



## Understanding multiple element budgets of peatlands – a role for simple stoichiometry?

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A few studies have considered the carbon budget of peatlands; fewer studies have considered the N budget of peat soils and none have considered both together. This study considered the total N budget of an upland peat-covered catchment over the period 1993 to 2009 at the same time as the C budget was being measured. The study has shown:

1. Tracing the C/N ratio of biosphere reservoirs shows that primary productivity and litter decomposition represent outputs of N from the soil while DOC production and humification represent inputs of N.
2. Over the 13 year study period, the total carbon balance varied between a net sink of 20 to - 91 tonnes C / km<sup>2</sup> / yr
3. Overall, the total N budget of the peat ecosystem varies from -1.0 to +2.5 tonnes N/km<sup>2</sup>/yr, i.e. *some years the ecosystem is a net source of N.*

*The time series of the total N budget suggests that the N budget is responding to occurrence of severe droughts with a long-term decline in N storage. This could be interpreted as the ecosystem responding to long-term high N deposition rates, even if those rates have now diminished. The carbon budget shows no such trends, although the kn*