

**Pató, Zs. A., T. Standovár, M. Gałka, G. Jakab, M. Molnár, F. Szmorad and E. Magyari (2020):
Exposure matters: forest dynamics reveal an
early Holocene conifer refugium on a north
facing slope in Central Europe. The Holocene 30:
1833-1848.**

Reference: Pató, Zsuzsanna Anna, Tibor Standovár, Mariusz Gałka, Gusztáv Jakab, Mihály Molnár, Ferenc Szmorad and Enikő Magyari (2020):

Exposure matters: forest dynamics reveal an early Holocene conifer refugium on a north facing slope in Central Europe. The Holocene 30: 1833-1848.

Short reference: Pató et al. (2020)

First author: Pató Zsuzsanna Anna

Year: 2020

Abstract

Although several studies provide a broad overview of vegetation changes in the Carpathian Basin during the Holocene, stand-scale vegetation changes are lesser known because of the rarity of suitable sampling sites. In this study we investigated the sediment of a small closed-canopy site (Nagy-forrás forest hollow, 685m a.s.l., 0.1 ha), located in the Mátra Mountains, on the north facing slope of Kékes (1014m a.s.l.). We carried out detailed pollen, conifer stomata and plant macrofossil analyses, as well as radiocarbon dating to examine Late Glacial and Holocene dynamics of vegetation development. The site dates back to ca. 15,500 cal yr BP, when open boreal forests and wet tundra-like habitats occurred around the hollow. Closed forest cover developed around 14,600 cal yr BP, when a boreal European larch-Swiss stone pine (*Larix decidua*-*Pinus cembra*) forest surrounded the hollow. This vegetation type remained stable up to 7700 cal yr BP. We observed a hiatus between 7700 and 2710 cal yr BP, followed by a beech (*Fagus sylvatica*) dominated mixed temperate deciduous forest. Our results confirmed that the area was covered by a primary forest, as human influence was visible only from 175 cal yr BP. The relatively long lasting persistence of *Pinus cembra* in the Holocene at relatively low altitude was documented, which has never been found in Holocene sediments in the Pre-Carpathians before. We hypothesize that the north facing slope acted as a cold-stage refugium in the Early Holocene and could play the same role for

the present-day beech forest that is threatened by recent climate change.

habitat: oak-hornbeam forests, beech forests

habitat: rocky woodlands

forest dynamic, gap dynamic, succession

forest history

climate: climate change

population, ~ biology, demography

Notes

... "F. sylvatica might have been present from 9000–8000 cal yr BP according to the pollen record (exceeded 10%) at the Nagy-forrás forest hollow; however, the formation of the beech-dominated mixed forest cannot be pinpointed on the timeline because of the hiatus. The first direct evidence of the beech-dominated forest is after the hiatus (from 2710 cal yr BP), but most likely beech overtook dominance on the northern slope of Kékes earlier, at least 3100 years ago." ...

Journal: The Holocene

Location: ER Archívum - digitális

URL: [SAGE Journals](#) Type: scientific paper

Strict forest reserves: [Kékes Forest Reserve](#) Katalógusba vette

Horváth Ferenc

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