# Environmental conditions rather than nitrogen availability limit nitrous oxide (N$_2$O) fluxes from a temperate birch forest

**Supplementary materials**

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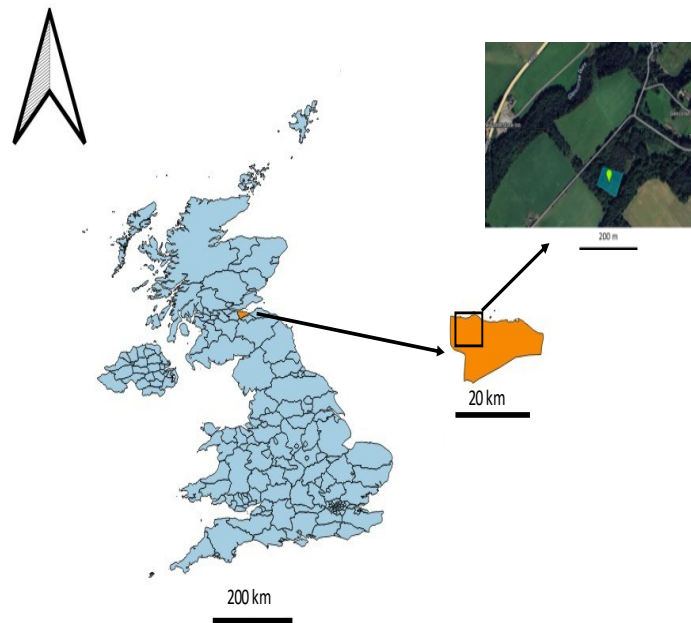
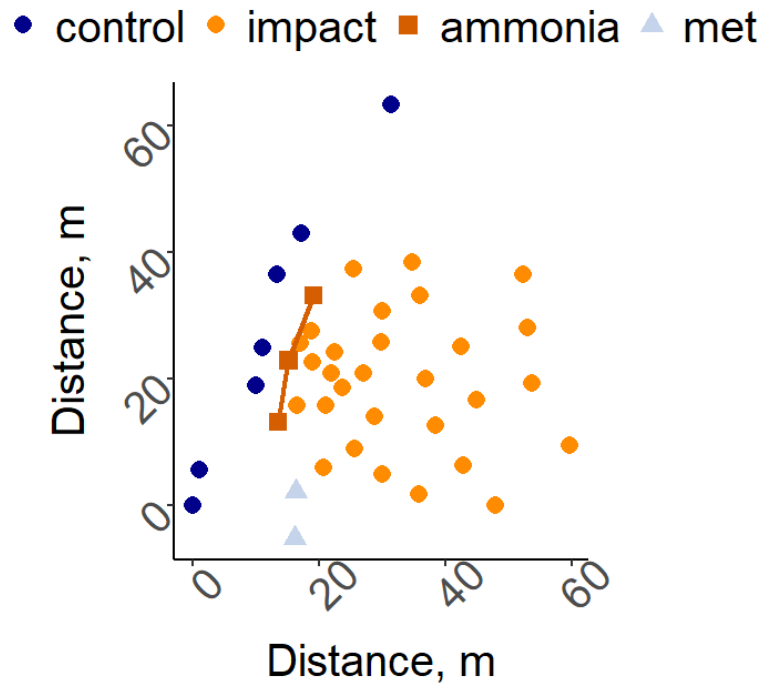


**Figure S1 Map of the United Kingdom, Midlothian County (orange) and the Glencorse field site marked with a blue rectangle.**
10 **Image created using QGIS and ©Google Earth.**

**Figure S2 Automated NH$_3$ release system at the Glencorse field site.**

15    **Figure S3 Spatial distribution of static flux chambers in the Glencorse field site. Control and impact chambers are shown by blue and orange circles, respectively. The red line marks the location of the ammonia (NH$_3$) source. The meteorological tower and a rain gauge are shown by grey triangles. The x and y axis show distance east and north, respectively, from a reference point (one of the control chambers).**

**A**

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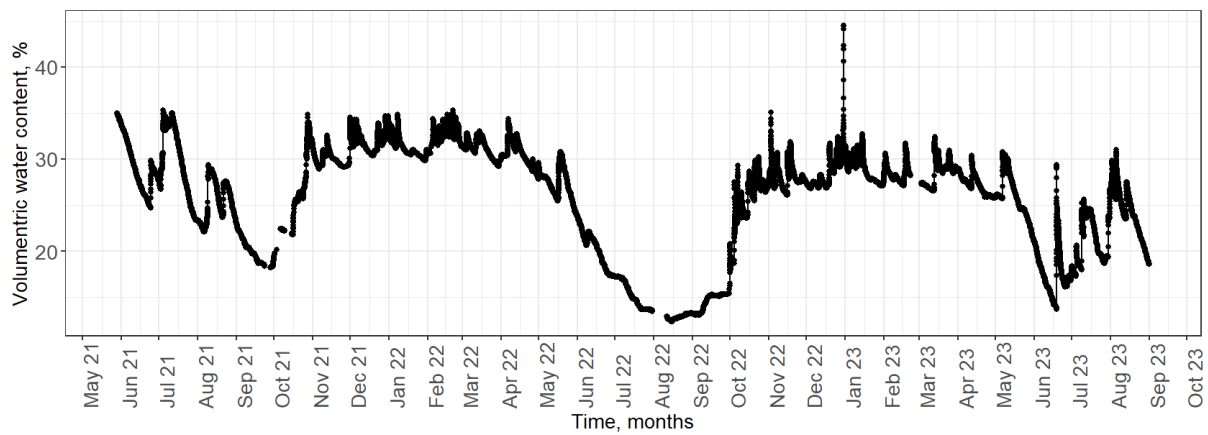
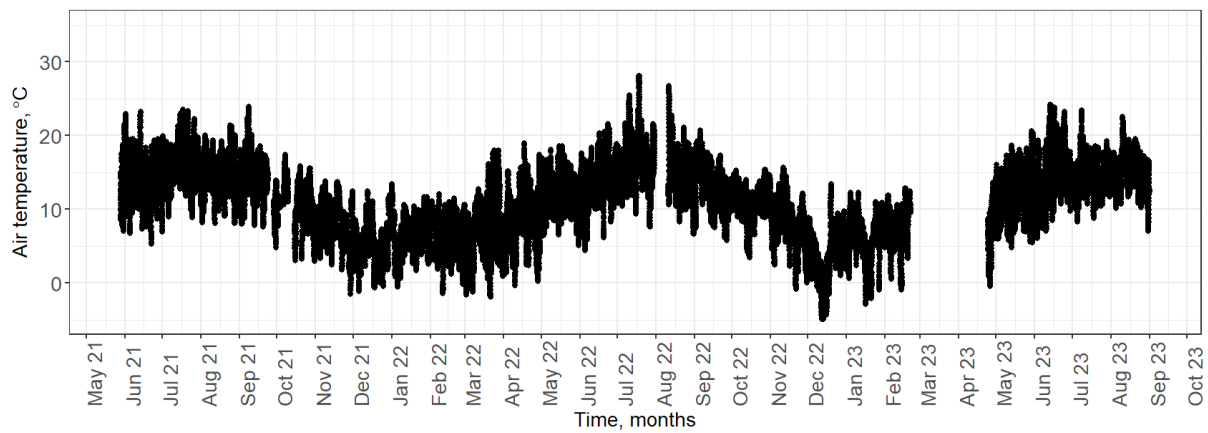

**B**

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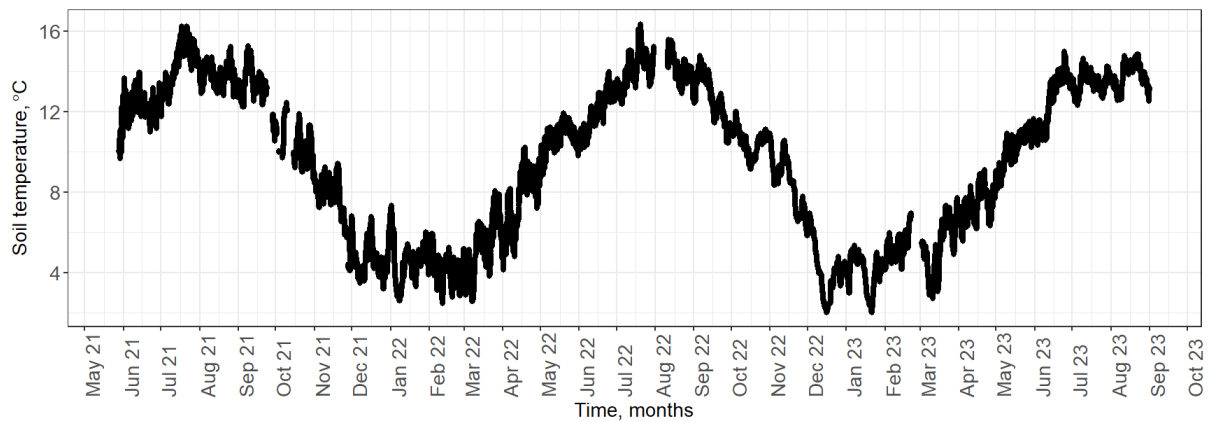
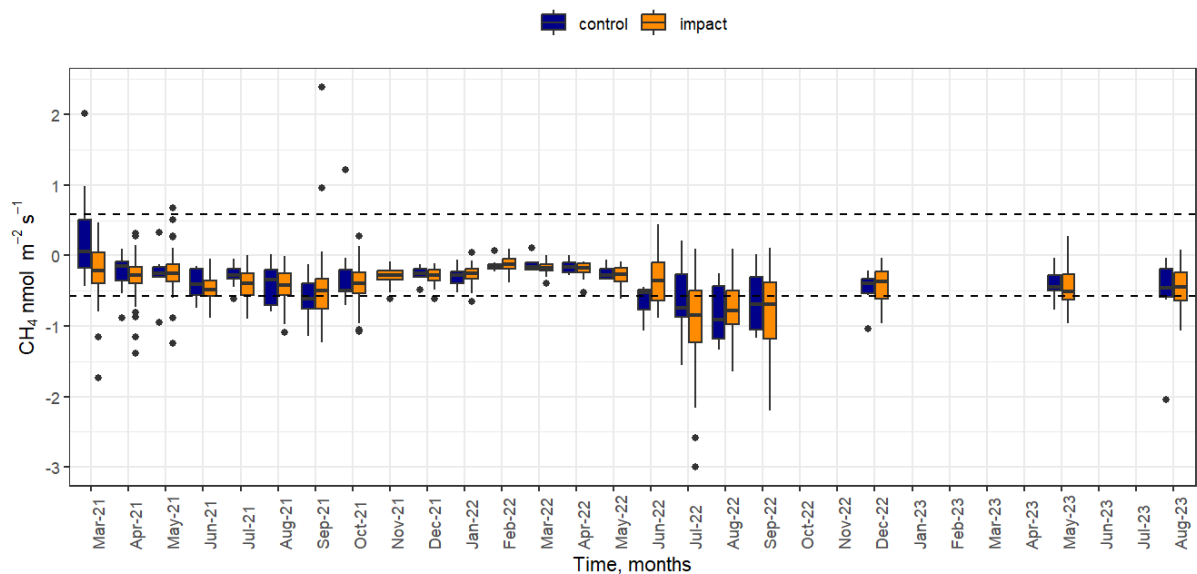
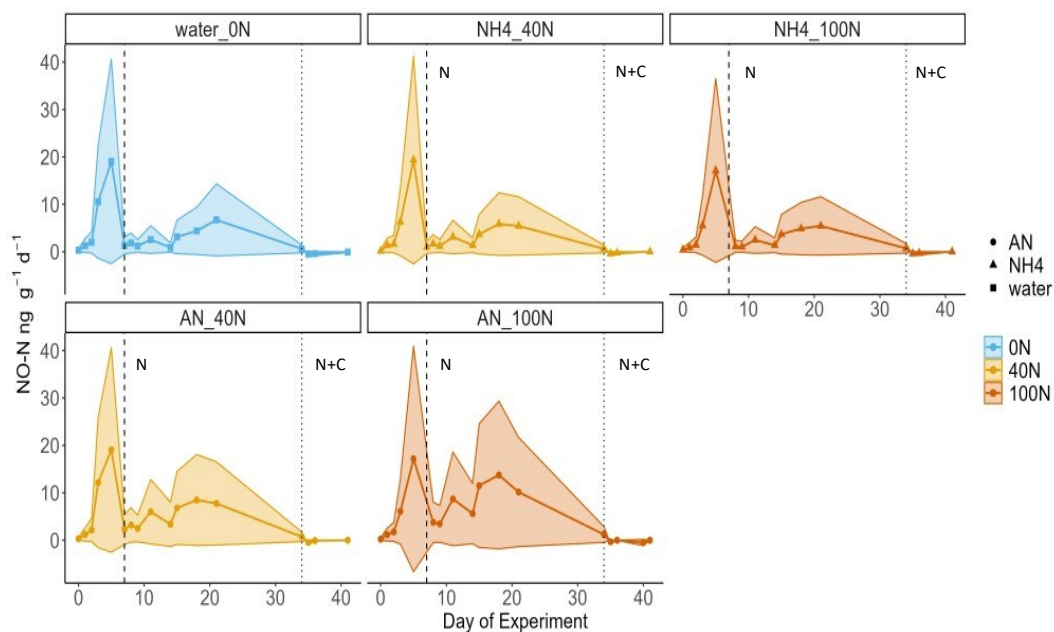

25 **Fig. S4 Time series of volumetric water content (A), air temperature (B) and soil temperature (C). Measurements were recorded at the meteorological tower (one location) at 10 cm depth, 2 m above the ground and 10 cm depth, respectively.**

30 **Figure S5 Fluxes of CH$_4$ over the duration of the experiment. Fluxes measured from control and impact areas are shown in blue and orange, respectively. The horizontal dashed line marks the minimum detectable flux. Data from control areas from November 2021 are missing due to technical issues during sample processing.**

35      **Figure S6 Fluxes of NO over the course of the laboratory experiment. Vertical dashed lines correspond to the first N application (in the form of $NH_4^+$ or AN, depending on the treatment); vertical dotted lines signify the second application of N and glucose (N+C). Blue, orange and red correspond to N addition of 0, 40 and 100 kg N ha$^{-1}$ yr$^{-1}$, respectively. Shaded areas correspond to the 95 confidence intervals (C.I.) as calculated based on triplicates.**