

# GREEN URBAN BROWNFIELDS

RESEARCH FROM THE FIELD



Source: Stefaan Vandaale

Former brownfield site in Belgium turned into a green space for public use.

## DEFINING GREEN URBAN BROWNFIELDS

“Brownfields that are more or less covered by vegetation and vital to a city’s green infrastructure which can supply a range of diverse ecosystems” [2].

This column summarizes the key themes and findings and provides recommendations based on the article *Brownfields as an Element of Green Infrastructure for Implementing Ecosystem Services into Urban Areas* by Juliane Mathey, Stefanie Rößler, Juliane Banse, Iris Lehmann, and Anne Bräuer.

## RECOGNIZING POTENTIAL FOR BROWNFIELDS SITES

By Carly Murphy

The redevelopment of brownfield sites often offers benefits for the community, the creation of jobs, and utilizing existing infrastructure for increased density. However, they also offer an opportunity for the greening of urban spaces. Urban development poses challenges to both ecological health and human well-being, such as “habitat loss, climate change, and maintaining healthy living environments”[2]. However, green urban brownfields can serve as vital contributions to a city’s green infrastructure, promoting green space development and areas in which ecological functions can thrive. Due to limited recognition of brownfields under land-use planning legislation, brownfields often remain in a state of non-use for several years before being introduced to any sort of land-use development; this allows for highly diverse vegetation structures to grow on the site providing vital ecosystem services to urban areas. When brownfields are left undisturbed, they tend to undergo ecological succession, which can be associated with a wide range of benefits varying from ecological benefits, to aesthetic, and sociocultural. The limited land-use planning legislation regarding brownfields means that there is no universal ‘one size fits all’ approach to brownfield reuse and provides potential to reuse brownfields as a form of green infrastructure by providing green space to densely urban settlements that are often limited.

# 7 OPTIONS FOR GREEN SPACE DEVELOPMENT

Mathey et al. conducted a survey of perceptions, acceptance, and use of green urban brownfields in Dresden, Germany, and notes that 54% of those that took the survey view brownfields negatively, however, 50% of those respondents said they would change their opinion if they knew that the brownfield site was to have the opportunity to provide important ecosystem functions. Most participants indicated that they preferred the site to be transformed to wooded areas and parks with advanced greenery, and the least favourable were brownfields with low vegetation. The article, *Brownfields as an Element of Green Infrastructure for Implementing Ecosystem Services into Urban Areas*, provides seven options for green space development of brownfields and the associated benefits. This section provides a brief description of each for consideration by planners and brownfield practitioners of how green infrastructure can be applied to brownfield sites that appeal to the public and support ecosystem services:

## 1. URBAN WOODLANDS

An urban woodland is suitable for abandoned brownfield sites that are currently undergoing natural growth. Urban woodlands can serve multi-purposes as a way of regulating rising temperatures and climate conditions in dense cities and providing recreational spaces for public use. The development of urban woodlands can range from reforestation to artificial woodland sites.



Source: Pixabay



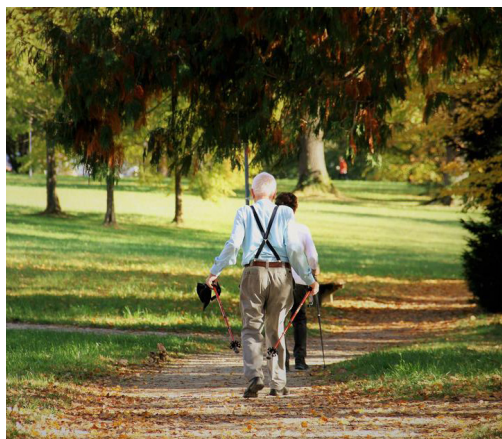
Source: Wikimedia Commons

## 2. GARDENS

Brownfield sites can be transformed into areas where neighbouring communities can contribute to the planting of communal gardens that satisfies personal needs such as food, engaging in community, and a pleasurable activity. Community gardens can not only enhance the site's future value but relieve financial strain on public investment and for landlords.

## 3. SPORTS AND LEISURE

Transforming brownfield sites in open green spaces for sport and leisure can help enhance the quality and quantity of green space in a dense urban settlement for enjoyment of public use and promoting active transportation.



Source: Pixy.org

## 4. CULTURAL PROJECTS/PUBLIC EVENTS

Brownfield sites can be used for temporary projects and events that help to increase awareness of the site's potential and contribute to consideration for permanent future uses.

## 5. LOW-INTERVENTION GREEN SPACE

Low-intervention green spaces can provide green space at low costs (less need for maintenance or design) to serve a wide range of uses. In addition, low-maintenance meadows are an alternative that can increase biodiversity.

## 6. EXPERIMENTAL NATURE AREAS

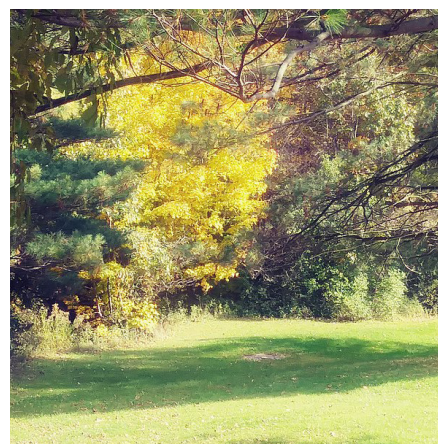
Conservation sites allow the public to observe nature and engage in low-impact recreation in tandem with the site's primary use.

## 7. URBAN WILDERNESS AREAS

Urban wilderness areas combine both qualities of experiential nature areas and low-intervention green space that can preserve the natural growth of the site and provide public opportunity.



Source: PixaBay



Source: Wikimedia Commons

***“Brownfields are a way to promote sustainable, land-saving, and resource-efficient development by building ‘inner’ before ‘external’ (minimizing additional transportation emissions and urban expansions that still boost the economy) – thus, when considering green urban brownfields, the aim should be to avoid imposing strict protection orders and instead, solutions should be sought that reconcile human use with the requirements to provide ecosystem services”. [3]***

# RECOMMENDATIONS AND REFLECTIONS

Brownfields offer some of the only readily available land in densely built urban spaces that can contribute to new urban green spaces. However, the importance of converting the sites into green space is often ignored due to the lack of land-use planning legislation for brownfields. It is recommended by Mathey et al. that to legally protect the potential of brownfield sites, that cities designate brownfield sites as green space or a special land-use designation category that ensures the preservation of ecosystem services and benefits to public well-being. This would ensure that a precondition is set in place, acting as a strategy to encourage the implementation of green infrastructure in urban areas. However, it is important to consider that certain sites may not always be suitable for green space development. By designating brownfield sites as a green space designation, as the author suggested, this may be problematic for brownfield sites that are best suited for higher densities, commercial, residential, or other uses. Designating all brownfields to green space designations would likely require the need for Official Plan Amendments and Zoning By-law Amendments quite often. It would, however, be beneficial to designate brownfield sites on an individual basis to be reviewed on the same basis that the Official Plan is reviewed. Furthermore, ongoing research that introduces new forms of use rather than the traditional implementation of green space can encourage acceptance and appeal to reusing brownfield sites in non-traditional forms that benefit both ecosystem services and the community.

[1] Mathey, Juliane, Stefanie Rößler, Juliane Banse, Iris Lehmann, and Anne Bräuer. "Brownfields as an Element of Green Infrastructure for Implementing Ecosystem Services into Urban Areas." *Journal of Urban Planning and Development* 141, no. 3 (2015). [https://doi.org/10.1061/\(asce\)up.1943-5444.0000275](https://doi.org/10.1061/(asce)up.1943-5444.0000275).

[2] Juliane Mathey et al., "Brownfields as an Element of Green Infrastructure for Implementing Ecosystem Services into Urban Areas," *Journal of Urban Planning and Development* 141, no. 3(2015), [https://doi.org/10.1061/\(asce\)up.1943-5444.0000275](https://doi.org/10.1061/(asce)up.1943-5444.0000275), 1.

[3] Juliane Mathey et al., "Brownfields as an Element of Green Infrastructure for Implementing Ecosystem Services into Urban Areas," *Journal of Urban Planning and Development* 141, no. 3(2015), [https://doi.org/10.1061/\(asce\)up.1943-5444.0000275](https://doi.org/10.1061/(asce)up.1943-5444.0000275), 3.