

## Can high production forestry plantations in Nova Scotia be made compatible with enhancement of forest soil carbon?

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As Nova Scotia implements ecological forestry, woodland will be designated as high production forest (HPF) plantations. These sites will require mechanical preparation, management of vegetative competition and pest species, and amendments to maintain soil fertility. Although public opinion around this aspect of ecological forest management varies widely, controversy surrounds the potential for soil carbon stores to diminish under HPF at a time when carbon sequestration is critically important to mitigate global climate change. Enhanced weathering (EW) of crushed basalt dispersed across soils can enhance soil productivity and by forming bicarbonate dissolved ions, can effectively sequester carbon dioxide within soil, surface waters, and within ocean sediments. This technique has been proven feasible in trials around the world but has yet to be performed at scale in North America. Results of a small-scale suitability analysis conducted with ArcGIS Pro software using data available through the Nova Scotia Open Data Portal indicate that EW may be a workable natural climate solution in some regions of the province, although locations selected for HPF plantations are yet unknown to the public. Although the impacts of forest management decisions on mineral soil carbon stores are not well understood in Nova Scotia, natural carbon dioxide sequestration mechanisms such as EW have the potential to be effective in global efforts to mitigate climate change.