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A Late Glacial palaeosol at Lommel Molse Nete

Variability and diagnostic features

Between 2019 and 2021 an extensive landscape and archaeological survey was conducted in a 240 ha large area north of the Molse Nete valley in Lommel (Belgium). The study area is located on a height of ~50 meter a.s.l. on the western edge of the Campine Plateau. This plateau is a classic example of relief inversion, being covered with coarse alluvial deposits of the Early to Middle Pleistocene Meuse and Rhine and overlying the wider, 30 to 40 m lower lying area (Beeerten et al. 2018). Coversands were deposited on top of these gravels during the Late Pleistocene.

The survey was conducted by means of mechanical and manual augerings, testpitting and profile trenching (Vanmontfort et al. 2022). A bleached horizon, often containing charcoal particles, was observed at the top of Pleistiglacial and early Late Glacial coversands. In an earlier stage, an association with a Final Palaeolithic archaeological record had been identified (Van Neste et al. 2009). Based on the characteristics of this horizon and its lithostratigraphic position, it can be interpreted as a Late Glacial palaeosol, most probably connected with the Allerød interstadial and thus an equivalent of the Usseolo soil (cf. Kaiser et al. 2009). One of the goals of the survey was identifying and mapping the extent of this palaeosol. Its presence was confirmed in an area covering c. 23 ha.

Within that area, the appearance of the palaeosol is highly variable. Charcoal particles are not always present, and the bleached horizon can be less pronounced or even barely visible. Also in the latter cases, an association with a buried archaeological record has been observed. In the disturbed soil samples of an Edelman auger the identification of this variable palaeosol is challenging. It is observed at the top of Pleniglacial and early Late Glacial coversands. In an earlier stage, an association with a Final Palaeolithic archaeological record had been identified (Van Neste et al. 2009).

Greyish eluvial horizon (Late Glacial palaeosol) associated with a Final Palaeolithic archaeological record.

Truncated Late Glacial palaeosol. The stratigraphic position of the palaeosol can be identified based on the redoximorphic features and the traces of bioturbations in that horizon.

Slightly bleached Late Glacial palaeosol associated with a Final Palaeolithic archaeological record.

Greyish eluvial horizon (Late Glacial palaeosol) associated with a Final Palaeolithic archaeological record.

Legend

| YD | Younger Dryas coversands |
| PL/LG | Pleistiglacial and/or Late Glacial coversands |

References: