

EGU2020-21658

<https://doi.org/10.5194/egusphere-egu2020-21658>

EGU General Assembly 2020

© Author(s) 2021. This work is distributed under the Creative Commons Attribution 4.0 License.



Analysis of the impact of urbanization on the microbiological, chemical and morphological properties of the soil in the recreational areas of the New Moscow with a different land-use history

Ksenia Mahinya, Sofiya Demina, Viacheslav Vasenev, and **Inna Brianskaia**

RUDN University, Agrarian and Technological Institute, Department of Landscape Design and Sustainable Ecosystems, Moscow, Russian Federation (sophiya.alfredovna@gmail.com)

In conditions of on-going urbanization, urban parks play a key role in the sustainable development of urban space. New Moscow, the territory attached to Moscow in 2012, is currently the largest area in Russia experiencing rapid and intensive urban development. New Moscow is a unique area in which over the past five years, starting in 2012, rapid urbanization has been observed, including the formation of new recreational areas in the former forest, fallow and arable territories. There are currently more than 70 parks with a different land use history on this territory. Most of them have been created or reconstructed in the last 7 years. The aim of our study is to study the state of soils and green spaces of the recreational zones of New Moscow and the impact of anthropogenic factors on them, taking into account the different history of land use. For analysis, we selected 4 parks. Two parks are formed on the site of the former arable territory, and two parks in the forest zone. At the same time, one park from a couple was closer to the old borders of Moscow, and the second at a distance of more than 15 km. In the selected territories, we conduct physical, chemical and microbiological analysis of soils, as well as assess the state of green spaces. In each of the parks, 9 or 10 points were selected in various functional areas (territories near sports and playgrounds, in the walking area, barbecue area, etc.). The selection was carried out to a depth of 50-100 cm. The top layer (0-10 cm) was selected for analysis of the carbon content in the microbial biomass (Cmic), basal respiration (BR) and CO₂ production. To carry out the pH, C / N analysis, as well as the content of heavy metals in the soil, the samples were taken horizontally to a depth of 100 cm. The second stage of the study was to assess the state of woody vegetation within a radius of 20 meters from each point selected for soil analysis. Thus, we plan to obtain a comprehensive analysis of the physical, chemical and microbiological condition of the soils of the recreational zones and green spaces with a different land use history and to identify the influence of the anthropogenic factor on them.