

Interactive comment on “The impact of ancestral heath management on soils and landscapes: a reconstruction based on paleoecological analyses of soil records in the middle and southeast Netherlands” by M. Doorenbosch and J. M. van Mourik

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This is a really nice and well done study with profound and carefully consulted background knowledge. I strongly recommend its publication in the SOIL special issue "Soil as a Record of the Past", as it highlights the benefits of preserving valuable soil archives in the Netherlands.

Most of my comments listed below are suggestions for minor corrections:

C1

GENERALLY

- It would be nice if the term barrow and its meaning could be explained in one additional sentence. It was shortly mentioned (indirectly) in section 2.1 that these are burial mounds, but this should be explained in a more prominent way, as these are one of the main objects of research of the study.
- Please be careful to use either British or American English.

ABSTRACT

- Page 2, lines 8f: "in addition on THAT, the forest degradation. . .".

INTRODUCTION

- Page 3, line 10: Probably, the authors meant "cosmopolitan ligneous plant species"?
- Page 4, line 11: natural instead of naturel.
- Page 4, lines 20ff: "and soil archives were SEVERELY damaged or even destroyed. . .". Further, I would not use the term "heath surface" but maybe rather "heath area".
- Page 4, line 27: ". . .sustainably protected".
- Page 4, lines 28-29: Maybe, the authors could state here a bit more in detail, which properties (physical? chemical?) of soil and landscape they mean, that were affected by heath management.
- Page 5, line 6: ". . . during this period".
- Generally, it would be nice if the Introduction would terminate with the aims of the study. Of course, the last paragraph of this chapter is also part of the Introduction, but maybe it could be a bit rephrased so that it appears more "connected" to the before mentioned aim.

MATERIALS AND METHODS

C2

- Page 5, line 18: Podzols.
- Page 5, lines 18ff: Please write "... with the pre-barrow land surface on top...".
- Page 6, line 27: This is the first place where the word biomarker appears. Biomarkers were not the object of this study and they are not further mentioned in the manuscript, therefore this is confusing. Moreover, if biomarkers are mentioned, it would be interesting to read which biomarkers are meant, e.g. alkanes, suberin, sterols?
- Page 7, lines 1 and 7: Maybe, the authors could explain in 1-2 sentences the mentioned methods despite citing previous studies, so that the reader gets a rough idea what has been done with the soil material.

RESULTS

- Page 7, lines 15ff: As already mentioned by the editor, Mr. Kluiving, here the authors do not clearly distinguish between their own results and published work.
- Page 7, lines 18f: Please mention, which fraction of the barrow material was dated.
- Page 7, line 20: Maybe the authors should state that the pollen spectra in Fig. 4 is a combination of several barrows.
- Page 8, line 26: Please rephrase.
- Page 9, line 2: From here onwards, there seems to be some chaos with the figure numbers.
- Page 9, lines 21ff: Is it common use to write these terms? Maybe this could be difficult to understand for non-archeologists.
- Page 10, lines 10f: What do you mean with "some time"? Years, decades, centuries?
- Page 11, line 6: "The development of landscape".
- Page 11, line 13: Again, please mention which fraction of the soil material was dated.

C3

- Page 11, line 28: "syn-sedimentary"
- Generally, section 3.4 mainly discusses previous studies from Bedafse Bergen and does not show only own results. This does not reduce the value of this study, but the section or parts of it might be re-arranged / shifted to the Discussion chapter.

DISCUSSION

- Page 16, lines 10f: Please rephrase "The heath damaged by sand drifting was turned into...".

FIGURES AND TABLES

- Tables 1 and 2 are not referred to throughout the text.
- Figure 11: Very nice illustration of the chronological context at Bedafse Bergen.

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C4