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Nicholas Johnson

Governors State University, njohnson11@student.govst.edu

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Comparison of soil organic carbon stocks in two forest types in the Huron Mountains, Michigan

Nicholas Johnson

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Governors State University

Abstract

It is of utmost importance to keep track of the soil organic carbon (SOC) level in forests due to how it affects atmospheric CO₂ concentrations and how it mitigates climate change. This study investigates the amount of soil organic carbon that we have gathered from two different forest types such as the Red Pine and Hemlock Sugar Maple Forest. The soil samples used from these two forest types were taken from the Huron Mountain located in Michigan. The Red Pine forest is a plantation forest while the Hemlock Sugar Maple forest is natural. We will be comparing the levels of soil organic carbon found in these two forest types and determine if there is a difference in the amount of carbon. A total of three plots were set up in the red pine forest and the hemlock sugar maple forest which helped us analyze the composition and layout of the forest. Soil samples were collected from two depth layers: 0-10 cm and 10-20 cm. A total of 28 samples were used, 12 of the samples were from the red pine forest while 16 was from the hemlock sugar maple forest. According to our results the overall mean soil organic stock level is higher in the hemlock sugar maple forest(124.8Mg/ha) in comparison to the red pine forest(19.3Mg/ha). This result tells us that the soil organic carbon levels in natural forest types will be much greater than that of plantation forest types.