

1. Line 19: "large change in the heterotrophic : autotrophic fraction" might be clearer

Changed "big" to "large".

2. L. 88-89: italicize species names

Italicized the following names in line 88-89: "*Hypnum jutlandicum*, *Hylocomium splendens* *Sphagnum fallax* and *S. capillifolium*"

3. L. 167: Specify what version of R, and update citation accordingly

The version is in the reference list, in the full citation of Rstudio (1.0.136). After googling it seems that that is the accepted way of referencing the version, but we're happy to add it in the "in text reference" if that would be better.

4. Figure 3: axis label says "month and year" but the tick labels are DD-MM-YY, which is slightly confusing

Changed the x-axis label to "Date".

5. Figure 5: what is the fan of straight lines in each panel?

The fan of straight lines is due to an artefact and have been removed from the graphs.

6. Data availability (line 415): this is not adequate, as the journal policy is " If the data are not publicly accessible, a detailed explanation of why this is the case is required." Please elaborate.

The data is currently being made publicly available through STORRE (<https://storre.stir.ac.uk/>). We can send the link over as soon as it is available.

Referee 1

1. The amended title is now ambiguous. It could be read as being about separating soil CO₂ effluxes (both autotrophic and heterotrophic) from net soil carbon balance. Even though that would not make much sense, you should remove the ambiguity, perhaps by rewording it as 'Net soil carbon balance in afforested peatlands and separating autotrophic and heterotrophic soil CO₂ effluxes'.

We have changed the title to: "Net soil carbon balance in afforested peatlands and separating autotrophic and heterotrophic soil CO₂ effluxes"

2. Lines 438-439. You state 'In the UK forest plantations on deep peat usually end in clear felling of the site and restoration of the peat.' In fact it is still more common for UK forests on deep peat to be restocked for a further forestry rotation than for the sites to be restored to open peatland. This could be corrected simply by changing 'usually' to 'sometimes'.

We have changed "Usually" to "sometimes".