



## **Park size and disturbance: impact on soil heterogeneity - a case study Tel-Aviv- Jaffa.**

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Parks and gardens are poly-functional elements of great importance in urban areas, and can be used for optimization of physical and social components in these areas.

This study aimed to investigate alteration of soil properties with land usages within urban park and with area size of park.

Ten parks differed by size (2 - 50 acres) were chosen, in random, in Tel-Aviv- Jaffa city.

Soil was sampled in four microenvironments ((lawn, path, picnic and peripheral area (unorganized area) of each the park)), in three points and three depth (0-2, 5-10 and 10-20 cm). Penetration depth was measured in all point of sampling. For each soil sample electrical conductivity and organic matter content were determined.

Averages of penetration depth drastically increased from the most disturbed microenvironments (path and picnic) to the less disturbed ones (lawn and peripheral). The maximal heterogeneity (by variances and percentiles) of penetration depth was found in the peripheral area. In this area, penetration depth increased with increasing park size, i.e. from 2.6 cm to 3.7 cm in the small and large parks, respectively.

Averages of organic matter content and electrical conductivity decreased with soil depth in all microenvironments and increased with decreasing disturbance of microenvironments. Maximal heterogeneity for both of these properties was found in the picnic area.

Increase of park size was accompanied by increasing of organic matter content in the upper depth in the peripheral area, i.e. from 2.4% in the small parks to 4.5% in the large ones. In all microenvironments the increasing of averages of all studied soil properties was accompanied by increasing heterogeneity, i.e. variances and upper percentiles.

The increase in the heterogeneity of the studied soil properties is attributed to improved ecological soil status in the peripheral area, on the one hand, and to the high anthropogenic pressure in the picnic area, on the other. This means that the urban park offers "islands" with better ecological conditions which improve the urban system.