



Wetland Lugano, the restoration of an aquatic ecosystem

The Lugano wetland pilot is restoring an aquatic ecosystem lost by urbanization in the south of Buenos Aires. The pilot is led by the city government. It involves key stakeholders to promote social awareness about the benefits that wetlands provide to the community. The enhancement of biodiversity will transform the surroundings into a more naturalized landscape.



111 species surveyed
in a biodiversity assessment

250+ students involved in participatory processes

Nature-based Solutions Benefits



Background

The pilot is located in Lago Lugano Ecological Reserve, Villa Soldati neighborhood, a socially and environmentally vulnerable area. The nearby Riachuelo River is highly polluted, several of the city slums are located there, and the urban sprawl has displaced aquatic ecosystems. The presence of the American Ground frog, a species previously unrecorded in the city, was detected in puddles where water accumulated after the rains. This specimen laid its eggs in the puddles, but could not survive the heat after the water evaporated. Naturalists collected the eggs and kept them protected until they hatched. This micro-environment that worked as an eco-trap inspired the community to revive the pre-existing wetland. The Lugano wetland pilot is restoring 500m² of this underrepresented habitat within the city and, in this sense, also offering an opportunity for people to reconnect with nature.

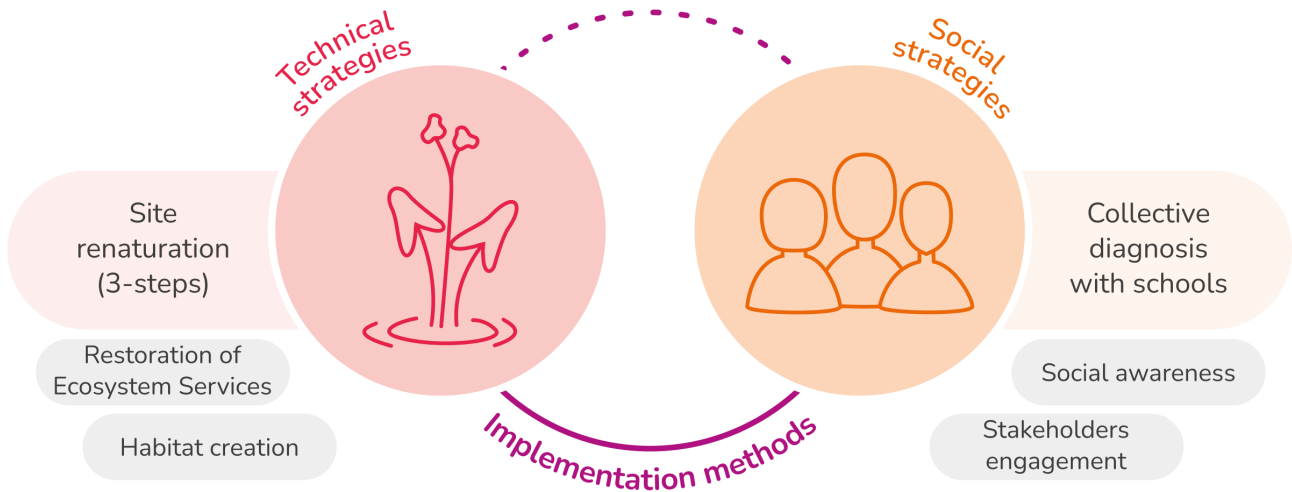
Challenges

Replicating the pilot

Engaging and informing local communities

Promoting a change in future urban policies





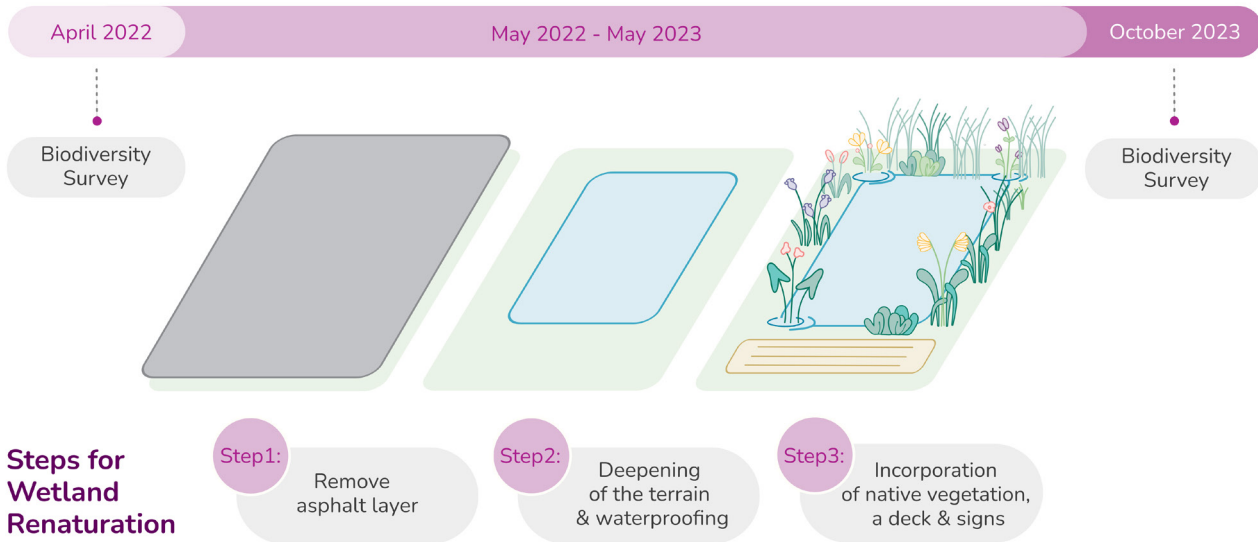
Wetlands provide many ecosystem services as carbon sinks, biodiversity attractors, and water filters. The Lugano pilot aims to recreate a wetland of shallow and fluctuating water levels in a vulnerable urban area of the city, where ecological restoration and social aspects are important priorities. The pilot team developed a methodology combining technical and social strategies to build the right conditions for plant and animal species, while raising awareness about the biodiversity and engaging local communities with the wetland.

Technical strategies

The wetland at the Lugano pilot was part of a natural area of meanders and large wetlands. Its use as a landfill in the 19th and 20th centuries buried its original identity and landscape features. The redevelopment of Avenue 27 de Febrero offered an unused paved section within the current ecological reserve with appropriate biophysical conditions for wetland renaturation.

The technical implementation of the wetland restoration was organized in three stages. First, all pavement was removed with a special drilling machine. Second, with a backhoe loader, the site was deepened to generate a micro-topography promoting a diversity of ecological niches and, in turn, establishment of diverse species. Third, a layer of clay was added for water retention, followed by soil to enable vegetation growth.

In April 2022 prior to the wetland restoration, a species richness survey of flora, arthropods and birds was conducted through observation and photographic records to obtain baseline data. After implementation, this survey will be repeated to monitor and collect scientific data on the effects of habitat restoration for plant and animal species on the pilot site. This kind of scientific evidence can support decision-making in favor of more sustainable public policies and replication of this type of nature restorations in the city of Buenos Aires and beyond.



Social strategies

To raise awareness and create joint learnings on ecosystem services aquatic environments provide in cities, the Lugano pilot brings together a local school and three government departments: conservation areas (Environmental Secretariat), urban anthropology (Urban Development Secretariat) and the green school program (Ministry of Education). Through internal meetings, these specialists contributed actively to shaping the project’s implementation strategy. The Lugano pilot is the first wetland of shallow and fluctuating water that the government has built in the city. The innovation and the lack of previous experiences led to a challenging process with diverse perceptions on how the wetland should be built and what it should look like. The CONEXUS consortium enabled bringing diverse local professionals together to foster a technically consistent project.

The Lugano Pilot team wanted to understand how youth in the neighborhood perceive climate change effects and

which mitigation and adaptation strategies they consider relevant for the area. Therefore, a nearby secondary school joined the pilot and explored the main socio-environmental problems affecting the surroundings and potential solutions in four workshops in October and November 2022. The students identified the following issues: heat stress; flood risk; poor public green spaces; landfills; water, air, and soil pollution; and unsafety. Furthermore, the Riachuelo river and Cildañez stream were recognized as highly polluted. The young participants reflected and proposed strategies to mitigate the identified problems. The potential solutions included: water phytoremediation; provision of basic urban infrastructure; additional

The pilot seeks to regenerate the local ecosystem while reconnecting the community, especially schools, to a naturalized landscape.

trees for public spaces; creation of new parks; provision of more absorbent surfaces; waste management; and mitigation of industrial pollution.

Lessons learned

Exploring the perception of nature in the city and related problems in neighborhoods with diverse stakeholders can help to raise awareness about the importance of healthy and natural ecosystems in urban contexts. To strengthen the connection to the Lugano pilot, the community is actively involved in the wetland restoration through participatory activities. Through the participatory approach involving several stakeholders, like schools and local NGOs, we learned that renaturalization efforts are highly valued by local communities. This strategy helped to raise awareness of the importance of local wetlands in Buenos Aires and taught local citizens how they can contribute to maintaining these ecosystems.

Related Projects



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tinyurl.com/LifeLabLisbon



Reservorio del Parque Indoamericano
tinyurl.com/LagoSoldati



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References

FAGGI, A., et al. 2022. Lineamientos de Restauración Ecológica y Recomposición Ambiental Para la Ciudad de Buenos Aires. [DOI:10.13140/RG.2.2.26521.08804](https://doi.org/10.13140/RG.2.2.26521.08804)

SCHMIDT, M., 2018. Conflictos por la valoración de humedales en ámbitos urbanos. La cuenca Matanza Riachuelo, Argentina. *Bitácora Urbano Territorial*. 28. 89-98. [DOI:10.15446/bitacora.v28n3.63935](https://doi.org/10.15446/bitacora.v28n3.63935)

MERLINSKY, M., 2016. Long-term effects of structural cases: the Riachuelo case. *Revista Direito e Práxis*. 7. [DOI:10.12957/dep.2016.22954](https://doi.org/10.12957/dep.2016.22954)

DUB, A., 2019. Sustainable urban strategies for social inclusion and the environmental recovery of the Matanza-Riachuelo river basin (Buenos Aires, Argentina) tinyurl.com/DUBGreenUrbanism2019

Key messages



1. Knowledge transfer between different city government departments was crucial for implementation.
2. Ecosystemic regeneration needs community involvement to succeed.
3. Renaturalization efforts are highly valued by local communities and more and more actors are interested in the project.



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City Partners

