

Native or foreign?

Phylogeography of European Bladdernut *Staphylea pinnata* L. in Central Europe

Abstract for the general public

Some plant species have been introduced to new areas over the centuries due to conscious or unconscious human activity. European Bladdernut *Staphylea pinnata* may have such an origin in Poland. This is argued by the fact that the bladdernut was used by man as a useful plant and in religious customs, from antiquity to modern times. This shrub was worshiped by Celtic, Slavic and Germanic. They planted this shrub e.g. on the tombs of warriors. Its extremely hard wood was used to make tool shafts, figurines, small wooden accessories, necklaces and rosaries from large brown seeds. Bladdernut range covers south-eastern Europe and Asia Minor. The largest number of localities of this species occurs in Bulgaria, Romania, Moldova, Hungary and the countries of former Yugoslavia. The northern border of the range consists of detached clusters in eastern France, Switzerland, southern Germany, Lower Austria, Moravia, Slovakia, western Ukraine and southern Poland. Some researchers suggest that the modern distribution of the bladdernut was shaped by human activity, and this plant in areas north of the Carpathians is an archeophyte, i.e. a plant that was brought into the area before 1500 AD. However, despite finding seeds and wood during the archaeological excavations and some of the sites on the remains of former strongholds, there is still no strong evidence that people participated in introducing this species into Poland.

The aim of our research is to check whether the Polish populations of European Bladdernut occurring in three main regions (Lower Silesia, Kraków-Częstochowa Upland and Carpathians) are related to each other and what is the genetic diversity of the population in each of these three regions. We also want to find out which the European populations of the species are closely related to the Polish populations.

To achieve our goals, we will collect data on the distribution of this species in Poland and Europe. Then we will collect leaf samples from 25 Polish populations of bladdernut and from 25 populations in ten selected countries within the range (Austria, Bulgaria, Croatia, Czechia, Germany, Hungary, Romania, Slovakia, Switzerland and Ukraine). The samples will be subjected to genetic and biometric analyzes. With the help of the latest genetic methods, we will try to answer the questions about the intra- and inter-population variability of the species in Poland and Europe.

Our results will make it possible to fill the gap in knowledge about the kinship of the population of the bladdernuts occurring north of the Carpathians with populations from the rest of the range. Thanks to the wide sampling from almost the entire geographical range, our project will significantly contribute to complementing the poorly described phylogeography of European Bladdernut. Our results will expand the knowledge about whether localities in Poland are of anthropogenic or natural origin.