

## **Plot-Based Survey of Macromycetes in Forests near Khanty-Mansiysk (Middle Taiga of West Siberia)**

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Ten permanent plots for observations of terrestrial macrofungi were set up in different forest types in the vicinities of Khanty-Mansiysk in spring of 2015. Plot locations were chosen to assess the influence of clear cutting and bogging on terrestrial macrofungi communities: four plots were established in old mixed coniferous forests, three plots in after-cut secondary aspen forests (20 – 30 years after cut), one in a fresh cutting site (5 years after cut), and two in bogged forests. The total number of fruitbodies of each species was counted on each plot during each visit (5 times during vegetation season from May until September in 2015, 2016). Additionally, we used random route walks to find species not registered in the plots. The final list of larger fungi after the first year of observation (2015) has encompassed 460 species. The total number of species discovered during plots observations was 313 (2/3 of the total species list); the remaining 147 species were found on random routes nearby. The monthly species number changed over the season, being 9, 24, 161, 140, and 115 from May to September, accordingly. The accumulative number of sporocarps counted during the field season reached 5309 sporocarps/1000 m<sup>2</sup>. 218 species showed marked seasonal dynamics. The analysis of trophic composition showed a prevalence of saprotrophic species (60 %) with the rest being ectomycorrhizal (38 %) and parasitic (2 %) species. 130 ectomycorrhizal species formed association with 7 tree species (4 coniferous and 3 deciduous trees), thus the average host/symbiont ratio being 1:18. Species accumulation curves built for all 10 plots showed that estimated species richness did not differ between studied plots except for the bogged site with low species richness. The estimated species richness of the total area based on cumulative sample of all plots was higher than that registered in plots (409 vs. 313). Cluster analysis helped reveal a logical classification of ten studied plots on the basis of composition and abundance of fungal species. In the course of an after-cut succession, the number of species does not change significantly, but otherwise the fungal community undergoes drastic changes. The community of fresh cutting site is denser and its trophic structure is dominated by saprotrophic species. In secondary 20 – 30 old forest, the fungal community shows reduced density while the number of mycorrhizal species increases. Old coniferous forest is similar in density and species number to secondary forests, but the diversity *Cortinarius* spp. increases significantly. The beginning of bogging changed the community of ectomycorrhizal fungi while the saprotrophic community remained similar to that of coniferous forest. The later bogging stage has a very different fungal community: sporocarps density and number of species drops and their composition significantly changes. Rare species constituted about 68% of the total list. A part (68 species) are rare throughout the boreal zone and should be subjected to special attention in further studies. 3 of the species are listed in the Red book of Russia and 9 — in the Red book of Khanty-Mansi autonomous okrug.