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CHANGES IN PHYSICOCHEMICAL PROPERTIES AND CONTAMINATION WITH LEAD IN OUTDOOR SHOOTING RANGE SOILS

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Abstract

The negative environmental impact of the shooting ranges occurs through shot and bullets containing metals that are harmful to the environment. The objective of this study was to investigate the changes in physicochemical properties and contamination with heavy metals in soils of two Lithuanian outdoor shooting ranges. Soil samples were collected from the outdoor rifle shooting ranges which differed in shooting activity. The higher concentrations of Pb were found in the shooting range (8272 mg kg^{-1}) with higher activity compared with soil from the less active shooting range (6758 mg Pb kg^{-1}). Heavy metal concentrations in both shooting ranges increased with the distance from the firing line. The shooting range soil pH ranged from 6.2 to 7.4. Soil density of the shooting ranges varied between 1.03 g cm^{-3} to 1.54 g cm^{-3}. Organic matter content and porosity of the soil significantly decreased with increasing distance from the firing line along with an increase in soil density.

Keywords: lead, shooting range, soil contamination

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