

Agroforestry in Poland

By Robert Borek

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With 28%, Poland is among the countries with the highest percentage of forested area in Europe. 81% of the 8.7 million hectares are state forest, the remaining 19% are privately owned. Poland's National Afforestation Programme assumes a further increase of the forested area: to 30% in 2020 and to 33% in 2050. Areas with trees and shrubs outside forests are considered as the base for this increase.

Many regions in Poland are rich in biodiversity and farmland is often surrounded by riparian buffers along watercourses and lakes. Shelterbelts and scattered trees on farmlands and even small woodlots are common to find in many areas. The fragmented structure of farms and a diverse topography favour the presence of small tree groups on agricultural land, especially in the central and eastern parts of Poland, e.g. Suwałki Landscape Park, Kielce Upland, Roztocze or Lower Beskids.

Shelterbelts and alley trees were actively introduced to Polish agriculture by public authorities. One well-known example is the Żuławy Gdańskie marshland. The first registered planting of alley trees in this agricultural region dates back to the 16th century. Noteworthy are as well the 300 shelterbelts with a total length of 270 km established in the 1960s. Nowadays, planting activities in this area are performed by Vistula Spit Landscape Park workers and local organizations.

Another well-known example is the landscape around Turew in Wielkopolska, created by Dezydery Chłapowski at the beginning of the 19th century. Chłapowski transformed 10,000 hectares, to a high extent monotonous, into a mosaic with woody patches, shelterbelts, tree lines and water reservoirs. These newly created structures were intended as a source of hardwood for farmers, a nutritional source for bees and to shelter domestic animals, crops and soil. The Institute for Agricultural and Forest Environment of the Polish Academy of Sciences is investigating the functions of these structures since the 1950s. In addition the Institute created 100 km of new shelterbelts and 10 hectares of woody patches. Among other results, the Institute's research work shows that the woody structures in the Turew area reduce diffuse pollution in ground water, improve the microclimate for crops, increase biological diversity and ameliorate the water supply.

Silvopastoral agroforestry systems are nowadays still common in many river valleys, e.g. Vistula, Biebrza, Narew, Warta, Bug and Wieprz. These semi-natural ecosystems are usually grazed or mown. Pastures with pollarded willows (*Salix alba*, *Salix fragilis*) have been widespread in the past, since a few decades the area has constantly decreased, due to the labour-intensive pollarding and declining numbers of cattle. Remaining areas can still be found, especially in lowlands, e.g. Mazovian Lowland, Żuławy Wiślane (within the Vistula delta) or along river valleys. The willows provide shade and fodder for animals; at the same time they offer habitat to a great variety of insects and birds, e.g. for hermit beetle, bumble bee, little owls and hoopoes.

Pastoral use of forest areas is not permitted in Poland. However, under the supervision of the State Forest Inspectorate in Strzałowo in Poland's North-East, trials are performed with

Polish horses from the Biłgoraj region. The horses graze in a thermophilous oak forest in order to restore the ecosystem's biodiversity.

During many centuries more than thousand varieties of apple and other fruit trees were grown in Poland on grasslands. Unfortunately many orchards disappeared throughout the last century, others were abandoned. With the beginning of the 20th century a number of tree nurseries has been established, reflecting the growing interest to save and protect traditional orchard varieties. Several Polish research units are engaged in establishing collections of local varieties, as well in gene bank initiatives in order to preserve the local biodiversity, e.g. the Research Institute of Horticulture in Skierniewice, the Botanical Garden of the Polish Academy of Science in Warsaw, the Arboretum in Bolestraszyce and others. The replanting of old varieties is also supported by a variety of Polish NGO's and landscape parks, e.g. the Chełmiński and Nadwiślański Landscape Park along the Vistula River Valley, Łódź Hills Landscape Park, Wigry National Park, and a number of parks in mountain areas of southern Poland. The [ESTO](#) project, involves several Polish partners and has the goal to ensure the survival of traditional orchards, e.g. by new ways of teaching and learning about them.

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