Soil Carbon Storage at Howland Forest, ME. (S07-gaudinski113459-Poster)

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Abstract:

Knowledge of carbon (C) stock sizes and their average cycling rates allows for evaluation of the contribution of soils to current estimates of net ecosystem productivity. At Howland Forest, a temperate coniferous forest in central Maine, USA, we used measurements of carbon and radiocarbon in soil to investigate the amount of C storage occurring in both the driest (moderately well drained) and wettest (swamps) soil types available. We find that driest soils are storing between 0.1-0.2 Mg C ha-1 y-1. Calculations are still in process for the wettest soils however we expect storage rates to be between 0.1 and 1 Mg C ha-1 y-1. In both cases storage is occurring primarily in low density, non-mineral associated soil organic matter. Eddy covariance measurements show that this site is currently storing about 1.95 Mg C ha-1 y-1. Taking into account the distribution of soil drainage, we expect soil C accumulation will account for less than 25% of net ecosystem carbon storage.

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