

Truffle habitats in western Slovakia

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Abstract: History and recent situation of truffle habitats in Slovakia is presented. Analysis of forest associations in truffle habitats and the important role of hornbeam (*Carpinus*) as host tree species are discussed. Some factors responsible for the loss of wild truffières in Slovakia are summarised.

Zusammenfassung: Die historische und gegenwärtige Situation der slowakischen Trüffelhabitate wird vorgestellt. Die Analyse der Forstgesellschaften in Trüffelhabitaten und die wichtige Rolle der Hainbuche (*Carpinus*) als Wirtsbaum werden diskutiert. Einige für den Verlust von wilden Trüffelhabitaten in der Slowakei verantwortliche Faktoren werden zusammengefasst.

According to historical records the Slovakian territory was rich in natural habitats of Burgundy truffles (*Tuber aestivum* VITT.). Truffles were collected, and together with their traditional use there was a recognized need for their protection already in the law on protection of beech forest near the town Trenčín issued in 1588 with the aim to protect truffles grown in local forest (HOLLÓS 1911). Known regions of truffle hunting from the end of the 19th century covered forests of mostly lowland terrain on calcium rich alluvium of the river Váh from the town Trenčín in the north to the town Sala in the south, near the river Morava and on hilly terrain of the eastern part of the Male Karpaty Mountains. After the First World War the traditional system of truffle hunting was lost without restoration. Agricultural practices of land use were strongly influenced by land reforms in 1919, but especially after 1948 when many forests on field borders were radically destroyed by joining of arable land into huge parcels for intensifying agricultural production.

Material and methods

A quinquennial study in Western Slovakia focused on searching natural truffières because hypogeous fungi were not investigated for many years. The aim of the research was to confirm the occurrence of *Tuber aestivum* on localities described by HOLLÓS (1911), and to analyse the ecological conditions of the truffle habitats.

Results and discussion

At present Burgundy truffle in Slovakia is a protected species and is included in the Red List (KOTLABA 1995). For protection of truffles the principle to protect only carpophores by prohibition of collection is used and not the concept to protect natural habitats (KAUTMANOVÁ 2004). According to the Slovakian legislation it is not possible to

establish protected areas exclusively for protection of truffles. In our research we found that original truffle habitats from the early 20th century on lowlands practically do not exist any more. Land with potential truffle habitats is deforested and is used as arable land.

In the last five years we analysed the forest associations of 29 natural truffières in Western Slovakia following FUTÁK (1984). Most frequent is the *Carici pilosae*-*Carpinetum* with 49% followed by *Quercetum petraeae-cerris* 23%, *Melittio*-*Fagetum* 19%, *Mercuriali*-*Tilietum* 6% and *Aceri campestri*-*Quercetum* 3%. It is evident that the oak-hornbeam forests (*Carpinion* alliance) plays the key role in the spectrum of *T. aestivum* host tree species in Western Carpathian woods of Slovakia. In the detailed analysis of the host tree species found in 29 natural truffières (Fig. 1) hornbeam (*Carpinus betulus*) holds 29%. Maybe hornbeam forest helped in protection of truffles during the drastic changes of forests in fertile lowlands. Hornbeam is less prized than oak or beech. It is unpretentious to ecological conditions and after cutting often regenerates by sprouting. After deforestation of lowlands and intense timber harvesting these properties of hornbeam apparently helped to conserve natural populations of truffles in Slovakia and resulted in the dominant position of hornbeam among the host tree species.

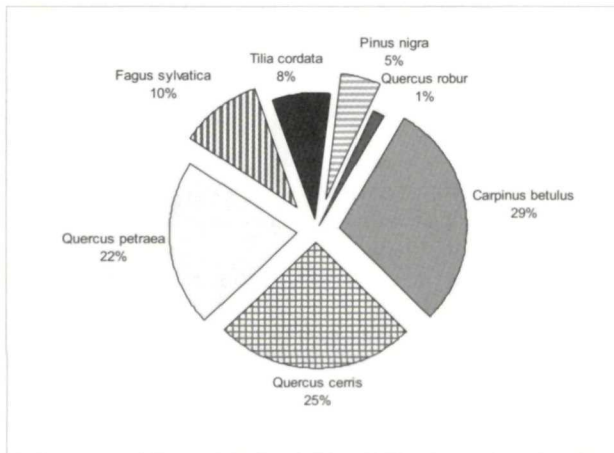


Fig. 1. Share of *Tuber aestivum* host tree species in 29 natural truffières.

Unsuitable reforestation with a high percentage of black locust (*Robinia pseudacacia*) caused many problems. Ecological changes in *Robinia* woods replaced plant associations and eliminated truffles from those localities. On the other hand, *Tuber aestivum* seems to be adaptable and we recorded truffles not only in wild forests, but in anthropogenic ecosystems. Near Nitra ripe carpophores were found on the edge of the road. Surrounding areas were with low pH values, but the road was constructed on limestone embankment. This case supports ideas to cultivate truffles on calcium amended soils.

Our recent surveys showed that present truffle habitats in western Slovakia changed since the beginning of the 20th century. The habitats are limited to hilly terrain of foothills which remain covered by forests with slopes improper for agricultural practices. Truffle habitats are isolated because the geological structure of Slovakia is diverse and limestone discontinuous. Considering the continental climate of Slovakia

the localities are very often dry and water is the limiting factor. Another problem are new landowners who obtained back their property in restitutions and after many years they seek to make profit by timber production. For the future we need to study the genetic diversity of Slovakian truffles to protect the most endangered populations. Perspective tools for protection of natural truffle populations could be truffle cultivation and cooperation with landowners.

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