

**Mázsa, K., Kotroczó, Zs., Aszalós, R. et al
(2005): Forest dynamical processes: decline and
regeneration in sessile oak forests in the Bükk
mts., Hungary; International Conference,
Alnarp, South Sweden, 2005**

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Összefoglalás:

Oak forests, the dominant forest types in carpathian-basin, have been under diverse and intensive usage und altering by man since the historical times in Europe. In the last few decades designation of protected areas (i.e. strict forest reserves) gave on opportunity to preserve and study natural processes of tree populations and changes of stand structure of forests left for free development. In the 1970s and 80s a serious oak deterioration occurred throughout the which induced rapid changes in stand structure. The aim of the studies carried out in the ENFORS site "Oak research in the Bükk mts." was to detect and understand declining and regeneration processes at tree population level in oak dominated forests, characteristic to pannonic xero-mesophil oak woods.

Two approaches were applied: 1) Complex ecological research has been started in the beginning of the 1970s known as Síkf kút Projekt, where stand structure of one hectare plot was surveyed in detail and mapped in 1973 and 2004, then compared. Over this period the health condition of individual trees was also monitored. 2) Beside this a detailed mapping, survey and analysis of forest stand structure of a 3 ha core area were done in the Vár-hegy Forest Reserve (near Síkf kút). Further information was explored by gathering historical forest management records, air-borne photos and oral history. Decay and pattern analysis of dead woods, logs and former stumps, were done to reveal the main

processes in the stand structure. Natural forest structure started to develop in both areas, due to that forest management have stopped in the '70s.

In both areas tree species composition and pattern changed markedly in the past thirty years: the number of *Quercus petraea* individuals decreased by two third of the 1970's while the other dominant tree species, the sub-Mediterranean *Q. cerris* was only scarcely affected by the decline. In the openings a regeneration process started, where an early successional maple (*Acer campestre*) and other species have grown up to the second tree layer and a denser shrub layer was also formed.

Pattern analysis of some gaps of Vár-hegy showed similar results. More diverse tree composition and pattern were formed due to more diverse habitat conditions. The regeneration of sessile and turkey oak is significantly suppressed, as a consequence of the extensive browsing of roe deer and rooting of the wild boar. Meteorological records of the Síkf kút research station show warmer temperatures and drought conditions, likely contributors to the decline of oaks.

Long term monitoring and research of natural processes of unmanaged forests left for free development serve a field reference to extend and update our knowledge in forest ecology. The activities of the European Forest Reserves Research Network can ensure an important contribution in it.

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