

# Dating and formation of inland dunes along the river Scheldt and its tributaries: implications for the detection of Final Palaeolithic sites, campaign 2020 (NW Belgium)

Possum PINCÉ

## 1. Introduction

In November 2019, a postdoctoral FWO project started about the role of rivers during the Late Glacial recolonization of NW Europe that aims to make an interdisciplinary assessment of Late Glacial (Final Palaeolithic) sites in the basin of the Scheldt and its tributaries. The project mainly focuses on the dry and somewhat higher located sand dunes along the Late Glacial floodplains as preferred settling environment in that time. The first step in this project is to determine the age and formation processes of these inland dunes to investigate their potential for Late Glacial sites. For this, fieldwork has been performed on ten dunes along the Scheldt and its tributaries Lys and Durme. The second step comprises archaeological augering surveys on dunes that date back to the Younger Dryas to detect possible Late Glacial sites inside these dunes and to elucidate the possible impact of taphonomic factors on the current site distribution. This step has been performed on an inland dune in Uitbergen of which the preliminary results are presented here.

## 2. Project

### 2.1. Outline

The Late Glacial (c. 12,700-9700 cal BC) directly following the extreme cold Late Glacial Maximum, can be considered as a transitional phase towards the current warm Holocene epoch and comprised several warm and cold phases, called interstadials. It is also the phase in which hunter-gatherers thanks to improved climatic conditions recolonized the northwestern European Plain after a period of retreat that lasted several millennial. As such, the Late Glacial is one of the most important stages within the population history of NW Europe. The first colonizers belonged to the (late) Magdalenian culture and were succeeded by the Arch-Backed or *Federmesser* culture, which was in its turn replaced by the Tanged Point or Ahrensburgian culture. A general characteristic of these Late Glacial groups is their preferred settling in sheltered environments (e. g. caves and rock-shelters) and river valleys. Numerous sites are known along the main river valleys within NW Europe, such as the Seine (Valentin, 1995, 2008), the Somme (Fagnart, 1997a, 1997b; Coudret & Fagnart, 2006), the Rhine (Street, 1998; Street & Baales, 1999; Baales *et al.*, 2001) and the Meuse (Straus & Otte, 1998). Excavations in these river contexts revealed traces of well-preserved camp-sites, such as Pincevent, Etiolles, Gönnersdorf, Andernach and Rekem, which are key-sites within European Late Glacial archaeology.

Remarkably, in the Scheldt valley of NW Belgium, though the second most important river in Belgium, Late Glacial (Final Palaeolithic) sites are currently hardly known (Crombé *et al.*, 2018; Crombé, 2019). Indeed, nearly all sites ( $n = 30$ ) are situated in the sandy interior, more specifically along the well-drained dry banks of palaeolakes

and wet depressions, and the majority of these sites belongs to the *Federmesser* culture (Crombé *et al.*, 2011, 2013; Bos *et al.*, 2018; Fig. 1 ). This sharp contrast in occupational pattern between the Scheldt and other river valleys of NW Europe currently remains unexplained due to a lack of detailed research. As such, it is at present not clear whether the scarcity of Late Glacial sites in and along the Scheldt floodplain is due to specific taphonomic factors and/or corresponds to a prehistoric reality.

Moreover, the handful of known Late Glacial sites in the Scheldt floodplain all seem to belong to the final stage of the Late Glacial, namely the Younger Dryas, which led to the recent hypothesis of a possible population shift from the inland lakes towards the Scheldt river banks at the abrupt transition from the warm Allerød (*Federmesser* culture) to the extreme cold Younger Dryas (Ahrensburgian culture) (Crombé & Robinson, 2017; Crombé *et al.*, 2018; Crombé, 2019). It is assumed that the climatic deterioration at the start of the Younger Dryas caused a lowering of the groundwater table, which desiccated the palaeolakes and turned them into swampy depressions. The complete absence of Younger Dryas sites along these former lakes suggests that the changing climatic and environmental conditions were too unfavorable for hunter-gatherers to remain there, which might have caused a change in distribution pattern and decline in the number of settlements (Crombé *et al.*, 2013; Bos *et al.*, 2018). This interpretation, however, is significantly hampered by the lack of an in-depth assessment of Final Palaeolithic sites in the Scheldt valley; by extension, it illustrates a substantial gap in our general understanding of the role of riverine environments during the Late Glacial recolonization of NW Europe.

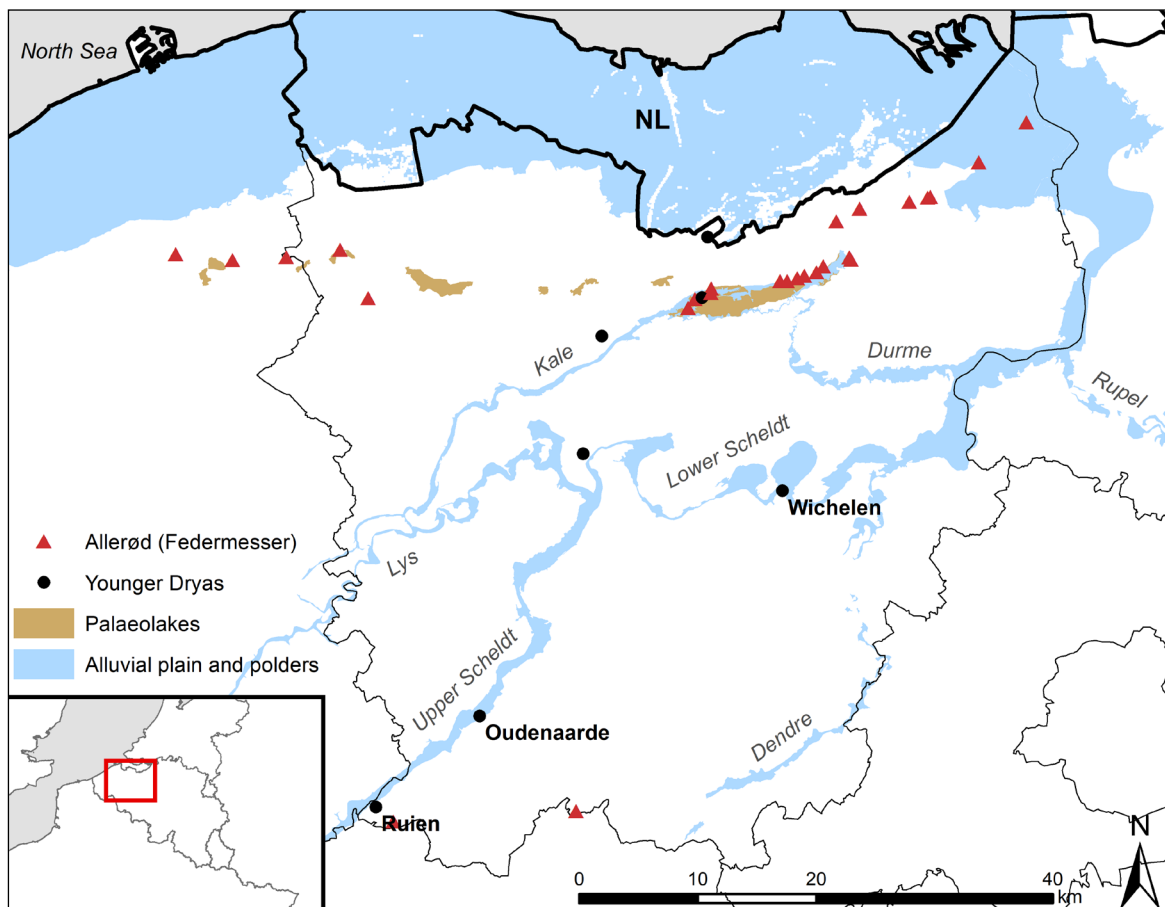


Fig. 1 – Overview of the Late Glacial occupation in NW Belgium, which is mainly focused around the Allerød lakes. Almost no occupation along the alluvial plains of the Scheldt river or its tributaries is known, and the few known sites are attributed to the Younger Dryas.

The overall objective of this project is to investigate the apparent scarcity of Late Glacial (Final Palaeolithic) sites in the Scheldt valley and to use this knowledge to examine human occupation and migration in the Final Palaeolithic across this area.

More specifically, this research focuses on the possible impact of taphonomic factors on the current site distribution. Recently, three Late Glacial sites were fortuitously discovered during excavations of Roman and Medieval sites in the Scheldt valley, e. g. at Ruien (Crombé *et al.*, 2014b), Wichelen (Perdaen *et al.*, 2013) and Oudenaarde (Crombé *et al.*, 2018). Contrary to all other Late Glacial sites in NW Belgium, which are situated at shallow depths (so-called ploughed surface-sites), the latter sites were discovered at greater depth underneath later deposits of colluvial (Ruien) and aeolian origin (Wichelen, Oudenaarde), in so-called 'river dunes'. These recent discoveries suggest that many more Late Glacial sites may have been preserved underneath (younger) sediments of aeolian, colluvial and/or alluvial origin, resulting in a bias of the current distribution maps. These would not have been discovered with traditional survey techniques (e. g. field-walking for ploughed-up surface finds, and shallow hand coring) owing to their inherent limitations. The relatively fast sealing of these sites also prohibited soil development, which contributes to the invisibility of these sites. Finding these buried sites is a real challenge but is feasible on the condition that adapted survey techniques are applied.

Additionally, this project concentrates on the chronology of these sites and the environmental changes in the Scheldt valley during the Late Glacial. In contrast to cave and wetland sites, accurate dating of open-air dryland sites from the Late Glacial in NW Europe is still highly problematic due to the absence of reliable organic samples for radiocarbon dating (Lanting & van der Plicht, 1995/1996; Terberger *et al.*, 2009; Crombé *et al.*, 2014a). Hence, the chronology of the Late Glacial recolonization, in particular of river valleys and lowland regions, is still poorly understood. In order to deal with this problem, the potential of Optically Stimulated Luminescence (OSL) dating on the sediments in which Late Glacial sites are embedded, are investigated within this project.

Combined with other analytic methods, such as pollen, grain-size and micromorphological analyses, OSL dating may also provide valuable information on the Late Glacial environment. Such an interdisciplinary approach has only rarely been applied within Late Glacial archaeology, hence it will reveal important new insights into the impact of environmental and climatic forcing on settlement patterns and occupation dynamics in NW Belgium at that time, such as the recent hypothesis of a possible population shift in NW Belgium from the inland Allerød lakes to the Scheldt river banks at the onset of the extreme cold Younger Dryas (Crombé & Robinson, 2017; Crombé *et al.*, 2018). These analysis remain essential even if no new sites can be detected, as they will provide important environmental information that allow for an explanation of the unattractiveness of the Scheldt valley for Late Glacial hunter-gatherers.

## 2.2. Fieldwork

Until now, little is known about the age and formation of inland dunes along the floodplains of the Scheldt and its tributaries. Moreover, many of these dunes have been (partially) leveled by later agricultural activities and construction works. Nevertheless, still a larger number of them remain, in particular in the Lower Scheldt valley and Lower Lys valley (Heyse, 1984; Bogemans & Vandenberghe, 2011). The location of these remaining dunes or sandy elevations in and around the alluvial plain of the Scheldt river and its tributaries can be tracked by studying digital elevation models (DEM's) that reflect the current topography, in combination with digital soil, geological and historical maps. These data are further combined with information from previously performed corings in the study area that are registered in the *Databank Ondergrond Vlaanderen (DOV)*, toponymical

study, and former archaeological, pedological and geomorphological works. After localization and mapping of the remaining elevated dune formations, a representative selection for the geoarchaeological fieldwork is made considering feasibility, accessibility and representation of different areas and geomorphological conditions in the Scheldt basin. The following geoarchaeological fieldwork aims at revealing the age and time span of the dune formation and identifying the nature, morphology and lithostratigraphy of the sediments. Secondly, it gives a better insight into the geological and geomorphological structures, possible soil forming processes, and the preservation state of the landforms.

In the first year of this project, a total ten dunes have been selected and investigated with augering surveys, mechanical corings and test pits (Fig. 2, Tab. 1). Two dunes are located along the Scheldt (“Warandeduinen” in Wetteren and “Vinkenberg” in Berlare), four along the Durme (“Kattenberg” and “Molsbergen” in Lokeren, “Boschwyk” in Daknam and “Ten Ryen” in Waasmunster) and four along the Lys (“Molenberg”, “Wandelbos”, “Bogaertstraat” in Sint-Martens-Latem, “Stadsbos” in Deinze). On a selection of the dunes dating back to the Younger Dryas, archaeological augering surveys will be performed to detect possible Late Glacial (Final Palaeolithic) sites inside these dunes. This type of survey has already been conducted on a previously dated dune in Uitbergen (case study 11 in Tab. 1) of which the preliminary results will be presented below.

### 3. Archaeological augering survey on an inland dune in Uitbergen: preliminary results

#### 3.1. Site and previous research

The inland dune in Uitbergen is situated along the river Scheldt and within the controlled flood basin *Wijmeers* (part of the *Kalkense Meersen*). In contrary to the other case studies, the site has already been dated with OSL in the past, in context of the installation of the flood basin. Five OSL samples were collected at different levels in a test pit of 280 cm deep in the center of the dune. The resulting OSL dates attributed the formation of the dune at least partially to the Younger Dryas, the last cold phase of the Pleistocene when climatic cooling, increased aridity and following decline in vegetation induced aeolian reworking

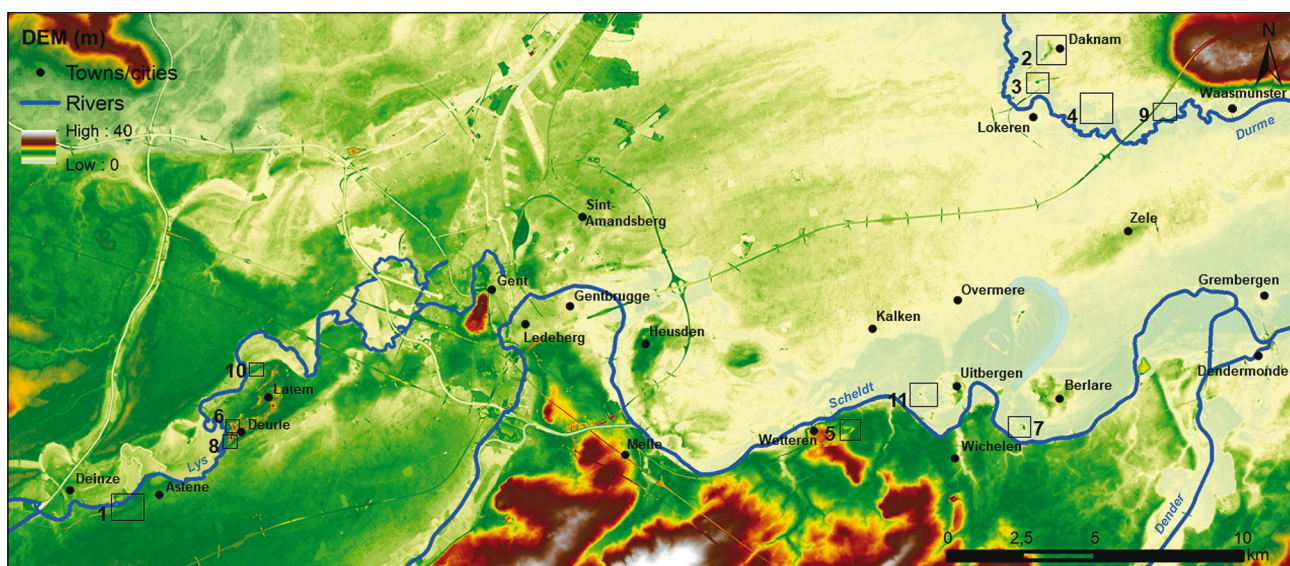


Fig. 2 – DEM with the locations of the dunes (black frames) in which fieldwork has been performed. The numbers of the fieldwork locations correlate with the numbers in Tab. 1 (AGIV, 2014).

Nr	Projectcode	City/Town	Street name	Name of Location	Type of fieldwork
1	DEST	Deinze	Parijsestraat 34	Stadsbos	Hand augering and test pit
2	LODA	Lokeren	Daknammolenstraat	Boschwyck	Hand augering and mechanical coring
3	LOKA	Lokeren	Uebergdreef	Kattenberg	Hand augering and mechanical coring
4	LOWA	Lokeren	Waasmunsterbaan 102	Molsbergen (miller's house)	Hand augering
5	WEWA	Wetteren	Warandestraat	Warandeduinen	Hand augering and test pits
6	DEMO	Deurle	Muldersdreef	Molenberg	Hand augering
7	BEVI	Berlare	Bergstraat	Vinkenberg / Hoge Berg	Hand augering and test pits
8	DEWA	Deurle	Pontstraat	Wandelbos (Leiepark)	Test pits
9	WAPO	Waasmunster	Ten Ryendreef	Ten Rijen / Potpolder IV	Testpit
10	LABOG	Latem	Bogaertstraat 15		Hand augering
11	WIAA	Uitbergen	Grote Kouterstraat	Wijmeers - Aard	Archaeological augering

Tab. 1 – Overview of the fieldwork locations and type of fieldwork performed.

of sediments from dry floodplains and coversands (Derese *et al.*, 2010; Bogemans & Vandenberghe, 2011; Crombé *et al.*, 2012; Bos *et al.*, 2013). This age further implies a high potential for sealed Late Glacial (Final Palaeolithic) sites of which the possible presence has been investigated in this study by an archaeological augering survey.

The specific goals for this archaeological augering survey are to detect possible artefact concentrations that indicate the presence of stone age sites, to identify other elements (besides the OSL dates) regarding the age and time span of the possible archaeological site(s) and to determine the depth of the possible archaeological level(s).

### 3.2. Material and methods

A total of 57 borings were performed within a staggered (isosceles triangular) grid of 10 x 12 m, using an Edelman core head of 12 cm to enhance the chance of finding lithic artefacts. In contrast to standard archaeological augering (Crombé & Verhegge, 2015),



Fig. 3 – Picture from the forested dune in Uitbergen, taken from the dike of the controlled flood basin “Wijmeers”.

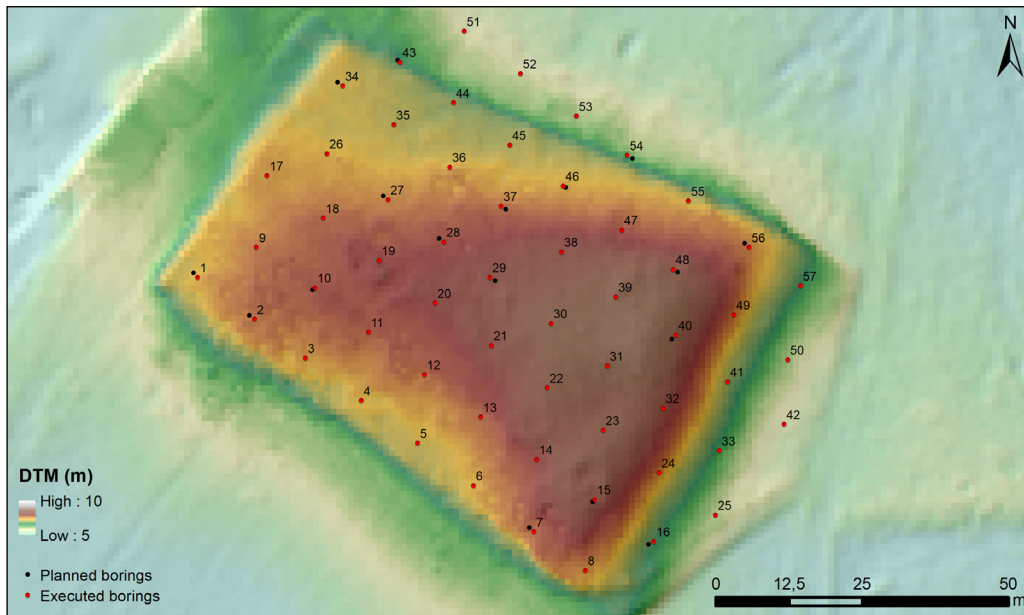


Fig. 4 – DEM with location of the planned (black) and executed (red) augering locations. If these locations are the same, the black dot of the planned augering is not visible (AGIV, 2014, 2019).

sediment samples were taken in a continuous way and in artificial levels of 50 cm up to a depth of 3 m, covering (almost) the entire depth of the dune. This methodology is highly suitable for the detection of Late Glacial sites since these can be situated at different levels within the dune, as is recently demonstrated at the site of Oudenaarde (Crombé *et al.*, 2018). The sample depth was only reduced if the underlying substrate was reached within the 3 m boring depth. The presence of a forest on the dune forced several borings to be moved 0.5 to 1.5 m from their planned augering location, as is visible on Figure 3 and Figure 4.

In total, 356 sediment samples were taken that were consequently sieved through 1 mm meshes in the search for archaeological (lithic artefacts) and charred botanical remains (charcoal, seeds, fruit remnants). Consequently, the techno-typological and raw material characteristics of the (diagnostic) lithic artefacts were studied by specialists Hans Vandendriessche and dr. Joris Sergant in view of their possible attribution to one of the Late Glacial technocomplexes that recolonized NW Europe (cf. state-of-the-art). The pottery sherds were reviewed by Dimitri Teetaert, who is specialized in Neolithic pottery.

### 3.3. Stratigraphy

As the previous research by Bogemans and Vandenberghe (2011) already stated, the study area consists of an accumulation of aeolian deposits formed during the Younger Dryas. The upper part comprises a homogeneous sand deposit, followed by an alternation of sand deposits and thin, finer grained (loamy) laminae in the lower part (Bogemans & Vandenberghe, 2011). In this archaeological augering survey, however, more details about the soil development and formation of the dune could be obtained. The augering survey revealed that in the highest part of the dune, no soil development (A-C profile) was present, in contrary to several borings on the slopes of the dune (see Fig. 5). This soil development appears underneath colluvium that was most likely eroded from the top of the dune. These findings suggest that the sand dune (grain size sand: 150-210  $\mu\text{m}$ ) was originally higher and steeper than it is nowadays. Besides erosion (by wind activity, creep, agricultural activities and so on), bioturbation, especially by roots and rabbit holes, also caused some disturbance of the soil structure.

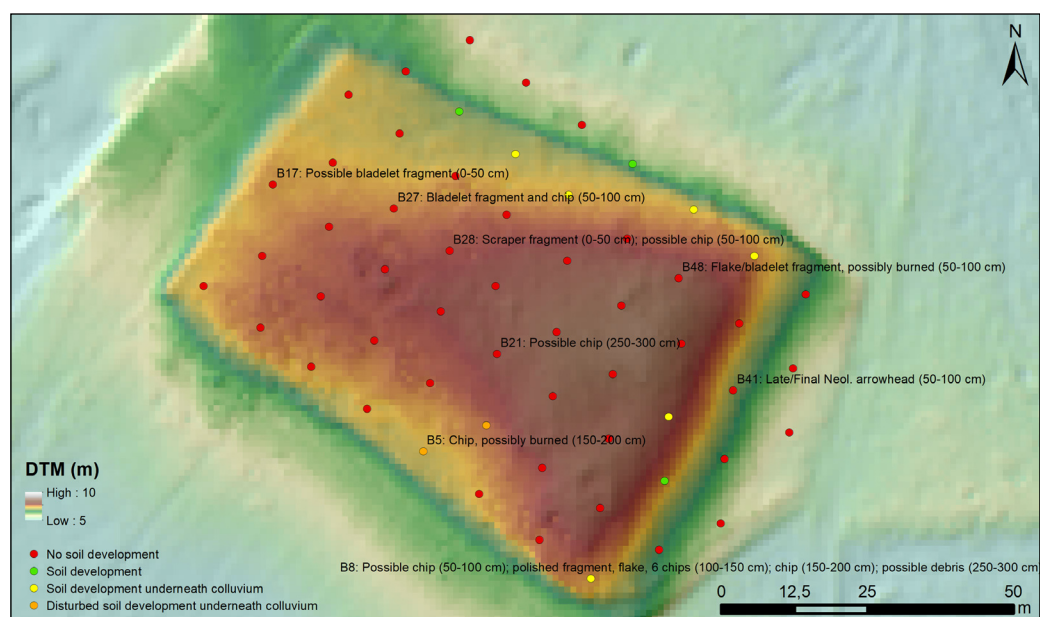


Fig. 5 – DEM with visualisation of the possible soil development in the borings (colours of augering locations) and an overview of the found lithic artefacts and their depth inside these borings (AGIV, 2014, 2019).

The highest part of the dune is about 8.7 m TAW. Along the slopes of the dune, especially in the lower parts, the underlying fluvial sediments were reached between ca. 4 and 4.5 m TAW. The strong lateral and vertical variation in texture of these fluvial deposits suggest a deposition by a braided river system in the Weichselian.

### 3.4. Prehistoric finds

A total of fifteen lithic artefacts and five possible lithic artefacts were identified in the sieved sediment samples comprising nine chips, three possible chips, one bladelet fragment, one possible bladelet fragment, one flake or bladelet fragment, one flake, one scraper fragment, one arrowhead, one polished fragment and one possible debris fragment (Tab. 2). Two of these artefacts are diagnostic, namely an arrowhead that can be attributed to the

Boring	Sample nr	Depth (cm)	Lithic artefacts	Soil development
B5	M171	150-200	Chip (possibly burned)	Disturbed soil development underneath colluvium
B8	M308	50-100	Possible chip	Soil development underneath colluvium
B8	M309	100-150	Flake of polished axe/chisel, flake and 6 chips	Soil development underneath colluvium
B8	M310	150-200	Chip	Soil development underneath colluvium
B8	M312	250-300	Possible debris fragment	Soil development underneath colluvium
B17	M253	0-50	Possible bladelet fragment	No soil development
B21	M126	250-300	Possible chip	No soil development
B27	M195	50-100	Bladelet fragment and chip	No soil development
B28	M212	0-50	Scraper fragment	No soil development
B28	M213	50-100	Possible chip	No soil development
B41	M100	50-100	Late/Final Neolithic arrowhead	No soil development
B48	M30	50-100	Flake or bladelet fragment (possibly burned)	No soil development

Tab. 2 – List with the augered (possible) lithic artefacts and their depth.

Late or Final Neolithic (50-100 cm depth) and a fragment of a polished axe or chisel (100-150 cm depth) that was made between the Middle Neolithic and Early Bronze Age. Furthermore, the flint type in which the scraper fragment (0-50 cm depth) was made suggests a Neolithic date as well.

Disregarding the possible artefacts, most lithic artefacts were found between 50-100 cm depth, including the diagnostic finds. This suggests the presence of an archaeological level. Two chips, however, were found at a depth of 150 to 200 cm. Although this may appear to be a second and older archaeological level considering the OSL dating of the dune, it is most likely not the case. The borings in which these chips were found, were located on the slopes of the dune where about 130 cm of colluvium in boring 8 and 145 cm in boring 5 was present on top of the old surface in which a soil had been developed (Fig. 5). This soil development suggests a deposition of the colluvial material in more recent times, which means that the thickness of this colluvium must be excluded when considering archaeological levels and depths. The true level in which the two chips were found is thus similar to the upper archaeological level that can be attributed to the Neolithic. A sketch is visible in Figure 6 to clarify this. In boring 8, some lithic artefacts were also noted in the colluvial part. This material is most likely eroded from the top of the dune and is not *in situ*.

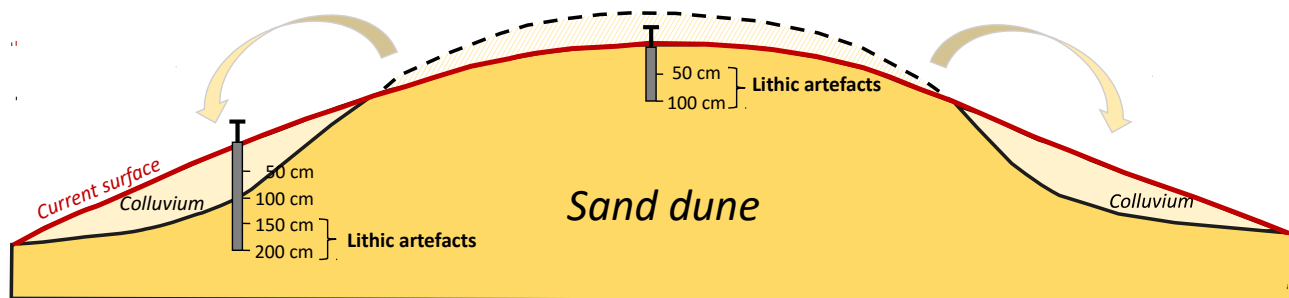


Fig. 6 – Sketch of the erosion processes of the dune in Uitbergen and the depths of the lithic artefacts found in the archaeological augering survey.

### 3.5. Other finds

Other finds consist of pottery sherds, bone fragments and charcoal. Charcoal was found throughout the borings on a regular basis, especially in the upper meter and in the colluvial material. One charcoal fragment was noted in the covered soil of boring 5, in the same level that the chip was found (depth 150-200).

In 18 sieved sediment samples, pottery sherds were found. These sherds comprise both handmade and wheel-thrown pottery. Most handmade pottery sherds have a fine grog temper, reduced core and oxidized surface (classified as type 1, see Tab. 3) that is sometimes burnished or polished (type 2). However, also one body fragment of handmade pottery with a fine to medium-sized grog temper and oxidized firing occurred (type 3) and one handmade sherd that contained a white inclusion (probably shell) and a reduced core with oxidized surface (type 4). The handmade pottery with fine grog temper, reduced core and oxidized surface (types 1 & 2) can probably be attributed to the Neolithic period, although a younger age up to the Roman period cannot be excluded. This type of pottery occurs over the entire depth of the dune, but is mostly concentrated in the upper 150 cm. The sherds appearing deeper inside the dune can be partially related to the presence of more recent colluvial material (in case



Boring	Sample nr	Depth (cm)	Handmade pottery				Wheel-thrown pottery			Extra information
			Type 1	Type 2	Type 3	Type 4	Type 5	Type 6	Type 7	
B1	M230	0-50	X							
B27	M194	0-50	X							
B8	M308	50-100	X							
B51	M15	50-100	X							
B19	M221	100-150	X							
B5	M171	150-200	X							
B8	M310	150-200	X							
B8	M311	200-250	X							Weathered surface
B19	M224	250-300	X							
B17	M255	100-125		X	X					Type 2: 1 rim, 6 body fragments; Type 3: 1 body fragment
B17	M256	125-150		X						1 rim and 3 body fragments of same pottery as M255
B36	M203	100-150		X						1 rim and 2 body fragments
B36	M204	150-200		X						
B52	M34	50-100				X				
B45	M114	0-50					X			
B36	M201	0-50						X		
B35	M78	50-100						X		
B48	M22	0-50							X	

Tab. 3 – List of the pottery types found in the sediment samples of the archaeological augering survey (description of the types: see text).

of boring 8) that covered the original surface level, but it may also be due to vertical migration from biological activity. Furthermore, a contamination related to augering in very dry sediment cannot be excluded.

The wheel-thrown pottery has only been found in the upper meter of the dune. One wheel-thrown sherd can probably be attributed to the Roman period (type 5) and one sherd is certainly Roman (type 6). Finally, one rim of varnished Hees 2 or related ware with a corniche rim could be identified that originates from Cologne, 2<sup>nd</sup> century AD (type 7) (identified by prof. dr. Wim De Clercq, Ghent University; Fig. 7). An overview of these different types of pottery with their location and depth are presented in Tab. 3. In other sediment samples pottery gravel was sometimes present and brick fragments often appeared in the upper layers.

In contrary to the lithic artefacts, that seem to be scattered across the whole dune, these handmade sherds mainly appear on the northwestern side of the dune, nearby two depressions that were excavated by the archaeological company GATE bvba in 2012 (work pits 3 and 4). Inside these depressions, many Final Neolithic and Early Mesolithic lithic artefacts and Final Neolithic ceramics were found. The location of these work pits can still be seen on the DEM (Messiaen *et al.*, in preparation; Fig. 8).

Finally, three bone fragments, of which one was burned (boring 17, 100-125 cm depth), were perceived. There was however no connection to other artefacts or ecofacts.

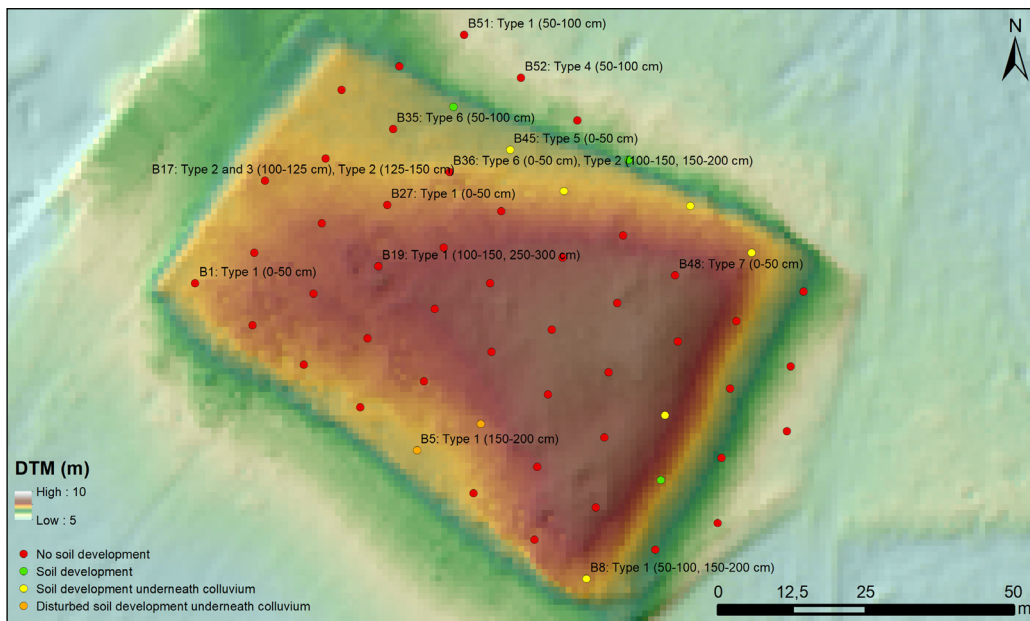


Fig. 7 – DEM with visualisation of the possible soil development in the borings (colours of augering locations) and an overview of the found pottery sherds and their depth inside these borings (AGIV, 2014, 2019).



Fig. 8 – DEM of the dune in Uitbergen with localization of the study area and work pits 3 and 4 from the excavations of GATE bvba (AGIV, 2014, 2019).

#### 4. Conclusions

In the first year of this research project, geoarchaeological fieldwork on ten dunes along the Scheldt and tributaries Lys and Durme was performed to study the stratigraphy of the dunes and obtain samples for OSL dating, granulometry and soil micromorphology, of which the results will be available in winter 2020-2021. Additionally, an archaeological augering survey was performed on the Younger Dryas dune in Uitbergen to detect the possible presence of a Late Glacial (Final Palaeolithic) site since this type of elevated,

dry locations in the vicinity of the Scheldt must have been a preferred settlement environment for hunter-gatherers in that time. For this, sediment samples over the entire depth of the dune (3 m depth) have been augered, sieved and investigated. The preliminary results of this augering survey show the presence of a Neolithic archaeological level at a depth of 50-100 cm on top of the dune and between 150-200 cm on the slopes of the dunes due to colluvium. No older archaeological level could be detected in this dune. In the following year, this methodology will be further applied on other inland dunes attributed to the Younger Dryas in order to further investigate the hypothesis of a possible population shift in NW Belgium from the inland lakes in the warm Allerød to the Scheldt river banks at the onset of the extreme cold Younger Dryas and the possible impact of taphonomic factors on the current site distribution.

#### Acknowledgements

I would like to express my sincere gratitude to the Research Foundation Flanders (FWO) for funding this research project. I am also profoundly grateful to my supervisor prof. dr. Philippe Crombé and co-supervisors prof. dr. Johan De Grave, prof. dr. Peter Vandenabeele and dr. Dimitri Vandenberghe for their support, guidance and valuable contributions to this project. Special thanks to prof. dr. Philippe Crombé for proofreading this paper.

Furthermore, the work performed this year would not have been possible without the help and support of many people. First, I would like to express my gratitude to the owners, researchers, organisations (Natuurpunt, Erfgoed Deurle, Dunsa), agencies (Agentschap Natuur en Bos, Agentschap Onroerend Erfgoed, Dienst Erfgoed - Provincie Oost-Vlaanderen, De Vlaamse Waterweg nv) and towns/cities (Sint-Martens-Latem, Lokeren, Deinze) that arranged and/or granted access to the studied terrains. I would also like to thank the archaeological companies that informed me when their project area might be of interest for this research (RAAP België, ADEDE, Ruben Willaert, Hembyse, ABO nv). A round of applause is in order to the colleagues, archaeology students and family for their valuable help with the fieldwork and to the MinPet lab and the RCMG lab of the Department of Geology (Ghent University) for their assistance and help with the lab work. Special thanks to prof. dr. Morgan De Dapper for his support and guidance on the field and to colleagues from the departments of Archaeology, Environment (ORBit group), Geology (MinPet lab) and Geography at Ghent University and GATE Archaeology for lending the fieldwork equipment. For the material study, I would like to thank colleagues Hans Vandendriessche, dr. Joris Sergant, Dimitri Teetaert and prof. dr. Wim De Clercq.

At last, I would like to call upon the willingness of my fellow archaeologists not to hesitate to contact me in case their project area might be located on an inland dune along the Scheldt or its tributaries. Many thanks in advance.

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### *Abstract*

The Late Glacial (c. 12,700-9700 cal BC) is the final stage of the Pleistocene before the current warm Holocene and comprises several warm (e. g. Allerød) and cold (e. g. Younger Dryas) stages. During the Late Glacial, NW Europe was gradually recolonized by Final Palaeolithic hunter-gatherers belonging to different successive traditions. These groups preferably settled in sheltered environments (e. g. caves and rock shelters) and along river valleys such as the Seine, the Somme, the Rhine and the Meuse. However, remains of these Late Glacial settlers are scarce within the Scheldt valley of NW Belgium. Most known sites are situated in the dry sandy interior along the banks of former lakes and ponds. The current project aims at investigating whether this deviating settlement pattern in the Scheldt basin is the result of a bias caused by taphonomic factors, such as later depositions, or represents a prehistoric reality. In the latter case, arguments for the scarcity of Late Glacial sites in the Scheldt valley are searched for. A second aim is to determine the impact of environmental and climatic forcing on human occupation and migration in the Late Glacial across this area. These research questions are addressed by means of a multidisciplinary investigation of sand dunes situated along the floodplain of the Scheldt and its tributaries, representing dry locations in an overall wet environment suitable for human occupation. This paper gives an overview of the investigated sand dunes during the fieldwork campaign of 2020 and presents the preliminary results of an archaeological augering survey on an inland dune in Uitbergen.

*Keywords:* Scheldt river, sand dune, Late Glacial, Younger Dryas, Final Palaeolithic, Neolithic, prov. East Flanders (BE), archaeological augering survey.

### *Samenvatting*

Het Laat-Glaciaal (c. 12700-9700 cal BC) is de laatste fase van het Pleistoceen voor de start van het huidige Holoceen en bestaat uit verschillende warme (vb. Allerød) en koude (vb. Jonge Dryas) stadia. Tijdens het Laat-Glaciaal werd NW Europa opnieuw gekoloniseerd door Finaal-Paleolithische jager-verzamelaars die tot verscheidene opeenvolgende tradities behoorden. Deze groepen vestigden zich voornamelijk in beschutte omgevingen zoals grotten en langs riviervalleien zoals de Seine, de Somme, de Rijn en de Maas. Het is dan ook opmerkelijk dat restanten van deze Late Glaciale groepen zeldzaam zijn in de Scheldevallei. De meeste gekende sites zijn gesitueerd in droog Zandig Vlaanderen langs voormalige meren en plassen. Het doel van dit project is om te onderzoeken of dit afwijkend nederzettingpatroon in het Scheldebekken het resultaat is van tafonomische factoren zoals latere deposities, of een historische realiteit voorstelt. In het laatste geval worden de redenen voor de schaarsheid van Laat Glaciale sites in de Scheldevallei onderzocht. Een tweede doel is om de impact van milieu- en klimaatsveranderingen op menselijke bewoning en migratie tijdens het Laat-Glaciaal in deze regio te achterhalen. Om deze onderzoeksvragen te beantwoorden wordt een multidisciplinair onderzoek op duinen langs de overstromingsvlakte van de Schelde en haar zijrivieren uitgevoerd aangezien deze droge locaties in een natte omgeving vertegenwoordigden die geschikt waren voor menselijke bewoning. Dit artikel geeft een overzicht van de onderzochte duinen tijdens de veldwerkcampagne in 2020 en presenteert de voorlopige resultaten van het archeologisch booronderzoek op een duin in Uitbergen.

*Trefwoorden:* Schelde, duin, Laat-Glaciaal, Jonge Dryas, Finaal-Paleolithicum, Neolithicum, provincie Oost-Vlaanderen (BE), archeologisch booronderzoek.

Poosum PINCÉ  
Research Group Prehistory  
Research Group Archaeometry and Natural Sciences  
Department of Archaeology  
Ghent University  
Sint-Pietersnieuwstraat, 35  
BE – 9000 Ghent  
[poosum.pince@ugent.be](mailto:poosum.pince@ugent.be)  
[poosumpince@gmail.com](mailto:poosumpince@gmail.com)