

COMMENTARY

Is Net Ecosystem Production Equal to Ecosystem Carbon Accumulation?

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ABSTRACT

Net ecosystem production (NEP), defined as the difference between gross primary production and total ecosystem respiration, represents the total amount of organic carbon in an ecosystem available for storage, export as organic carbon, or nonbiological oxidation to carbon dioxide through fire or ultraviolet oxidation. In some of the recent literature, especially that on terrestrial ecosystems, NEP has been redefined as the rate of organic carbon accumulation in the system. Here we argue that retaining the original definition

maintains the conceptual coherence between NEP and net primary production and that it is congruous with the widely accepted definitions of ecosystem autotrophy and heterotrophy. Careful evaluation of NEP highlights the various potential fates of nonrespired carbon in an ecosystem.

Key words: net ecosystem production; carbon accumulation; net primary production; gross primary production; total ecosystem respiration.
