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Biogeosciences Discussions

Interactive comment on "Nitrogen impacts on vascular plants in Britain: an analysis of two national observation networks" *by* P. A. Henrys et al.

Anonymous Referee #1

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The aim of this manuscript is to study the relationship between atmospheric nitrogen deposition and species abundance to access quantitatively the negative effect of high nitrogen deposition on species richness depending on is habitat. This is an important study as few attempt as been done to rely effect of high nitrogen deposition at the species . The study is based on two large datasets of presence of vascular plant over UK. One of the interest of the study as also been to separate the effect of nitrogen from others effects like climate and land use. For this purpose a GAM based approach as been used from which a p-value (that allow to detect the significance of the result) and the shape of the relationship between nitrogen deposition intensity and species occurrence is determined. This is an interesting paper, clearly described. My only re-

gret it that it is mainly descriptive and I would like to have a in the discussion a deeper analysis of the results in particular in term of interpretation fo the results. For instance I would like to understand if, for species showing a decrease of abundance, if it is really related to a direct negative effect on plant productivity or an indirect effect the competitive disadvantage with other more sensitive species? Even is some attempts have been done to rely the negative impact of N deposition to competitive, eutrophication or acidification effects, no explanation are given for these affirmations Another important point is that for lowland calcareous grassland, where there is sufficient data to have several common species int the vascular plant database and BSBI local change survey database, most of common species show different trends (except for *Omonis Repens*)? This point is not really discussed but important as it is an obviously question about pertinence of the trends found if they cannot be reproduced in different datasets?

Some minor points:

in 4.1.2, the first paragraph is not clear. It should be explained that for both datasets half the species show a significant decrease but these species are different except for *Ononis Repens*.

For the figures 2 to 7 i don't know if this is for a reason of cost that figures are in black and white ? But it would be more readable to combine different line types with different colors to be more readable for figures like fig 2a or fig 3a where there is numerous plots.

Interactive comment on Biogeosciences Discuss., 8, 7441, 2011.