Urban forests and their benefits

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What is an urban forest?

The definition of an urban forest is broad and flexible, reflecting the diversity of environments in which urban forests exist, the biotic factors (the living organisms that interact within an ecosystem) and abiotic factors (the non-living components of an ecosystem) that comprise them, their interaction with human activities and land uses, and their various configurations within the urban landscape.

According to the Food and Agriculture Organization of the United Nations (FAO), urban forests encompass all forests, groups of trees, and individual trees in urban and peri-urban areas, including those along streets, in parks, gardens, and vacant lots. Similarly, the U.S. Department of Agriculture Forest Service's Urban and Community Forestry Program defines urban forests as all trees and green spaces, both public and private, located within cities, towns, and neighborhoods, including parks, residential yards, public gardens, roadside green spaces, protected areas, nature reserves, and other vegetated spaces.

Urban forests are also defined by their function as integrated systems that consider both their components and the benefits they provide in urban and peri-urban areas, including transition zones between urban and rural landscapes. For example, González Miranda (2018) describes urban forests as ecosystems in which trees and palms, together with other natural resources such as water, soil, and other plants and living organisms, play an important role not only in enhancing the appearance of urban spaces but also in providing economic, environmental, and social benefits.

Why are urban forests important?

Urban forests are closely intertwined with human activity. They are dynamic ecosystems that provide benefits to people, other living organisms, and, more broadly, the ecological and social systems in which they are located. They provide both tangible and intangible goods and services that enhance quality of life in urban areas, strengthen social cohesion, enrich cultural values, support local economies, sustain natural processes, and contribute to the conservation of biodiversity, among many other benefits .

Benefits of urban forests

Urban forests—and the biotic and abiotic components that make them up—perform a wide range of functions. Among their many benefits, they:

- provide shade;
- reduce air temperatures;
- help conserve energy;
- improve air quality;
- improve water quality;
- produce oxygen;
- reduce noise pollution;
- provide forest products such as fruits, flowers, and medicinal plants;
- provide habitat for flora and fauna;
- help maintain biodiversity;
- stabilize soils;
- reduce stormwater runoff;
- help prevent flooding;
- help control soil erosion;
- reduce the risk of landslides;
- store carbon dioxide;
- promote economic development;
- enhance the appearance of urban environments;
- contribute to human well-being and to physical and mental health;
- provide spaces for recreation, leisure, relaxation, nature appreciation, and social interaction;
- foster a sense of community and place; and
- provide opportunities for education and learning.

Types of urban forests based on their landscape configuration and relationship to built environments

Urban forests vary widely in size and form. Depending on their extent and spatial configuration, they can be classified in different ways, including minimum forests, linear forests, patch forests, and peripheral forests, with the latter three categories adapted from Puerto Rico's Urban Forest Act (Act No. 213). Although these categories are described separately for clarity, it is important to recognize that they may occur simultaneously within the same geographic area. In addition, urban forests may exhibit other configurations beyond those presented here.

A **minimum forest** consists of individual trees within an urban matrix whose ecological functions are connected to one another or to adjacent vegetation cover.

A **linear forest** is composed of trees arranged in a linear pattern, such as along sidewalks, streets, or roadways.

Illustrations: Albert Louis Cruz Toro

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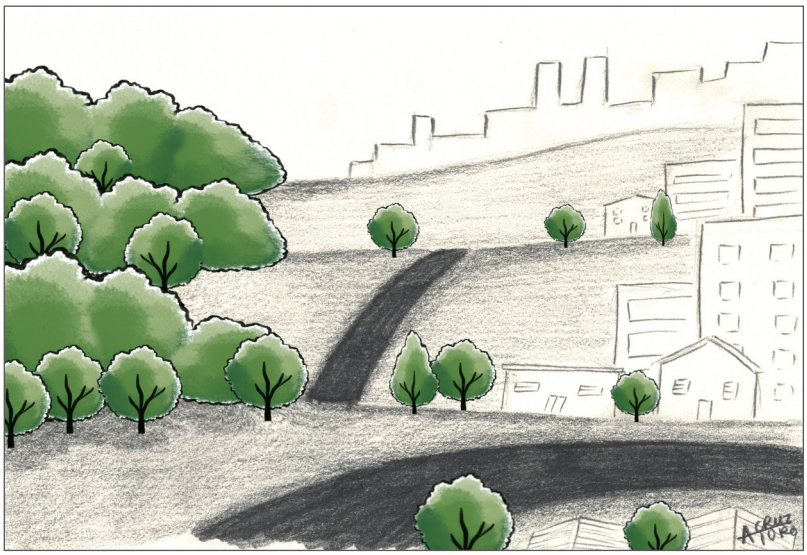
A **patch forest** consists of a group of trees concentrated within a defined area of the urban matrix, such as in a park.



A **peripheral forest** is a larger forested area located along the edge of an urban area.

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Acknowledgements

We thank Antonio González Toro for reviewing this information sheet. This publication is part of the project Urban Forests: History, Uses, and Meanings, which has been made possible through funding from the U.S. Department of Agriculture (USDA), Urban and Community Forestry Program, and support from the Office of the Dean of Research of the College of Arts and Sciences at the University of Puerto Rico–Mayagüez Campus .

How to cite this publication

López Marrero, T.; Cruz Toro, A.L.; Santana López J.A.; González Nieves, A.; Quiñones Zavala, M. 2025. "Urban forests and their benefits." Mayagüez, PR: Universidad de Puerto Rico, Recinto de Mayagüez. 5 p.

For additional information

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