

Has ammonia Fumigation affected enchytraeid worms at Whim Moss

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The Whim Moss experimental site was established in 2002, for the UK Natural Environment Research Council's GANE programme (Global Atmospheric Nitrogen Enrichment). This site enables the study of *in situ* enhanced N effects (as NH₃, NH₄⁺ and NO₃⁻ - N) on a sensitive semi-natural habitat, where N applications are dependent upon suitable meteorological conditions. 3 years (2002-2005) of NH₃-N fumigation along a 60 m transect has resulted in an exponential decline in NH₃-N concentrations from the NH₃-N source to 60 m. On this transect, *Calluna* and sensitive moss species are now in decline. Below-ground effects were investigated in a short-term* study that focused on Enchytraeid worms (Oligochaeta): Enchytraeids are the dominant indicator species in wet acidic habitats, with key roles in biogeochemical cycling. Results showed that changes to the peat pH and mineral N correlated ($p < 0.05$) with the decline of NH₃-N concentrations down the transect. It was expected that NH₃-N fumigation would increase the N content of the litter layer, the main Enchytraeid food source; an improved litter quality would thus increase the Enchytraeid population on the transect. At Whim, 3 acidophilic Enchytraeid species were identified; however Enchytraeid species and total abundance were not affected by NH₃-N concentrations, pH or mineral N. Both Enchytraeid abundance and litter N content were similar on the transect and ambient control. It is proposed that 3 years of ammonia fumigation at Whim is not yet long enough for plant matter with an increased N content to become incorporated into the litter layer. Future long-term monitoring, with more systematic sampling, will confirm any N effect on the Enchytraeids.

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