

# RECONSTRUCTION OF OAK WOODLANDS HISTORY IN SW SLOVAKIA: A SYNTHESIS OF FOLK FOREST NAME NOMENCLATURE, HISTORY, ETHNOLOGY AND ECOLOGY

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*Abstract:* In Slovakia, primary oak forests are unknown and the northern limit for some oak species passes through the territory. More than 700 forest names of the Nitra region have been categorized according to different criteria (historical forest management, species composition etc.). In historical times, different management types of forests were dominant, in particular coppice and pasture woodlands. Within this study, we divided coppice into two types: "erestvín/sekanina" and "chrastina" with a question about their relatedness or casual identity. Within the Nitra region, 15 names of „erestvín“ were found in 11 municipalities, out of which 7 records dated back to the Middle Ages (e.g. in 1231 in Trávnica, in 1234 in Slepčany, in 1239 in Výčapy-Opatovce, in 1378 in Dolné Obdokovce). „Chrastina“ probably consists of oak or oak-hornbeam stands with a short harvesting cycle for firewood or "letnina" (cut branches for winter feeding of domestic animals). In the Nitra region, the word "chrastina/harasz" occurs in geographical names since the oldest times, e.g. in 1247 in Beldice-Chrášťany, in 1285 in Vinodol, in 1397 in Paňa. Pasture woodland represented sparse forests with individual pollarded or shredded high trees. The species composition of oak woodlands has been reconstructed from folk forest name nomenclature (*Quercus petraea*, *Q. robur*, *Q. cerris*, *Q. pubescens* etc.).

*Key words:* coppice, ethnoecology, forest name, oak woodland, traditional ecological knowledge

## Introduction

Local inhabitants used to call parts of their village after characteristic features of the area, line or point. This approach was also applied in the case of forests, where besides the size and age of the forest etc. they often characterized the forest also by species composition and the type of the forest management. After repetitive designation of one place, the name was stabilized within the accepted geographical names. Geographical names were not standardized in Slovakia until the 20th century (Koláriková, Majtán, 1988). Forests, as we know them today, have been created since approximately the 18th century, which is why the reconstruction of management e.g. in medieval forests is highly speculative (cf. Szabó, 2009). Firbas (1949) was among the first authors to process the Central European history of forests, and from later works we mention The Ecological History of European Forests written by Kirby and Watkins (1998) and a review from Ellenberg (2009). In Slovakia, the interpretation of forest names is rarely used in

reconstruction of historical landscapes. However, this approach has a long tradition in neighbouring Poland (e.g. Wodziczko, 1947). It is important to keep in mind, that a forest name might change in time, when there was a significant change in the forest character. This was how forest Klečka (means a place with shrubs) turned into Dúbrava (oakwood) in the Middle Ages (in the Czech Republic, Szabó, 2013).

There can be several hundreds or thousands of forest names in individual regions. In our book, the wider surroundings of Nitra were chosen as a case study.

## Methods

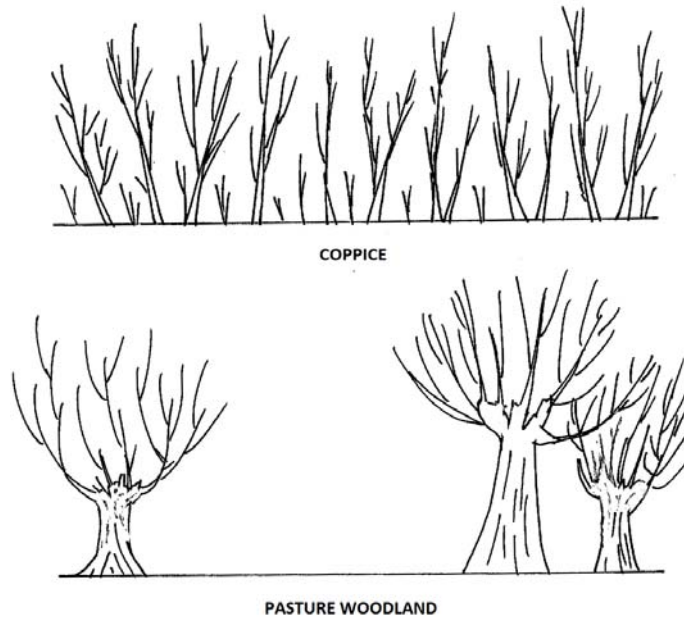
The research was based on data from archives (State Archive in Nitra, Hungarian Landscape Archive in Budapest and others), different geographical name inventories (a complete list of sources is in the author's database), actual field collection of names from local informants and from municipal monographs (the list of monographs is not included in this study). This is how almost 900 forest names were collected, which, after removal of duplicates, unclear and questionable names, were narrowed down to 767 names. In the first stage of the research, the origin of the root word of the forest name was identified, which was usually of Slovak or Hungarian origin (depending on the historical identity of local inhabitants). The forest names were further categorized according to the historical time of the name record (the Middle Ages, the Modern Age, 19th–20th century).

Folk nomenclature of tree species and forest types in Nitra district has not previously been well processed, minimal information was found in the atlas of Hungarian dialects from the Nitra area (Sándor, 2004b). There are also limited precise data about the forests areas, however, according to Michalko et al. (1987), the Slovak culture is predominantly based on wood processing and utilization. They stated that in the Atlantic period, forests covered about 90 % of Slovakia and in the 14th century only around 60 % (currently, it is approximately 40 %, Feranec, Ořahel, 2001). These numbers, however, do not apply to the agricultural part of SW Slovakia with a lowland character, even though the wood had an irreplaceable function here too (fuel, fodder for animals, production of tools, building material etc.). Within the research on the changes in land use, size and number of forests were analysed only in selected municipalities of the Podzoborie region (Host'ová, Kolíňany, Nitrianske Hrnčiarovce, Pohranice, Štitáre) and it was found that the forest area increased from the half-way of the 19th century till the end of the 20th century at the expense of meadows (by spontaneous regeneration and also by planting of forests) (Pucherová, 2004).

We did not evaluate the names of individual trees, which often occurred as boundary points of properties (metae), or, even though they are interesting, the names of fruit-trees and historical varieties, which would have required further research. The analysis showed that 25 % of names of forests could be associated with the type of management, 41 % with (probably predominant) species of tree or bush in a forest and only 34 % of names meant something different, or it was not possible to identify them.



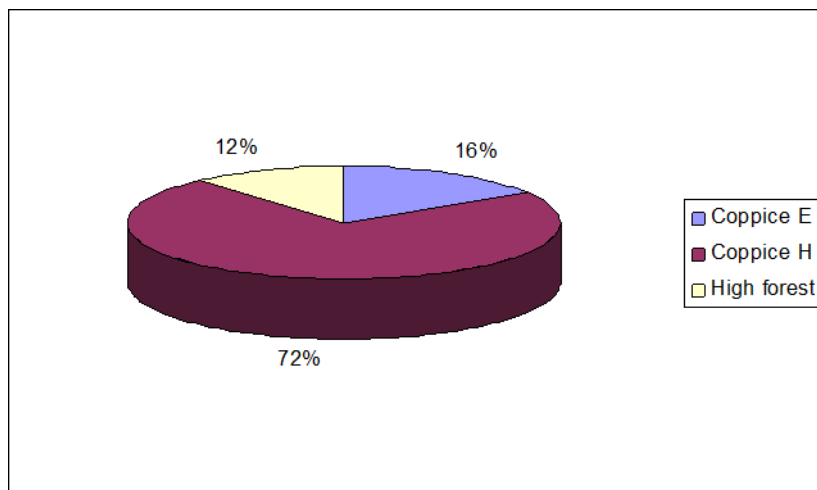
Fig. 2: Generalized structure of coppice and pasture woodland



Pasture woodland is considered to be a thinned coppice with standards and older high forest established generatively occurs only occasionally (see below). This second type is often identified as a forbidden forest (limited collection of firewood, regulated timber harvesting and seasonal pannage), while short rotation oak coppice without standards ("*erestvín/sekanina*" and "*chrastina*") did not provide timber and the pannage prohibition was obvious (despite that, this type of forest is also occasionally called "forbidden", Fig. 3).

Those were light forests with a rich herbaceous layer. Hégl et al. (2011) listed four possible central European forests of lowlands and colline regions hosting heliophilous species: the dry habitat with forest without closed canopy throughout the Holocene, closed canopy, light-permeable forest, a mosaic of forest-free area maintained by grazing of herbivores and traditional forms of forest management dating back to the early Holocene period (for the discussion see the original study of the authors).

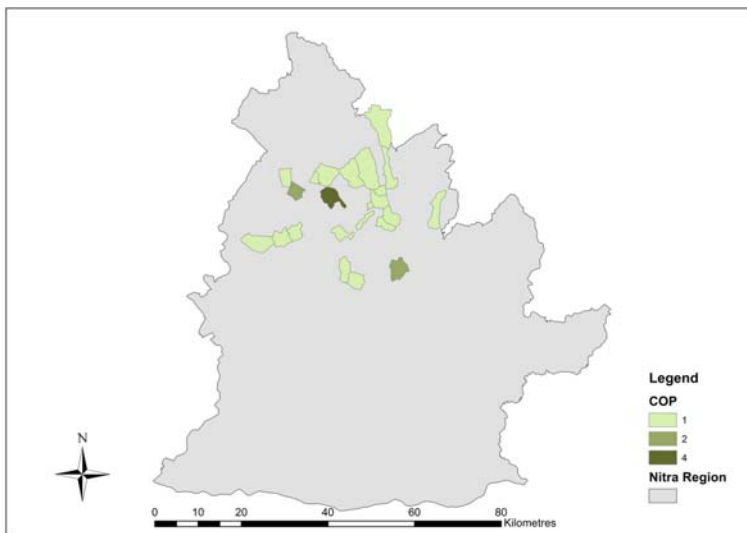
Fig. 3: Categorisation of different forest management strategies (11th-20th centuries, Coppice E = *erestvín*, Coppice H – *chrastina*, details see in the text)



### Coppice "erestvín" or "sekanina"

This category includes forests in SW Slovakia, the names of which contain the word of Hungarian origin "*eresztvény*" since the Medieval Ages, in the Slovak version "*erestvín*" (Latin: *permissoria* or *saltus*) (Fig. 4). The assumed word origin is explained in detail in the work of Szabó (2005). Within the studied area, 15 such names were found in 11 municipalities, out of which 7 records dated back to the Middle Ages (e.g. in 1231 in Trávnica "*saltus, qui vulgo Eresteun dicitur*" – the first record of the word in Slovakia, in 1234 in Slepčany, in 1239 in Výčapy-Opatovce, in 1378 in Dolné Obdokovce, Fejér, 1829-1844; Szerémi, 1882-1884; Marsina, 1971-1987). This suggests the application of this type of management from the earliest period of our history. Coppices were near settlements and were very characteristic for the Middle Ages (Csőre, 1975). *Erestvín* (used hereafter) could be a historic predecessor of the "*chrastina*" coppice type discussed in the next sub-chapter ("*chrastina*" has less than a halfshare of medieval names) or is only synonymous with "*chrastina*" in some cases. This chapter contains also geographical names derived from the word "*sekanina*". The identity of this word with the word "*erestvín*" has not been satisfactory proven so far, but in the sense of chipped (coppice) forest it occurs especially in the mountainous parts of Slovakia (in our area of interest it has been identified in geographical names of northern municipalities, such as Čaradice, Host'ovce, Kostol'any pod Tribečom, Sľažany, Velčice etc.). The verb "*sekat*" means "to cut" repeatedly and thus refers to chipping forests (see below). The word was first mentioned in Slovakia in 1715. In 1798, "*sekanina*" was mentioned as forbidden with "*chrastina*" and "*mladina*" ("*mladina*" see also below, according to Majtán, 1991-2008 "*sekanina*" is a completely felled, cut out forest, i.e. clear-cut, which we cannot agree with).

Fig. 4: Historical extension of coppice forests in the northern part of Nitra County (11th-20th centuries, localities are located by boundaries of cadastre areas of villages)



All the different growth habits of forests in SW Slovakia are not known, however, it is a known fact that pollarding was applied also on 50 year old oak trees even at the end of the 19th century near Klátova Nova Ves, north of Nitra. According to the source from this period (Pantocsek, 1898), the so-called "*Kopfwirtschaft*" (German: "head management") was practiced here and the trees were managed as pollarded willows (Fig. 5-6). Based on the data from neighbouring regions of the Czech Republic, since the Middle Ages (14th century) the harvesting cycle of timber was prolonged from approximately 5 years to 40-50 years until the end of the dominant coppice management. This trend was probably the same in other countries too (Szabó, 2010). Coppice was typical for lowlands and warm uplands (Kadavý, Kneifl, 2016) and the distribution of coppicing was also likely to vary according to fluctuations in population density (Szabó et al., 2016). By the end of the 19th century, the management cycle was also longer in our area (ca. 35-60 years). Foresters did not recommend pollarding or higher coppicing, but felling as low as possible with an axe and not with a saw (Nagy, 1882). At the same time, they recommended planting sunflowers on the clear-cuts, sunflowers then maintained themselves, out-competed weeds and provided poultry feed. Other authors (e.g. Tavi, 1883) promoted the saw as a better logging tool. The reason for the decline of coppicing in some parts of Europe could be the emergence of new forestry technologies and regulations (mainly since the 18th and 19th centuries) as coppice suffered from a weaker economic balance (rising labour costs, falling demand for smaller woodland products, Smets, 2015). Nevertheless, historical coppicing left in forests traceable prints (Müller et al., 2016).

The stands of the "*erestvín*" served mainly for providing firewood or "*letnina*" and did not provide wood for construction purposes. A good example of such coppice forest is the historical forests of Nitra. In the mid-18th century, urban forests of Davarcsány (currently

Dvorčany), Nadro (Nadrov) and Bokor Völgye (= valley of shrubs) provided firewood for the army, but more robust timber was lacking there ("*Ædificys Ligna Tignis Robustiora*"). The number of shrubs ("*virgulta*") was sufficient (State Archive in Nitra ŠAN Conscriptio comitatus Nitriensis ŽN-I Dicalia, 1752). Very intensive coppicing could also enhance forest degradation and the emergence of shrubs (Csöre, 1975). Medieval documents stated that the coppice forests were created (Latin: *procreata* = created) or constructed (Latin: *constructa* = constructed) (cf. Szabó, 2005). It might be worthwhile to consider whether the Hungarian name of a hornbeam species (literary "*gyertyán*", popularly in the Nitra area "*gyártvány*") apply to this cultivation method (Hung. *gyártani* = to produce, to construct, Hung. *gyártvány* = originated from production or construction). The idea is supported by the fact that hornbeam was commonly grown as coppice. In addition, tall forests propagated by seed were exceptionally referred to as "created" ("*procreata*", see in chapter about the pasture woodlands).

*Fig. 5: The first pictorial evidence of pollarding in SW Slovakia from the so-called Trnava calendar from 1579 or 1583 (archive of the author)*



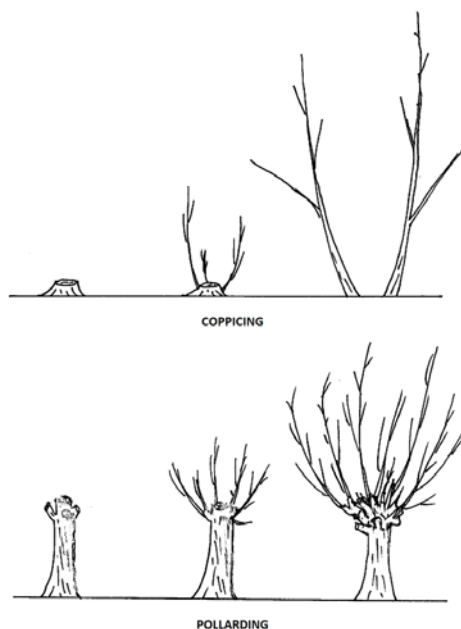
Fig. 6: Pollarded tree in a drawing from the Nitra area from 1670 (archive of the author)



There is little information about the terminology of the coppice management. Some words also indirectly indicate the cultivation method of these stands. In Veľký Cetín, collection of shoots (rods) is indicated by the verb "*botónyi*" (Hung. "bot" = stick), the stump after cutting is called "*torcs*" (Frank, 1910). In Dolné Obdokovce, "*csirka*" means a thin, new shoot after cutting, or a graft (unpublished data of the author, in Veľký Cetín "*csirka*" means little sprout, Frank, 1910), in Horná Kráľová "*csirkézés*" means to cover a young vine with soil for the winter (unpublished data of the author). In other areas of the Carpathian Basin "*cserke*" also meant "*erestvín*" (Paládi-Kovács, 2001). The name of a young stand in the Nitra area is "*elletís*", the word originally means "to give birth" (e.g. for animals). In our area, the word has been preserved in the geographical name Elletés from Babindol (Cigáň et al., 2001). It also means a young grape-vine (cf. Frank, 1910) and therefore the name is not included in our list. The Slovak equivalent of the word "*elletís*" is "*mladina*" (= young forest stand). In Slovakia, "*mladina*" was first mentioned in 1741 and the definition of such forests has been known since the 18th century ("*nemus, quod recens sucerevit*", Majtán, 1991-2008) (Fig. 7).



Fig. 7: Differences in development of coppiced and pollarded trees

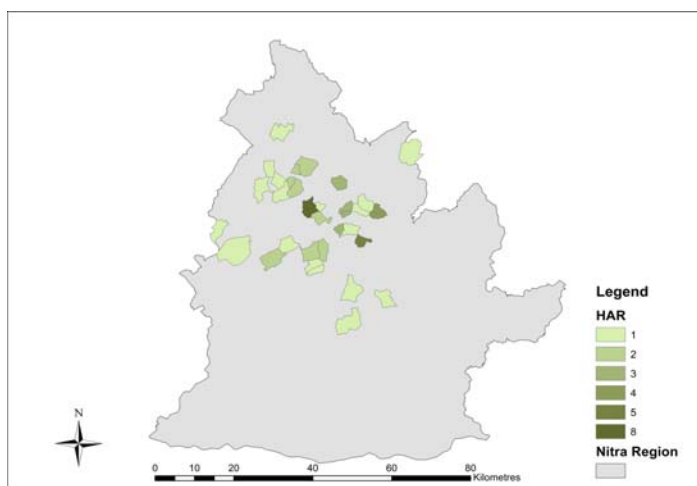


### Coppice "chrastina"

Forests called "*chrastina*" = boscage or thicket (Hun. "haraszt") are also considered as coppice. According to numerous indications it probably consists of oak stands (and/or mainly oak and oak-hornbeam forests) with a short harvesting cycle for firewood or "*letnina*" (cut branches for winter feeding of livestock) (Fig. 8). The word is mentioned for the first time as a type of wood (!) ("*crastfa*", *fa* = Hung. tree), which linguists identified as *Quercus robur* (Benkő, 1967-1976). According to the Slovak language dictionary, "*chrast*" is a dense low stand, "*chrastie*" and "*chrastina*" means bush (Peciar, 1959-1968). "*Chrastie*" (colloquially also "*chrástje*", "*chrást'a*") refers to "*letnina*" in some regions of Slovakia (Podolák, 1980, 1982; Botík, Slavkovský, 1995, see details in another chapter of this publication) or a laid hedge (Majtán, 1991-2008). According to the historical and etymological dictionary of Hungarian language (Benkő, 1967-1976), the word "*haraszt*" means dry fallen leaves, bushwood, shrub, oak, twigs. According to Csöre (1963), it is oak or alder. Nagy Császi (2006) states that the word "*haraszt*" means coppice oak stand, or shrub in the Podzoborie region around Nitra, but from our experience in today's living speech it refers to leaves raked out from forests that are used, for example, as bedding for livestock (unpublished data of the author from Pohranice and Dolné Obdokovce). The word was mentioned for the first time in a Slovak text from 1567 ("*chrasty*" Majtán, 1991-2008). It should be added that besides the oak and hornbeam, other tree species could also be grown as "*chrastina*", e.g. ash. A combination of words "*chrastina*" and ash (Slov. *jasan* = ash colloquially) can be observed in one geographical name (Jasančina Chrast) in Veľké Vozokany.

In SW Slovakia, the word "*chrast/haraszť*" occurs in geographical names since the oldest times, e.g. it was already mentioned in the historical county of Nitra in Bohunice in 1258. Surprisingly, the word was used as a synonym for a place with an occurrence of some fruit ("*fructeccum, quod wiggo harast dicitur*", Marsina, 1971-1987). At first it was a stand with raspberry or blackberry. Closer to Nitra, in Vinodol, it was mentioned in 1285 ("*Bykach horozta*", Hungarian National Archive in Budapest MOL DL 68086). There used to be a village with a name derived from this word near Nitra in 1247 Herescen, today Chrásťany (in the etymological meaning of "residents of oak? forests", Kiss, 1988). In 1397, "*rubetorum Ponharaztya*" was mentioned, which means bush, boscage in the village Paňa (Mályus, 1951). This early indication suggests the short, shrubby nature of "*chrastina*". The shrubby nature of such vegetation is also indicated in the dictionary entry from 1763 ("*virgultum: chrást, chrástina, hússč, husté mjsto prútowe*" Majtán, 1991-2008). It is the most numerous category (51 names) of all the forest names, being the name used already in the Middle Ages (8 names). "*Chrastina*" could also serve as a pasture. In 1631, "*pascuatio*", i.e. pasture was allowed in a "*chrastina*" type forest in the historical county of Vas (Tagányi, 1896). There is a similar indication from a monastery in Jasov in eastern Slovakia, where witnesses stated that it was possible to graze animals on the "*haraszť*" without a ban, but timber was bought from the mountains (Tagányi, 1896). We cannot agree with Krippel (1986) that "*chrastina*" is a "destroyed deciduous forest". In 1723, the inhabitants of Štítáre near Nitra expelled oxen from Pohranice from a "place" Kazár haraszťja (Ethey, 1936). The name Kosárharaszť (equivalent to Kazár haraszťja?) is also mentioned in Pohranice. "Kosár" means a basket (Hung.), therefore maybe thin wood from these forests was utilized by manufacturers of woven goods. Reuter (1975a) distinguishes "*haraszť*" taken over to Hungarian from South Slavic languages in the meaning of "*Quercus robur*" and "*haraszť*" taken over from Slovak in the meaning of scrub.

Fig. 8: Historical extension of "*chrastina*" coppice forests in the northern part of Nitra County (11th-20th centuries, localities are located by boundaries of cadastre areas of villages)



## Pasture woodland and high forests

Identification of tall forests or coppice with standards represented the biggest issue within this study. According to some experts, pasture woodland does not meet the criteria of real forests (cf. Plesník, 2016). In SW Slovakia, planting of oaks from seed is mentioned in a written document from Kostolné Kračany from 1262 ("*per manus hominum silva nemorata de glandibus seminando fuerit procreata*", Wenzel, 1860-1874; Tagányi 1896; Krippel, 1986). This record is one of the oldest in Europe (Ortutay, 1977-1982). Inhabitants of the studied region acquired timber mainly from high forests. Since their use was strictly regulated, accession of serfs into these forests was restricted or prohibited in historical times. Almost all names related to "prohibition" of the forest (Hung. "tilalmas", in Veľké Zálužie: "tiltvány", Slov. "forbidden grove") were used for high forests (grown for timber and/or masting of pigs, cf. Csöre, 1975; Kolossváry, 1975) or sparse forest with pollarded trees (occasionally the classification was used for other types of forest, e.g. coppice with prohibited pannage, cf. Lukačka, 2015). The so-called "*lábás erdő*" (= "forest on the leg") is not known, in the region, the word "*láb*" (Hung. "láb" = leg) occurs in Veľký Cetín and refers to the bottom part of vineyards slopes (= foothills of vineyards). "*Lesné lúky*" (= forest meadows in Slov.) are mentioned by Valach et al. (s.d.) in Machulince (probably a modern expression related to meadows in forests).

Pasture woodland represented a combination type of sparse forest (the growth habitat is not well known, but if it was a forest used for grazing, it was probably not a stump stand, as in most of the surviving medium-tree forests, but pollarded or shredded) with individual high trees (typical for of high forest) (Fig. 9-10). In the two-layer structure, short trees (cut above the height the livestock could reach) provided firewood or "*letnina*", the top layer (generative origin?) was felled at the base of the trunk e.g. timber. The wood species from such a forest are not known. Sprout shoots could be oak, hornbeam, ash, elm, and field maple, and the top layer was probably formed by oak. Firewood collection was historically called "*faizás*" (Hung. fa = wood). Archival records in Nitra urbarium from 1777 mentioned also "*fa orgia*" (Hungarian National Archive in Budapest MOL UC 170:4). Historical coppice with standards can be easily identified, sometimes even today, by the presence of old trees, which usually form sparse stands (relatively far apart) and they are bushy, which would not be possible in a naturally dense and therefore shady stand (Hédli et al., 2011).

*Fig. 9: Historical reproduction of pasture woodland under the Gýmeš castle (Jelenec, lithograph from 1897, original in the archive of the author)*



*Fig. 10: Mosaic of pasture woodland on the same site, today in the administration of the State Nature Conservancy (Nature reserve Gýmeš, Jelenec)*



The idea that timber production (Fig. 11) is at least one reason (in our opinion the most important) for prohibiting use of a forest is evidenced by a number of archival data from the larger territory (e.g. from Mohács from 1833; Andrásfalvy, 2007). There was a similar situation in SW Slovakia, e.g. in 1580, Ján Topolcsányi of Topolčianky assented to the collection of brushwood and dry wood for burning from the forbidden grove free of charge for his relatives and for a fee for serfs. The timber from the forest had to be specially requested (Tagányi, 1896). Sometimes the bans were more complicated, such as in Čičarovce in eastern Slovakia, where all activities were banned in the forbidden grove around the year 1620 (harvesting and cutting of firewood, grazing goats and other

animals etc.). Although there was one exception: if applicants submitted documents declaring the need, they could apply for timber (Tagányi, 1896).

Fig. 11: Carpentry in Central Europe in the 17th century (Bubenka 1679 in Comenius "Orbis Pictus" 1685, copy from the archive of the author)



According to some authors, grazing of pigs took place in sparse coppice forests in the Middle Ages (Hudáček, 2015). We know of such examples also from the 20th century (Fig. 12), but we assume that these forests were not coppiced but rather pollarded and they fell into the category of pasture woodland.

One of the first records about grazing of cattle in such forests is from Zbrojníky and Šárovce from 1583, where witnesses claimed that timber could be cut and cattle grazed in the forbidden forest (Tagányi, 1896). In Svätý Jur in 1626, if somebody felled timber from the forbidden grove without permission he was severely punished, but the wood could be used for the construction of a farmstead (Tagányi, 1896). We conclude that in addition to the above-mentioned function of timber production, pannage could be of secondary importance. If branches were trimmed in such forests, they were pollarded above the livestock height. At the beginning of the 18th century, it was recorded that acorn forest (used for pannage) provided good timber in Malé Ludanice (Dávid, Polónyi, 1980). In Veľké Ripňany nearby Nitra, a forest was divided into two parts in 1716: the larger part was declared as prohibited, the second part was to be used for logging or timber collection (Lat.: "*lignatio*") for the nobility and peasants (Tagányi, 1896). Even coppice forests with short cycles were seasonally inaccessible – prohibited. According to data from another part of the Carpathian Basin, entering the freshly pollarded stands with animals was prohibited until the trees reached such a height that the animals could not reach their tops (Tagányi, 1896). Ethey (1936), in his monograph about the Považie region (SW Slovakia), assumed that "*erestvin*" was usually prohibited because the cattle could damage it. A similar view is shared by Ortutay (1977-1982) and Paládi-Kovács

(2001), but we believe that it was only in one type of forbidden forests (the main reason could be a prohibited timber harvest). Even hunting could be seen as a possible reason for prohibition to use a forest (Ortutay 1977-1982).

*Fig. 12: Sheep grazing in a relatively young coppice forest (Červený Hrádok, historical photo, archive of the author)*



Prohibited groves, besides the regulated use, could be also misused. Already in 1455, the forbidden forests of the Forgách family were devastated by serfs of the Nitra Chapter due to the pasturing of pigs (Hungarian National Archive in Budapest MOL DL 59465). In 1524, sheep were driven from the forbidden forest in Lefantovce (Lukačka, 1982). In 1583, witnesses reported that they had allegedly a hereditary right to cut timber and graze animals in the forbidden grove in the Lower Pohronie region (Tagányi, 1896). Logging of timber, as well as the so-called production trees for sheep and goats, was banned in the catchment area of the Nitra river in the monastic estate in Velký Klíž and Ješková Ves in 1645. It is peculiar that the collection of so called "pearls", which we consider to be oak galls, was also prohibited (Tagányi, 1896). According to the interrogation from 1692, a few kilometres from Nitra, residents of the village estate Gýmeš (Velčice, Hosťovce, Mankovce etc.) could graze animals, collect dry wood (they were not allowed to cut fresh wood), reportedly, they could even harvest the timber. The rights of complainants from Mankovce were renewed in 1698, but they could log the timber only under supervision and for a fee (Tagányi, 1896). Even more could be learnt from the forest regulation of the compossessorate in Horné Lefantovce in 1720, which prohibited wood felling, including the timber, but allowed the collection of dry wood, in order to clear the forest (Hung. "purgáltassék"). Grazing was allowed only to a limited extent in some parts of the forest, but from the feast of St. Jacob (July 25th), everybody was banned from entering the forest with sheep and goat, even the nobles. The collection of acorns was banned completely (probably to encourage spontaneous recovery), burning was punished and only nobles could allow the establishment of extirpation (Tagányi, 1896). In 1692 in Beckov, nobles prohibited entry into the forest, because

people produced potash there, cut leafy branches for feeding of goats and sheep in winter ("*letnina*"), burned coal and stole wood for sale (Ethey 1936). Prohibited groves in SW Slovakia were usually oak, but there were also exceptions, e.g. in 1717 in Považie, a linden forest, which provided wood for furniture production, was prohibited.

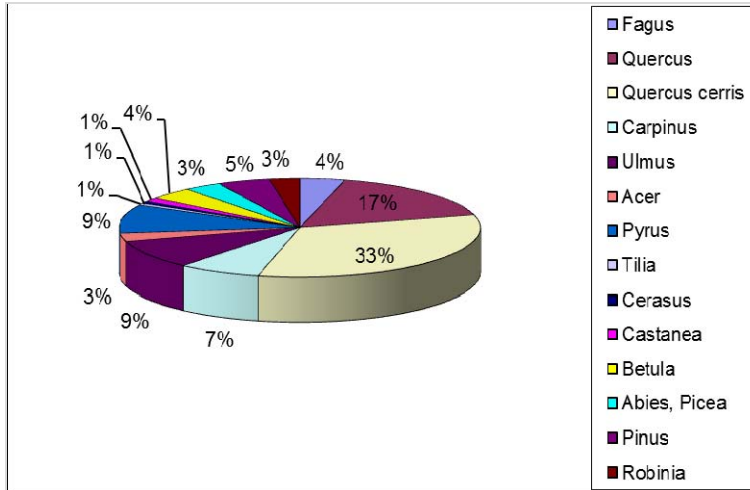
Rarely, "*chrastina*" was a prohibited grove, but it happened only exceptionally, due to its coppice nature (e.g. in 1736 in Nitra Dražovce, one forbidden forest was called Bacsaharasz, State Archive in Nitra ŠAN Urbarium episcopatus Nitriensis anni 1736). It is noteworthy that they had a "banned grove" even in municipalities where known carpenters still used to live in the first half of the 20th century (e.g. Dolné Obdokovce, cf. Morvay in Balassa 1989) and the surname Ács is common there (Hung. "ács" = carpenter). The geographical name "Szállások", which means nowadays a place for wintering animals, is also controversial in this village (cf. Ortutay 1977-1982). However, in the past, it could be "Szál(l)ások" (Hung. "szál" – in this sense meaning a stem, colloquially, "*száll*", then: Szállások = stem forest, i.e. high forest), which is probable in this historical carpentry village. Due to its uncertainty, however, this name was not included in our list of coppice with standards or high forests. Medieval written sources already declared a presence of carpenters in the region (e.g. in 1422 in Klíž, in 1493 in Bošany, Lukačka, 1982).

As a matter of interest, we note that while the names of the coppice forests "*permissoria*" and "*erestvín*" mean in free translation (also) "permit", the opposite may be the case with the names of high forests *prohibita* and *tilalmas/tiltvány* meaning prohibited. This analogy requires a further study.

### Species composition

Species composition of mesophilic forests reflects local soil and climate conditions and possibly management. Identification of the species composition of forests according to geographical names is ambiguous and it refers only to dominants, while accompanying taxons of trees occur in the names less frequently. In the Nitra area, different oaks (mainly *Quercus petraea*, *Q. dalechampii*, *Q. robur*, *Q. cerris* and *Q. pubescens*) were the dominant tree species (Fig. 13).

Fig. 13: Percentage of names with mezophilous tree species or genus in the northern part of Nitra County (11th-20th centuries)

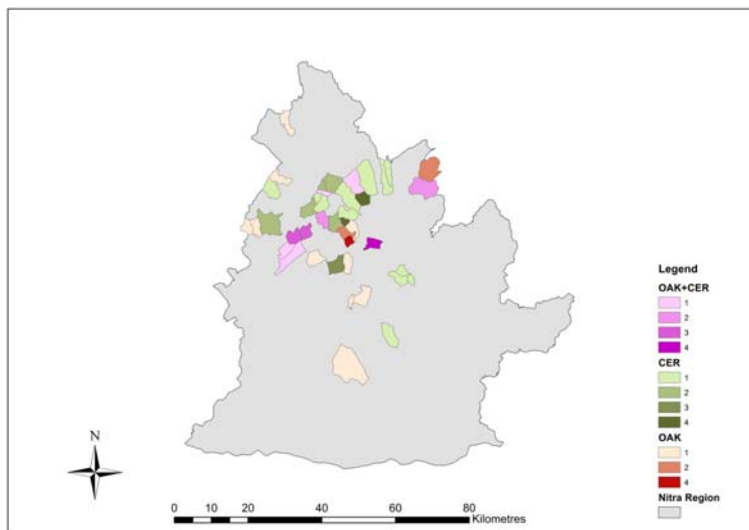


In Slovakia, primary forests of oaks are unknown and the northern limit for these five species of oaks passes through the territory (Fig. 14). Old stands (300-500 years old) are found, for example, in SW Slovakia in Velčice. Oaks are variable species and also lower taxons described from SW Slovakia would require further study (e.g. *Quercus petraea* var. *zoborensis* Domin; selections and hybrids of sempervirent taxons, etc.) (Magic, 2006b). Oak is mentioned also in a medieval document of a questionable origin (later referred to as a forgery) from 1006 in the immediate territory of Nitra ("*arbor de quercu*"). In 1113, it was mentioned 15 times in what is called the 2nd Zobor Act (broader territory with Nitra as centre) and in 1249 in Radošina, to the west of Nitra (Marsina, 1971-1987). The Slovak word for oak tree "*dub*" is mentioned for the first time in the above-mentioned document from 1113, in the form of a geographical name "Debokan" (the first such record for the whole of Slovakia). The oldest specialized Slovak name for oak forests also comes from the territory around Nitra (Veľké Zálužie 1617-1619: "*dubicžie*", Majtán, 1991-2008). Forests containing the Hungarian word "*tölgy*" in their name can be also assigned to oak forests (according to some authors, it originally referred to *Quercus robur* only, cf. Reuter 1975a). This word occurred also as "*tul*" or "*tulg*" in Medieval documents (for the first time in 1181). Its equivalent can be found in several Asian languages (e.g. Ossetian); however the oldest form could be of Indo-European origin (Lakó, 1972-1978). Possibly also old municipal area names, such as Tulat (Čifáre, Veľký Kýr), Talaga (Cabaj-Čápor) etc., are derived from it. Due to the uncertainty of its origin, these last mentioned names were not included in our list. Turkey oak is mentioned as "cer" (Slov.) or "cser" (Hung.). The word "*chrastina*" (see above) can also refer to an oak stand. There is also one additional questionable name for oak, which is "*magyal*". In the Nitra area it occurred for the first time in Babindol in 1520 as "*Magyalallya*" (= under "*magyal*", Hungarian National Archive in Budapest MOL DL 66035) (word "*magyal*" or "*magyalfa*" in other regions is mentioned in 13th century: 1233 *mogiol*, 1256 *magolfa* etc., Rácz, 2013).



In the current Hungarian botanical nomenclature "magyal" means the genus *Ilex* (Priszter, 1998), but in historical Slovak "maďal" is *Aesculus hyppocastaneum* (Buffa 1972). In Czech folk language "maďal" means also buckeye (for a summary and explanation of the confusion with *Datura*, *Ulex* etc. see Šmilauer, 1945). "Magyal" can be even be linked to stands of shrubs ("virgultum", Szerémi, 1882-1884). Vergil had already introduced a common term "*quercus ilex*" (Rácz, 2013), which could be translated as prickly oak (in the Middle Ages they referred to oak beside the word *Quercus*, also by the word *Ilex*, cf. Szabó, 2005 etc.; but according to Reuter 1963 and Csapody, 1975 it is *Quercus robur*). Benkő (1967-1976) attributed the geographical name Mogolos from 1193 to the species *Quercus pubescens* (in today's Hungarian "molyhos tölgy") and, even according to the dictionary of Hungarian names of plants, "magyalfa" means the mentioned species of oak (Csapody, Priszter, 1966; Reuter, 1975a) or *Quercus petraea* (Reuter, 1975a), respectively also elm (1249: "arbor ulmi" Fejér, 1829-1844, Szerémi, 1882-1884). In SW Slovakia in 1343 in the village of Šarovce, they distinguished between "tölgy" called oak (probably *Quercus robur*) and "magyal" (probably *Quercus petraea*): "Arbores Teulgh et Magalfa" (Fejér 1829-1844; Szerémi 1882-1884). According to some authors, the medieval "*quercus*" or "*arbor quercus*" applies only to *Quercus cerris* (Reuter, 1963; Csapody, 1975). Reuter (1975b) highlights a clearly legible gradient of oaks in medieval documents and he states that "*ilex*" and "tölgy" are usually mentioned close to water, "magyal", "*quercus*" and "cserfa" on hilly terrain.

Fig. 14: Historical distribution of oak and turkey oak forests in the northern part of Nitra County (11th-20th centuries, localities are located by boundaries of cadastre areas of villages)



In the Zobor Hills, as well as in the whole Nitra region, it is mainly *Quercus dalechampii* from the group of *Q. petraea* that grows (Požgaj, 1986; Řehořek et al., 2007), but an additional 7 species (*Q. petraea*, *Q. polycarpa*, *Q. robur*, *Q. virgiliana*, *Q. frainetto*, *Q. pubescens*, *Q. cerris*) were also identified there (Požgaj, 1986). Locally, for example, on

the south-oriented limestone hill Lupka *Q. pubescens* dominated (Požgaj, 1999a). A comparable composition of oaks is also present in the neighbouring areas, e.g. in the Vtáčnik mountain (instead of *Q. frainetto*, *Q. pedunculiflora* was detected here, Magic 2000). Oak trees in the region are seriously threatened by mass decline (Požgaj, 1987, 1999b). Oak trees most commonly grow along with *Carpinus betulus* and nowadays also with black locust (*Robinia pseudoacacia*) and with several other trees with lower coverage. In dry areas, especially on the backs or sunny slopes of hills *Q. cerris* dominates, which is mentioned more frequently in geographical names than all the other tree species (about twice as often as the other oaks altogether). In the Nitra area, Turkey oak was not differentiated in Latin documents (or perhaps this species was not present?), it was mentioned as the name of the tree for the first time in 1364 ("*arborem Cher*" in Nitrianske Hrnčiarovce, Fejér, 1829-1844). The already-mentioned fact that Turkey oak prefers drier ridges, is declared by the oldest known name of part of Nitra town: Čermáň. This was originally written as Csermal (1649, while "*mál*" = hill) (Gergelyi, 1968).

Even in seemingly clear geographical names, we are working with an error resulting from historical changes of vegetation. An example would be the Nyárak forest in Dolné Obdokovce. Hun. "*nyár*" means poplar, but the floodplain forest occurring around creeks and composed of poplars was felled a long time ago, the bed of the creek was regulated and the remaining part of the forest on the slope has a type of oak-hornbeam forest (the rest of the drier periphery of the original poplar forest). Despite these changes, however, the original name of the forest remained in the form Nyárak. In conclusion, we would like to point out that oak only remained in our forests to that extent due to the way the forests are used (see more in the chapter on changes in biodiversity in oak-hornbeam forests).

## Conclusion

The forest management of SW Slovakia was based on demands of local communities. In historical times, different management types of forests were dominant, in particular coppice and pasture woodlands. Within this study from the area in SW Slovakia, we divided coppice into two types: "erestvín/sekanina" and "chrastina" (with a question about their relatedness or casual identity). The species composition of tree species has been reconstructed from folk forest name nomenclature.

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