

NATURE
IS OUR HOME



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Sustainable
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Office

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ISSUE TOPIC: **TREES**

Sustainable Development Goal 15

Protect, restore and promote the sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, halt and reverse land degradation and halt biodiversity loss

Forests cover 30.7% of the Earth's surface. Not only do they provide food security and shelter for a variety of life forms, but they also play a key role in combating climate change, protecting biodiversity, and are home to indigenous peoples.

Deforestation and desertification due to human activities and climate change are the most important challenges for sustainable development. These phenomena affect the lives and livelihoods of millions of people experiencing poverty. Currently, efforts are being made to manage forests and combat desertification better*.

* <https://sdgs.un.org/goals/goal15>

THROUGH THE EYES OF A SPECIALIST

M.A. Eng. Natalia Guz



The list of functions performed by trees seems endless. Their presence affects the environment, economy and society. Here are some more or less obvious examples (apart from oxygen production and CO₂ absorption) of how much trees impact the world around us:

Climate mitigation

The issue of progressive concrete deterioration, often mistakenly referred to as "revitalization," is a common concern. It's important to note that reducing temperature and wind speed while increasing humidity through the presence of trees is crucial for both urban and rural areas, as well as agricultural areas. These areas are increasingly facing challenges such as erosion, desertification, soil quality depletion, and drought caused by water and wind.

Biodiversity sanctuary

The term "dead trees" seems paradoxical — it has no reflection in the environment. The so-called biocenotic function of **droughts** and fallen trees is invaluable. They become a habitat for protected species such as insects, fungi, and other plant species. The existence of many species of insects depends on the presence of "dead" wood in the environment.

These include saproxylic species, including those strictly protected and threatened with extinction — the oak hermit beetle and Boros Schneider, as well as **mycophages**, the existence of which is possible thanks to fungi growing on dead wood.

What is a forest?

Eurostat uses the classification system established by FAO, using the definition:

"forest" means an area with a tree cover (or equivalent tree cover) of more than 10% and an area of more than 0.5 hectares. Trees should be able to reach a height of at least 5 meters when mature in situ¹.

¹ <https://www.europarl.europa.eu/factsheets/pl/sheet/105/unia-europejska-i-obszary-lesne>

Drought — a term used in forestry to describe a standing tree that has died or partially died as a result of the action of pathogenic factors, such as viruses, fungi, bacteria, parasitic species, and as a result of the activity of insects, atmospheric pollution, as well as spontaneously as a result of the progress of the aging process.

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Indicator species

Trees, although they are not classified as **stenobionts**, are a habitat for many species of lichens, which are called indicator species (bioindicators). Their presence, based on the lichen scale, informs about the condition of the habitat, allowing to determine the degree of air pollution.

Forest therapy

Green areas have a beneficial effect not only on our physical health but also on our mental health. This is determined by a whole set of factors that affect humans, such as a large amount of available oxygen, lower wind speed, higher humidity, lower temperature, ubiquitous greenery, essential oils, phytoncides, and sounds of nature. Such a health-beneficial combination is called: forest therapy, forest therapy, forest bathing, sylvotherapy, and tree- or dendrotherapy. It is used in the fight against stress, anxiety, depression, as well as neurosis and hypertension.

Protective barrier

Tree plantings are a protective barrier not only for the soil (by absorbing pollutants) but also for humans, contributing to water retention, reducing noise pollution, and odors, and reducing wind speed.

Stenobionts – species with a narrow range of ecological tolerance for a given factor. They are good bioindicators (indicator species) – their presence indicates the presence or action of a specific factor. In practice, indicator species are also used to determine the state of the environment (e.g. the degree of its pollution).

Lichen index – a seven-point scale that allows you to assess the level of air pollution in a given area by observing the types of lichens found on the bark of deciduous trees. It is used, among others, by national parks, and in scientific studies.

Phytoncides – substances secreted by trees, protecting against bacteria and fungi, are sometimes referred to as natural antibiotics that also support humans in the fight against infections.

In 2021, the EU was estimated to have

160 MILLION
HECTARES
of forests

(excluding other forested land)

39% OF THE EU'S
land area

In relative terms, this means that forests covered 39% of the EU's land area, representing an increase of around **8 million hectares (5.3%)** since 2000 and **2,5 million hectares (1,6%)** since 2010¹

YEW IS THE EARLIEST SPECIES
TO BE PROTECTED
IN POLAND

Protection was established in **1423** under the Warta Statute issued by King Władysław Jagiełło, who wanted to limit exports for fear of its complete extinction².

THE ABILITY OF TREES
TO ABSORB

CO₂

decreases

as the air temperature increases and its humidity decreases.

As a result, they release much more carbon dioxide into the atmosphere than trees in colder and wetter climates³.



EU Forest Strategy 2030

In 2021, the Commission adopted the new **EU Forest Strategy 2030**⁴, which is one of the flagship initiatives of the **European Green Deal**⁵ and is based on the **Biodiversity Strategy 2030**⁶. It will contribute to achieving the EU's biodiversity goals, including: reducing greenhouse gas emissions by at least 55% by 2030.

⁴ <https://eur-lex.europa.eu/legal-content/PL/TXT/?uri=CELEX:52021DC0572&qid=1698158468325>

⁵ https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal_en

⁶ https://ec.europa.eu/environment/strategy/biodiversity-strategy-2030_en

¹ https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Forests,_forestry_and_logging#Forest_areas_in_the_EU_are_expanding

² https://agro.icm.edu.pl/agro/element/bwmetal.element.agro-article-36101a7b-b7b8-49f5-922a-1d4628e39cd4/c/2008_03_003au.pdf

³ <https://klimat.rp.pl/lasy/art39785091-drzewa-zaczynaja-kaszlec-dwutlenkiem-wegla-to-skutek-zmian-klimatu>

Trees are valuable sources of herbal raw materials. One of them is **Salix willow** bark, which is a source of salicin, called forest aspirin due to its antiviral and antibacterial properties⁷.

Young **Quercus oaks** and **Fagus beeches** are species that do not shed their leaves in winter. This is because their branches are flexible and do not break under the weight of snow.

If you can observe fruits on a **beech** or **oak** tree (beech – nuts, oak – acorns), you can be sure that the trees on which they grow are

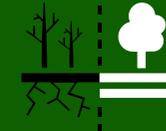
AT LEAST
40 YEARS OLD

although in the case of some the first fruits appear even **20 years later**.



Despite their properties, there are tree species that threaten native ecosystems.

These include, among others: **red oak Quercus rubra**, whose leaves appear on coins: 5 groszy, as well as 2 and 5 zlotys.



EDUCATIONAL PATH in Kielnarowa

Work is underway to prepare an educational path in the forest adjacent to the University campus in Kielnarowa. Growing there, among others, beeches, lindens, and oaks, along with descriptions of their morphological features and properties, will constitute – from the new academic year 2024/25 – natural teaching aids during classes with students, including: from the subject "Civilizational challenges".



RECORDS in the Podkarpacie region

The thickest **common ash** and **silver fir** trees in Poland can be found in the Podkarpackie region, specifically in the State Forests.

In the Wetlina Forest District, there is a common ash tree with a trunk circumference of **615 cm**, and in the Stuposiany Forest District, a silver fir with a circumference of **517 cm** can be found⁸.

⁸ <https://www.lasy.gov.pl/pl/informacje/publikacje/dla-dzieci-i-mlodziezy/tego-nie-wiesz-o-drzewach-1/tego-nie-wiesz-o-drzewach.pdf>

⁷ <https://www.lasy.gov.pl/pl/informacje/aktualnosci/lesna-aspiryna>

a native species,
English oak
Quercus robur

red oak
Quercus rubra



Sustainable Development Goal 15 of the 2030 Agenda for Sustainable Development

Protect, restore and promote the sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, halt and reverse land degradation and halt biodiversity loss.

COMPETITION FOR A DIPLOMA THESIS ON SUSTAINABLE DEVELOPMENT

Until **October 10, 2024**, you can submit works to the competition for the best diploma thesis in the field of sustainable development.

Details in the [Competition Regulations](#).



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