As global energy production shifts towards carbon-friendly options, biomass energy is a growing market that will potentially produce a lot of wood ash as a waste product. Countries in Europe recognize ash as an effective soil amendment. Many countries apply ash from biomass energy production to forest soils to return nutrients to the soil. In Canada, ash is applied as a liming agent in agricultural soils, but the application in forest soils is subject to different regulations. Ash can be applied to forest soils in Canada, but our regulations require updating. Ash is classified as a biosolid waste product in most provinces, making it difficult to receive approval to apply it in forests.

In order to better inform Canadian policy, ash amendment needs to be proven an effective, safe amendment for use in forest soils. AshNet is a collaborative effort to assess the impacts of wood ash amendment on Canadian Forests, and uses a network of studies in forests across Canada. A recent study sampled soils from 8 AshNet experimental sites where different amounts and sources of wood ash were applied to soils and used metabarcoding (which uses DNA to assess the presence of organisms) and enzyme analyses (used to measure nutrient cycling) to see whether organisms respond to ash amendment.

It was found that though there may be some differences in enzymatic activity when ash is applied to forests, but the way that those activities change is not the same in all sites and the difference between two plots at a particular site were often greater or cancelled out by the effects of ash addition. The structure of soil communities (arthropods, general eukaryotes, bacteria and fungi) do not change with ash addition either. Thus, wood ash amendment is likely to have some temporary effects on nutrient turnover in soils, but it is unlikely that there are permanent changes to the soil ecology. While our study was limited in some respects (i.e., most of our sites had a recent ash addition and all of the forests were managed forests) these results show that ash amendment are not likely to cause changes to the soil ecology, or only produce small, inconsistent results.

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