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Impact of Camping on Soil Properties at Strawberry Lake, North Dakota, USA

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Recreational activity at campsites can cause compaction and metal contamination of soils. This study compared the bulk densities, penetration resistance values, organic matter contents, and Zn, Mn, and Cu contents of soils sampled from zones of varying recreational activity within the campsites at Strawberry Lake, North Dakota, USA. The results of this study showed that there were statistically significant increases in the soil bulk densities and soil penetration resistance values compared to the controls. However, the low recreational intensity has not compacted the surface soils beyond an average of 1.36 g cm-3, which is not dense enough to hinder the root growth of the surrounding vegetation. There were no statistically significant differences between the soil organic matter content of the different activity zones at the 95% confidence interval. Zinc values were four orders of magnitude and Cu values three to four orders of magnitude below US EPA guideline limits. The EPA does not have guidelines for Mn, but Mn levels were lower than reported typical natural values for a nearby area. Therefore, metal contents were not high enough to be of concern. Taken together, these results were interpreted to indicate that the low-intensity camping activities that occur at Strawberry Lake campground have not had a significant negative impact on the soils found there. Additional information on this study can be found in Tibor and Brevik (2013).

Reference

Tibor, M.A., and E.C. Brevik. 2013. Anthropogenic Impacts on Campsite Soils at Strawberry Lake, North Dakota. Soil Horizons 54: doi:10.2136/sh13-06-0016.