

# The historical background and current state of chestnut cultivation in the southern part of central Slovakia

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## Abstract

The contribution is devoted to one of the oldest non-native tree species in Slovakia – European chestnut (*Castanea sativa* Mill.) At present, it is widespread at more than 220 localities. It occurs in the southern part of country, on steep slopes with altitudes ranging from about 200 to 400 m a.s.l. Chestnut grows here outside the recorded natural distribution range and therefore doesn't have optimal climatic conditions. In Slovakia, chestnut occurs mostly in extensive old orchards or forest stands. Currently, the health condition as well as chestnut production has rapidly declined as a result of enormous dying out of chestnut individuals infected by fungus *Cryphonectria parasitica* (Murr.) Barr. Populations of this useful crop are small today, but they are important habitats that would deserve more scientific interest. The main objectives of the contribution are focus on the mapping of chestnut population in the south part of central Slovakia and chestnut biocultural value assessment in the given traditional landscape types.

**Keywords:** agroforestry, chestnut, cultivation, biocultural value

## 1. Introduction

European chestnut (*Castanea sativa* Mill.) is one of the oldest non-native woody plant species in Slovakia. It is supposed that chestnut was brought for the first time to the area of current Slovakia by ancient Romans. Probably some old chestnut trees grown near the capitol Bratislava on slopes of Little Carpathians Mts. could be descendants of this introduction. However, the first historically proven chestnut introduction was done by count Forgach in the 13th century to the oak forest under the castle Gymesh near the village Jelenec. The original chestnut grove planted on an area of about 1 ha had turned during centuries to the naturally regenerated high forest, which covers at present about 15 ha. The last most important introduction of chestnut to the territory of the present Slovakia is dated back to 16th and 17<sup>th</sup> centuries to the period of Ottoman invasions. The primary centre of this introduction is considered the town Modrý Kameň, particularly the surroundings of the local castle. Nowadays, chestnuts grow at this location on several sites in the series of old orchards of seed origin. In each introduction centre the majority of chestnut trees are more than 100 years old and some trees reach the age of about 300 years. Old chestnut

trees can be also found on other localities in old orchards established apparently from the chestnut seeds from the introduction centres.

The main objective of the contribution was to locate the current chestnut occurrence and its present state in the Modrý Kameň area (southeast Slovakia) based on detailed mapping and to assess the chestnut biocultural value in the traditional landscape types, which are present in the study area. Chestnut trees have been creating wood pastures here. Unfortunately, today they are getting worse markedly due to insufficient management.

## 2. Results and discussion

101 individuals and 123 groups (46 ha) of chestnut: 11 groups > 31 individuals, 10 groups of 16 – 30 individuals, 34 groups of 6 – 15 individuals, 68 groups of 2 – 5 individuals were identified and positioned in the field. Chestnut trees most frequently occurred in the extensively used Corine Land Cover (CLC) patches with pastures and with heterogeneous agricultural areas – “Land principally occupied by agriculture with significant areas of natural vegetation”, in parallel coinciding with HNV farmlands and Lowland hay meadows and with local occurrence of the protected bat species. The analysis of the geospatial relationship between chestnut individuals (49), centroids of its area formations (54) and old stables (26) showed that the most frequent distances of the nearest neighbour ranged from 82.79 m to 205.18 m. While the distance between buildings and chestnuts increased, the frequency of chestnuts and old stables decreased (Pástor et al. 2017).

Without a constant care (regular mowing and cattle grazing), chestnuts are heavily prone to damage and disease. They slowly decay and stop producing quality fruits (Michon 2011). They face an inadequate maintenance in Slovakia. Nowadays, chestnut preservation and protection according to the Act on Nature and Landscape Conservation is impossible as it is listed among the introduced tree species. A similar legal status of the chestnut preservation is documented in Italy by Agnoletti (2007). The absence of chestnut groves in the list of habitats meriting a protection is mostly due to its artificial origin, but also for the assumed low biodiversity value of these woods as compared with natural forests.

### 3. Conclusion

In Slovakia, chestnut belongs to the marginal nut tree species and minor fructiferous tree species. However, it contributes significantly to the preservation of traditional agricultural landscape and also it is a very suitable

tree species for establishment of agroforestry systems. Populations of this useful crop are small today, but they are important habitats that would deserve more scientific interest.



**Figure 1.** Modrý Kameň region has a long tradition of chestnut cultivation in Slovakia

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