

The Relationship Between Some Stand and Topographic Variables on Mushroom Diversity in Northeastern of Turkey

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Aim of the study: Commercial collection of wild mushroom is becoming increasingly important as a non-wood forest product (NWFP) due to its economic importance. Mushrooms are not the only sources of medicine and food but they are also important for recreation activity. However, excessive use and lack of control mechanism can led to a disappearance of these products. Hence, sustainability of mushrooms depends on proper conservation, management and use of these products. Some topographic and stand variables have significant effect on mushroom diversity. Especially, determining of mushroom richness based on stand and topographic conditions is important for specifying of underlying areas in conservation and monitoring changes in mushroom diversity in the natural forest ecosystems. Thus the integration of this product into forest management plans depends on understanding of relationships between these variables and mushroom richness. The aim of the present research is to examine the extent to which stand and topographic variables can serve to explain variations in mushroom diversity.

Material and Methods: This research was carried out in Kulakkaya and Kemerköprü Planning Units, Giresun Province of Turkey. Total 155 permanent sample plots with 10x10m size were established randomly different range of topographic and stand characteristics in order to capture high variation in mushroom diversity from forest ecosystems in the study areas. The sample plots were visited from August to November in 2013 about ten days interval to explore macrofungal diversity. During the survey each macrofungi species within each sample plot was photographed and then collected in the separate bags. Fresh weight and the number of each collected macrofungi were recorded separately. In each sample plots, morphological features of sporocarps such as size, colour, shape and some stand and topographic characteristics were recorded. In this study mushroom diversity of each plot was calculated with common diversity indices of Shannon weiner (H'), Simpson index (D) and Simpson diversity index (D), Pielou regularity (E), Margalef richness (D) and Berger-Parker dominance (BP). Correlation analysis was used to measure strengths of association and the direction of the relationship between mushroom diversity and some stand and topographic characteristics. In addition, the effects of stand and topographic variables in the mushroom diversity were analyzed by using one-way ANOVAs test. The individual mean values were compared with a post hoc test. All statistical analysis were tested by SPSS statistical package.

Results: The results showed that some topographical variables such as elevation, aspect and slope and some stand variables such as stand age, crown closure and development age have significant effect on mushroom diversity.

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Keywords: mushroom diversity, stand variables, topographical variable, diversity indices, forest conservation.