

Mysterious flora of fortified settlements and castles

→ Ancient strongholds and medieval castles are still performing their defensive functions, only today they protect plants instead of people.

This story began more than three thousand years ago, when the settlements scattered on the territory of Małopolska were bustling with life. Plants that are often not used any more were cultivated, pilgrims brought seeds never before seen. Forgotten and decaying **ancient fortresses**, surrounded by legends, hide not only fascinating stories, but are also unique from a natural point of view. Due to their defensive function, castles and strongholds were built in places that were hard to reach: on hills and interfluves in addition to being surrounded by moats. Today, they are refuges for animals and plants, a collection of extremely rare species threatened by extinction, including those connected with ancient, abandoned areas of human activity. In the past few centuries, a major part of the groups of crops were no doubt plants that grew in the wild. Only certain species were grown in the proximity of houses. They were cultivated on a small scale, for personal use only. They included both native taxa (called ekiophytes or ekiolipophytes) and those of foreign origin (called ergasiolipophytes).

Natural heritage

Donata Suder, a doctoral student from the **Institute of Botany** of the Jagiellonian University, decided to analyze 37 ancient and medieval defensive objects in the **Western Carpathians**. The choice of such topic was dictated by the lack of any study that was able to unambiguously verify the floristic uniqueness of Carpathian strongholds and castles as local biodiversity centers, and that would confirm the existence of a group of relics of cultivation in the Carpathians. The scope



↑ Lesser periwinkle on the settlement in Chełm. Photo by D. Suder

of research covered archaeological objects located in the area ranging from the Raba River through the valley of Dunajec, to Wisłoka River. The majority of strongholds and castles were erected along the Dunajec River, as this was the route used by the main stream of settlers. Probably the oldest defensive settlement among those analyzed by Donata Suder is the fortified site in Maszkowice called "Góra Zyndrama," originating from the Bronze Age, whereas the largest constructions include, among others, a multi-segment stronghold with several boroughs, located in Trzcinica, known as the "Carpathian Troy."

Research work using modern tools such as GPS and databases provided valuable information about the floral diversity of habitats in archaeological excavation sites. Data collected during the research were entered into a database prepared with use of the Turboveg software. This enabled researcher to conduct numerical and comparative analyses in order to determine the degree of floral similarity among the analyzed sites in the Carpathians and in reference to other archaeological objects in other regions of the country. The coordinates of the center of each experimental site were determined with use of a GPS satellite localizer. While the application of ArcGIS 10 software on the stage of mapping the actual vegetation (marking plant communities for particular site on the map) allowed for the precise determination of the borders of numerous plant communities. Specialist equipment helped determine more than **700 vascular plant species**, including 51 protected species, 22 threatened by extinction and 13 so-called relics of cultivation. The highest floral diversity occurred in the strongholds: Poznańchowice Górne, Zawada Lanckorońska, Braciejowa "Okop," Chełm and Naszacowice as well



as on the Castle Hill in Dobczyce, whereas the most relics of cultivation were found on sites in Chełm and Marcinkowice, where, among others, a very interesting species was found – **rocambole sand leek**.

In the past, this plant was used as a medicine, a spice, in cooking and for magical purposes. Moreover, currently it has been entered in the Polish “red list” of plants, i.e., an endangered species. Basing on the research conducted, two more species were added to the list of relics of cultivation – **European bladdernut** and **glabrous catmint**. Both plants were cultivated in the Middle Ages, but rather on a local scale. These relics of crops are characteristic for the Carpathian region. Bladdernut was considered a magical plant for centuries. Ancient Celts and Slavic tribes used to plant it on graves. They believed it protected them from evil spirits and spells. Various elements of the plant were used as amulets, and rosaries or necklaces were made from the seeds. While glabrous catmint, similar to its relative known as catnip, was used in medicine as a sedative, a diuretic and a cholagogic drug.



Relics of cultivation are plants cultivated in past historical periods, currently growing wild or rarely used. They include lesser periwinkle, sweet violet and origanum, among others. Sometimes attempts are made to re-introduce the cultivation of such crops.



Cone-shaped settlement in Chrostowa.
Photo by D. Suder

It is also a well-known herbal spice and melliferous plant.

To save from oblivion

The doctoral thesis includes a valuation of the research objects in the aspect of their natural value. The Grodzisko hill in Poznachowice Górne (with ruins of an early medieval stronghold located on top of the hill) proved very valuable in comparison with other sites, as it was where the highest number of protected and endangered species were found, along with valuable plant communities, such as orchid beech forests and xerothermic grasslands.

“The research can be used in practical nature protection, as a basis for the determination of most naturally valuable sites as well as in the adequate promotion of Carpathian fortresses as attractive tourist destinations, which will enrich the tourist offer in the region,” the scientist explains. Negotiations with tourist offices have already been started, which will enable everybody to follow the **route of unique plants**. Three municipalities are interested in the creation of archaeobotanical educational paths connected with the subject of the research. ■

Research conducted by Donata Suder, MSc

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