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Inventory Methods of the Wild Edible Mushrooms for Sustainable Forest Management Planning

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Aim of the study: Wild edible mushrooms such as *Lactarius sp.* are important non-wood forest product (NWFP) worldwide. Due to the increasing interest on these naturel resources in the national and international market, multiple-use forest planning is an alternative approach for the sustainable management of such products. The most important issue about integration of these products into sustainable forest management plans is the existence of a comprehensive inventory.Here, first step is to determine mushroom diversity in the planning unit. The second one is to predict the spatial distribution areas of important mushroom species. The last one is to estimate the mean annual yield of the related mushroom. Also, the integration of wild mushrooms into forest management plans requires to develop appropriate inventory methods of these mushrooms. However, current forest inventory is not an efficient method to estimate the diversity, abundance and distribution of these wild mushrooms. Thus, forest inventory has expanded its scope from only timber inventory to NWFP inventory. The primarily aim of the present study is to evaluate the appropriate inventory methods for mushroom species. These methods were undertaken for diversity, the geographic distribution and the potential amount of wild mushrooms separately.

Material and Methods: In this study, first of all the potentially available inventory methods for mushroom species were introduced based on the literature review. In addition, a case study of *Lactarius sp.* mushrooms in the Kızılcasu planning unit in the Province of Kastamonu was conducted. To determine spatial distribution areas and productivity of *Lactarius sp.* in the study area, 153 temporary and 30 permanent sample plots were established respectively. All permanent plots were sampled during four years in mushroom season with a week interval. All sample plots, 10x10 sized, were selected randomly from different range of aspect, slope, elevation and stand characteristics in order to capture high variation in mushroom abundance. While each temporary plots was sampled only once, the permanent sample plots were sampled in the mushroom season of 2008, 2009, 2010 and 2012. To determine spatial distribution areas of related mushroom, absence or presence of *Lactariussp.* was just monitored in each temporary plots without removing the fruiting bodies. To determine *Lactariussp.* productivity, all *Lactarius sp.* cap diameter larger than 2cm were collected, and fresh weight and number of collected *Lactariussp.* in each plot were recorded.

Results: Reviewed studies showed that there are many kinds of inventory methods used for the inventory of wild mushrooms. However, the selection of a useful sampling method depends on the type of information needed, time available, budget appropriate, topographic condition and overall objectives of the inventory such as spatial distribution, biodiversity and productivity. A case study of *Lactarius sp.* introduced the potentially appropriate sampling methods to predict spatial distribution and productivity of mushroom for sustainable forest management planning.

Keywords: *Lactarius sp.*, mushroom diversity, spatial distribution, mushroom productivity, inventory, sustainable managemen