



Carbon sequestration and plant nutrients in soil in different land types in Thingvellir Iceland

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Special properties of volcanic soils (andisol) that is most common in Iceland can sequester considerably more carbon (C) than other types of soils. A mellow developed andisol with natural ecosystem such as birch forest or grass- and heathland is presumably to be fertile and sequester a lot of carbon. Coniferous tree species have been imported to Iceland for large scale utilisation in Icelandic forestry and is therefore an imported species/ecosystem. Abroad it has been noticed that coniferous trees acidify soil and change the properties of the soil so other species cannot thrive in it. The Icelandic Forest service is aiming tenfold the coverage of forests in Iceland before the year 2100 but about 50% of tree species that the institution uses is coniferous species. It is therefore important to research the soil due to the plant types that are planted in the soil.

The aim of this project is to compare soil properties, soil nutrients and soil sequestration in heathland, birch forest and coniferous forest in Thingvellir national park in Iceland. Heathland and birch forest represent the natural ecosystem but coniferous forest imported ecosystem. Carbon (C) in soil will be measured, proportion of carbon and nitrogen (C:N), respiration from soil (CO₂) and live green biomass and organic matter in the soil. The speed of decomposition of organic matter will be estimated. Important nutrients, pH and cation exchange capacity will be measured among other physical properties as bulk density, grain size and water holding capacity of the soil.