all communications —both sent and received— as well as recordings and citizen complaints, ensuring transparency in the process and accessible information for the public.
- Promotion of an Integrated and Non-Fragmented Vision: The Foundation emphasizes the importance of valuing the Eastern Hills of Bogotá as natural, cultural, and scenic heritage for residents. These hills host a variety of practices that form part of the region’s tangible and intangible legacy. This must be addressed through comprehensive management that ensures an educational and socially driven approach for their conservation, restoration, and respectful public use, while also highlighting and integrating community-led initiatives.



Figure 6. Exhibition *Oriéntate, the hills are our north*

Note: Detail of the watercolor by Diana Wiesner and Jacqueline Vargas, depicting the citizen profile of the Hills (Museum of Bogotá), fully created by the Collective #BogotaPintaCerros.

Conclusions

Opportunities identified at the beginning of this articles –facilitate the accessibility of more citizen to the Bogotá’s Eastern Hills as an strategic of biodiversity and social well-being– emphasizes the strong commitment of the FCB with environmental justice and social of the city.

The Foundation has been consolidated such as “bridge organization” (Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services, 2015), which facilitates the collaboration between academic institutions and community strengthening decision-making among the teams. The collaborators of the FCB have access to a network of 25 urban collectives, 10 companies and 10 universities and impact in a direct way to 1200 people and 18 700 in an indirect way. This allows, on one hand, that all students will apply all their knowledge in real situations and, on the other hand, companies strengthen their commitment to the protection of the hills. Likewise, it makes it possible for the collectives to expand their influence on key decisions for the city.

The actions implemented by the FCB and its partners have generated a great deal of meaningful learning over the past decade:

- The forests of the Eastern Hills can regenerate through adequate interventions that integrate land, water, and biodiversity, while also recognizing the role played by certain species, including some invasive ones. An example of this recovery is the sighting and recording of the Andean guan or the margay.
 - » In terms of biodiversity, the FCB has promoted the cultivation of 25 native species in the garden and 115 at the nursery.
 - » Regarding composting, the Cultural Threshold Horizons Reserve produces eight tons per year, which reduces the impact of city waste on the Doña Juana landfill, while contributing to the creation of a vegetation layer that helps restore the soils in the Eastern Hills.
- The ecological restoration should be integrated as a strategy that supports economic development to the community of the Easten Hills.
- It is important to train the leaders in the border neighborhoods as producers of the native plant material for restauration. Currently, only three commercial nurseries produce small quantities of material with low

diversity. Even though we have created our own nursery, we are facing sustainability challenges.

- There are limitations in the normative tools, tax incentives, and the implementation of building rights transfer mechanisms that allow private owners to provide public use of their properties.
- There are also legal restrictions on investing public resources in privately owned lands, such as Natural Reserves of the Civil Society.
- The FCB has strongly advocated for this before the District Environment Bureau as a way to optimize public funds through collaboration with the private sector for the preservation of the Eastern Hills. This proposal suggests that the official response should not have been limited to purchasing all the properties in the Eastern Hills, but rather should focus on mixed and innovative management models. This approach is as promising as it is necessary for the conservation of nature in urban environments and could lead to future discussions on the construction of sustainable and inclusive territories.
- Spaces like the Cátedra Cerros play a crucial role, as they help bridge the gap between theory and conservation practice, raising awareness among citizens about the importance of local ecosystems.
- Attendees of the Cátedra Cerros, from various neighborhoods in Bogotá, bring their learnings back to their communities, as has happened in the El Codito neighborhood and in the locality of Suba.
- The FCB’s communication and social appropriation strategies have been essential in informing, inspiring, and mobilizing different social groups (Wiesner, 2016). Its website and social media are regularly updated, and social appropriation materials, such as the digitized profile of the Eastern Hills, are shared for free.
- The vital strength of the FCB lies in its networks of collaboration and volunteers.
 - » These networks include 25 collectives, 100 schools, 10 universities, and 10 companies.
 - » Thanks to the collaboration of various entities, the FCB has carried out 33 virtual lectures, 363 Cátedras Cerros, and 76 participatory excursions.
 - » In the last ten years, the FCB has received approximately 7,000 volunteers, many of whom completed their university internships or conducted their thesis projects at the Reserva Umbral Cultural Horizontes.

- » Through experiments and the laboratory that the Reserva Umbral Cultural Horizontes represents, and thanks to a wide and committed network of work, the FCB demonstrates how Bogotá can begin to consolidate the socio-ecological corridor of the Eastern Hills.

References

- Carrizosa, J. (2013, april). New cities for young people. *El Espectador*.
- Consejo de Estado. (2013). Judgment on the delimitation and protection of the Protective Forest Reserve of the Eastern Hills of Bogotá (Filing 25000-23-36-000-2013-00502-02 and 25000232400020050066201). <https://www.consejodeestado.gov.co>
- Escobedo, F., Clerici, N., Staudhammer, C., & Tovar, G. (2015). Socio-ecological dynamics and inequality in Bogotá, Colombia's public urban forests and their ecosystem services. *Urban Forestry & Urban Greening*, 1040-1053.
- Fundación Cerros de Bogotá [YouTube channel]. (n.d.). <https://www.youtube.com/@fundacioncerrosdebogota3240/playlists>
- Greenpeace Colombia. (2020, november). *Current situation of green public space in Bogotá*. https://www.greenpeace.org/static/planet4-colombia-stateless/f35550fa-deficit_areas_verdes_ajustado.pdf
- Hernández, M. (2014, february 19). Hills east of Bogotá. The return of the mountain guan. *Biodiversity and Conservation*. <https://biodiversidadyconservacion.blogspot.com/2014/02/cerros-al-oriente-de-bogota-el-regreso.html>
- Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services. (2015). IPBES Glossary. <https://www.ipbes.net/glossary-tag/bridging-organizations>
- Mejía, M., Wiesner, D., Peñaranda, M., Alonso, C., Campo del, A., & González, L. (2014). Fractionation in the management of urban-regional ecosystems. In J. Bello, M. Báez, M. Gómez, O. Orrego y L. Nägele (ed.), *Biodiversity 2014. Status and trends of continental biodiversity in Colombia*. Biological Resources Research Institute Alexander von Humboldt.
- Mesa, C., & Ramírez, A. (2016). Large-scale governance: the adaptation zone of Bogotá's Eastern Hills. In M. Mejía (ed.), *Urban nature: experience platform* (pp. 86-89). Biological Resources Research Institute Alexander von Humboldt.
- Digester bale: a revolutionary alternative for the use of organic waste. (s. f.). *Paisajeo*. <https://www.paisajeo.org/post/paca-digestora-una-alternativa-revolucionaria-para-el-aprovechamiento-de-residuos-org%C3%A1nicos>
- Ramírez, M., Estévez, J., Goyeneche, O., & Rodríguez, C. (2020). Fostering place-based coalitions between social movements and science for sustainable urban environments: A case of embedded agency. *Environment and Planning C: Politics and Space*, 38 (7-8), 1386-1411.
- Robson, E., Van Kerkhoff, L., & Cork, S. (2019). Understanding citizen perceptions of the Eastern Hills of Bogotá: A participatory place-based ecosystem service assessment. *Urban Ecosystems*, 19-35.
- Universidad de Los Andes. (2016). *Stories for what's to come*. Department of History and Geography. <https://ciencias-sociales.uniandes.edu.co/historia-geografia/grupos-semilleros/historias-para-lo-que-viene/>
- Wiesner, D. (2016). From planning to action: the role of civil society in governance in the eastern hills of Bogotá. In S. Nail (Eds.), *Climate change: lessons from and for Latin American cities*. Universidad Externado de Colombia.
- Wiesner, D., González, L., & Hoyos, L. (2016). Ecological and social connectivity on the eastern edge of Bogotá. In M. Mejía (Eds.), *Urban nature: experience platform*. Biological Resources Research Institute Alexander von Humboldt.