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中欧城市森林应对方案

Kamp Beverlo: Managing Military Urban Forests

In Belgium,
military domains are amongst the
most unspoilt and extensive natural habitats. Kamp Beverlo demonstrates the successful integration of military activities, recreational activities and ecological preservation in a large military-owned natural area. The complex web of stakeholders involved in the management and maintenance of such military-owned natural areas, ranging from military, municipalities, hunters, recreational users (shooting club, fishing, cycling and hikers) and tourists, introduces great complexity. Overall, this case study demonstrates how different and often competing agendas can be accommodated through collaboration and cooperation and bring benefits to nature and people.

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PROJECT DESCRIPTION

In Belgium, military domains are amongst the most unspoilt and extensive natural habitats. Kamp Beverlo and the neighbouring brook valleys and forests, stands as a biodiversity hotspot in Flanders, whilst the area outside of the military domain has altered dramatically due to agricultural intensification and urbanization. The extensive size and diverse habitats and species in Kamp Beverlo make it an exemplary model for integrating military activities and ecological preservation. This large military domain (55km^2) boasts a diverse landscape with coniferous and deciduous forests interconnected with open heathland, grassland and fens.

The project aims to effectively manage and conserve Kamp Beverlo's extensive natural habitats and biodiversity, while accommodating the interests of multiple stakeholders, including the military, Agency for Nature and Forest (ANB), municipalities, hunters, recreational users, and tourists.

Two key policies impacted the management and maintenance of Kamp Beverlo: the designation of the military domain and surrounding areas as Natura 2000 Special Protection Areas (SPAs), and a signed agreement since 1999 between the ANB and the Belgian Ministry of Defence for nature conservation and forest management. Additionally, in 2004, both parties signed an agreement for the European LIFE project DANAH, outlining measures for habitat and species restoration in twelve military areas, including Kamp Beverlo.

The project faces a range of challenges, including the need to balance military activities needs and forest management, leading to decisions like maintaining clear open spaces in some places while keeping dense tree canopies for concealment in others, as well as addressing issues of unauthorized entry by various recreational groups. Additionally, communication challenges arise due to the military nature of the area, making it difficult to raise awareness about the project's significance and manage diverse interests within its scope.

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The industrial forest project: a remarkable initiative designed to address environmental and social challenges in the Ruhr region

The Ruhr region of western Germany is best known for its industrial heritage of coal mining and steel production. Today, it is much transformed and regarded by many as an example of how urban greening can be used as a regeneration tool. The transformation is the result of a remarkable initiative. The International Building Exhibition Emscher Park conceptualized the project with the aim to revitalise brownfield sites in the Ruhr region. The initiative that drove much of the urban greening is the Industrial Forest Project, an example of UF-NbS leading to significant ecosystem improvements, preserving cultural heritage, and renaturing a despoiled landscape.

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PROJECT DESCRIPTION

The International Building Exhibition Emscher Park (IBA) conceptualised the project, with support from NRW Urban GmbH & Co. KG, who provided land, existing buildings, and administrative assistance. The Ministries of Environmental Protection and Urban Development showed a willingness to endorse the idea and offered financial backing. The Forest Authority "Wald und Holz Nordrhein-Westfalen" and the Regional Forest Office Ruhrgebiet employed three qualified foresters to oversee the maintenance of the area. Research activities were coordinated by the Biological Station Western Ruhr Area.

By converting former industrial sites into forest areas through natural succession, the Industrial Forest Project has succeeded in revitalising the region and improving its resilience. It has added to the **quality of life** for residents and visitors by providing opportunities for **recreation** and fostered **ecosystem services** such as carbon sequestration, air purification and cooling, natural habitats restoration, and new soil development. It has also created an impressive landscape setting for industrial monuments.

The Industrial Forest Project has evolved over the years, becoming a "valuable wilderness". By 2021, a single site, Rheinelbepark in Gelsenkirchen had over 93,000 visitors, highlighting its significance. The industrial forest project success aligns with the UN Decade for Ecosystem Restoration, emphasising the importance of such projects in addressing urbanisation, climate change, and biodiversity loss.

Project partners have worked hard to overcome several obstacles including financial constraints which was overcome by **implementing a cost-effective forest management strategy**. It also **fostered public engagement to create a sense of ownership and responsibility** and succeeded in securing the support needed as visitor numbers grew, to find the right balance between providing social forest functions and protecting the ecosystem.

LEARNING POINTS

The project is now internationally known for its urban forest collaboration and is widely regarded as a living laboratory and studied by researchers. It is also an example of how ecological connectivity between former industrial sites can provide a strategic green infrastructure for a polycentric region. By using natural regeneration, a low cost, and culturally resonant ecosystem has evolved relevant to the former land uses and populace that worked in the area during the period of intense industrial activity post 1945.

LOCAL CONTACTS

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Lochend Community Woodland: a Model for community-led Green Infrastructure management and sustainability

The Lochend Community Woodland project, located in Scotland, UK, has successfully demonstrated the effectiveness of managing a peri-urban forest by a local community woodland group. It serves as an innovative example of how community woodland ownership can successfully take the lead in creating and green infrastructure delivering diverse benefits including health, wellbeing, social interaction, recreation, biodiversity, and ecological benefits. It demonstrated that local community ownership fosters a sense of motivation and enables better control and decision-making.

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PROJECT DESCRIPTION

The Lochend Community Woodland project is a case study of community-led management of a peri-urban forest. Key actors include the Dunbar Community Development Company (DCDC) and the Lochend Community Woodland Group, with support from organisations such as Forestry Commission Scotland and the Community Woodlands Association. The 33-hectare woodland is owned by DCDC and managed by the Lochend Community Woodland Group.

The project shows that direct ownership of the site by the local community is a key motivation allowing for a high level of control and effective decision making. This has been facilitated through agreements that allow for the effective division of labour and responsibilities between the community woodland group and their parent body, the Dunbar Community Development Company. Overarching legal and financial matters are coordinated by the parent body allowing the community woodland group to focus on hands-on practical management issues.

The project, ongoing since 2007, aims to provide various benefits to the local community and for nature conservation. The objectives include managing the forest for community use, enhancing educational and recreational opportunities, valuing wildlife, maintaining pathways and waterways, and ensuring the woodland's preservation for future generations. Activities include tree planting, maintenance, wildlife monitoring, and the development of amenities like a cycle fitness track and a community gathering space. Local partnerships with external civil society groups such as scouts, schools, sports organisations and local rotary clubs have maximised the potential stakeholder participation in the site and harnessed local people power through exploiting local networks and existing capacity within the community.

LEARNING POINTS

The project emphasises the importance of direct ownership of green sites by the local community, the potential for high-level participation through hands-on volunteering, and the necessity for good communication and legal agreements between groups in achieving successful community-led management of green infrastructure. Overall, the project observes a strong motivation to manage it locally through a culture of active participation and the site is perceived positively by the local community as a positive asset which provides many important benefits to local people. The advisory role of the Community Woodlands Association as a national mentoring and support organisation is also a significant success factor.

LOCAL CONTACTS

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Drwinka River Park: Community engagement in the quest to protect urban wilderness in highly urbanized Krakow

The Drwinka River Park in Poland showcases urban forest management challenges in a complex setting. The park faces challenges in maintaining urban green spaces in a heavily built-up area of Krakow, but it's crucial for biodiversity preservation. Indeed, the park serves as an essential natural area with high ecological value, including aquatic ecological corridors crucial for Krakow's ecosystem cohesion. However, urbanization pressures from private stakeholders and differing resident opinions posed threats to the park's natural character. The project showcases how grassroots initiatives and resident involvement can lead to formal protection through zoning and with the formation of the Drwinka River Association, which shaped protection measures.

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PROJECT DESCRIPTION

The Drwinka River Park in Poland exemplifies the challenges associated with ensuring the availability of urban green spaces in Polish cities.

The Drwinka River Park is vital for biodiversity preservation of this heavily built-up area of Krakow. It is a valuable area in terms of nature, with parts of the Park designated as areas of the highest natural values according to the Natural Valorization of the Green Ring of Podgórze in terms of ecological connections. The Drwinka River Park includes areas designated as aquatic ecological corridors, which are very important for maintaining the cohesion of Krakow's ecosystem.

However, situated in a highly urbanized region, this area constantly faces significant urbanization pressures from private stakeholders like developers and investors as well as various organizations responsible for overseeing the city's technical infrastructure, risking the park's natural character. Besides, the project faced differing opinions, with residents having conflicting views, some advocating for a wild park, while others wanted to introduce recreational infrastructure and more intensive development, such as lighting and paved paths, which may disrupt the park's ecology.

Grassroots initiatives and resident involvement led to the formal protection of the valuable natural area. The local community's strong commitment to preserving the local environment, particularly the Drwinka River, resulted in the formation of the Drwinka River Association in 2017. This dedication influenced the area's current legal status, with informal institutions playing a significant role in shaping formal protection measures, including zoning plans.

As a result, the project protected 40 hectares of green areas through zoning, identified 700 species through comprehensive ecological studies, fostered nature-based solutions by prioritizing wild nature over traditional urban park norms, modified a pipeline route to safeguard valuable aquatic habitats of the park, fostered ecological connectivity through the Green Ring of Podgórze concept, and implemented educational initiatives.

LEARNING POINTS

The project underscores the importance of stakeholder collaboration and formal protection measures in safeguarding urban forests. Balancing the involvement of both formal and informal institutions is essential as residents' inputs in discussions and planning is crucial for success, while formal support from the City Office is equally vital to ensure effective participation. Moreover, formal protection measures such as zoning plans and city land acquisition are imperative to secure long-term preservation.

LOCAL CONTACTS

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Llobregat&Co:
a collaborative effort to promote urban forestry as a nature-based solutions using co-creation and gamification

The Llobregat&Co project in Catalonia addressed challenges in the metropolitan section of the Llobregat River (Lower Valley and Delta Area). This section is 34 km long, comprises 16 different municipalities and it is an important landscape feature and the main water source for Barcelona and its metropolitan area.The project explores the potential of urban forestry as nature-based solutions to prioritise ecosystem services and underscores the importance of collaboration between regional administrations, research institutions, municipalities, NGOs, and citizens in addressing environmental challenges. To create the knowledge and conditions for locally appropriate nature-based solutions, the project employs innovative approaches, using co-creation workshops and collective activities to collect relevant information and foster networking among actors. By involving diverse stakeholders, the strategy allowed for multidisciplinary views when sharing knowledge about the challenges of possible UF-NBS interventions.

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PROJECT DESCRIPTION

The 175km long Llobregat river basin in Catalonia flows from the Pyrenees into the Mediterranean Sea near the City of Barcelona. The river is an important landscape feature and the main water source for Barcelona and its metropolitan area. A partnership between the Area Metropolitan Barcelona (AMB), a local administration, and CREAF, a research centre, joined forces to create the Llobregat&Co collaborative project. The project partners worked with other administrations who hold territorial planning competences, including public consortia and various stakeholders to reach a consensus with people from different disciplines who work in the fluvial space. **Most of the area belonging to the Lower Valley of Llobregat river is part of protected areas**, and follows a mostly rectilinear route, channelled for the most part and lacking any natural meanders or a riparian forest. The Llobregat&Co collaboration is exploring the potential of urban forestry as locally appropriate nature-based solutions. Using co-creation workshops and collective activities the aim is to collect relevant information, fill knowledge gaps, and encourage networking. Gamification, collaborative mapping, and the concept of "discovering and learning together" were the key methods used for this participation.

The main outcomes were the prioritising of ecosystem services in the area, sharing knowledge about the challenges, facilitating networking among actors, and building the community around Llobregat&Co as a future Living Lab and base for co-design sessions. The outcomes were georeferenced and introduced in an online viewer, making the knowledge easily visualized and shared while opening up participation to other agents. **The main objectives of the co-learning and co-creation workshops were to collect relevant information and fill in knowledge gaps** in terms of ecosystem services, nature-based solutions, urban planning, management, and governance and how these impact on urban forestry beyond the project cycles. The main outcomes of the workshops were the prioritisation of the ecosystem services in the area, sharing knowledge about the challenges (multidisciplinary view) of possible UF-NBS interventions, facilitating networking among actors and building a community around the Llobregat&Co, as a future Living Lab. **Several barriers had to be addressed including the lack of a well-defined governance model for the planning, design, and management of urban green spaces in the context of multiple actors involved**. Climate change impacts, such a water availability and periods of drought and urban conservation measures also presented themselves as challenges. Knowledge gaps emerged to including a lack of data on biodiversity, insufficient data on riparian forests and river pollutants, and a need for better institutional collaboration and policy frameworks at the metropolitan level to enable better planning and implementation of NBS.

The case study highlights the importance of collaboration between regional and local administrations, research institutions, municipalities, NGOs, and citizens. The co-creation workshops and collective activities fostered knowledge sharing, networking, and the involvement of diverse stakeholders. This lesson can be transferred to other projects aiming to implement nature-based solutions (NBS) or address environmental challenges, emphasizing the need for multi-stakeholder collaboration and participatory approaches. The use of online GIS tools and participatory mapping facilitated data sharing and visualization. This approach can be applied in other contexts to identify knowledge gaps, collect relevant information, and promote open access to data, enabling better planning and management of natural resources.

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