Analysis of the interaction between soil and plant components of green infrastructure in urbanized areas: the case of New Moscow.

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Soils and green spaces are involved in ensuring the sustainable development and functioning of cities, contributing to the reduction of volatile organic substances and fine dust in the air, the formation of a microclimate, optimization of water balance and the preservation of biodiversity, and provide cultural, aesthetic and educational functions and services. The interaction of soil and plant components has a more significant impact on the sustainable development of green infrastructure in the city. The study of these processes is relevant for new urbanized territories, where their properties are primarily influenced by the history of land use. The research is aimed at studying the soil and plant components of 10 parks located in New Moscow with a different history of land use. According to the data obtained from 4 parks (2 formed on the site of arable land and two formed on the site of a forest), the lightest particle size distribution can be noted in parks located at a distance of more than 15 km from Moscow Ring Road (sandy loam and light loam). The difference between soils in parks formed on the site of arable land from forest parks can be observed in color, the number of horizons in the profile, the abundance of anthropogenic inclusions, and a less pronounced structure. Chemical analysis data show the most significant pollution in parks located far from the Moscow Ring Road. For example, in the parks of the 3rd microdistrict of Moskovsky and Butovo, at none of the points is there an excess of the RPC of Ni, Cu, Cd, As, Pb, in contrast to the other two parks. Analysis of the state of tree plantations shows the impact of land-use history on species diversity in recreational areas. So in the parks formed on the site of arable land, decorative growing trees prevail, which do not grow in natural conditions, this territory. And in the forest-park zones, there is a similarity of the species composition because both parks are formed on the site of a mixed forest.