

Mapping the *civitas Tungrorum*

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Introduction

The project, ‘*Mapping the civitas Tungrorum*’ is an initiative of the Gallo-Roman museum of Tongeren, in collaboration with the Ghent University. In preparation of a future museological presentation and in order to prepare an up-to-date content it is important to dispose of a basic inventory of sites within the *civitas Tungrorum*. Our purpose is to complete this site-inventory in the future, and this in collaboration with partners who have experience in this matter. In this article, we want to give an overview of the work that has been achieved in this first stage. A derivative of this geodatabase has been developed for a broad public and will be accessible online through the websites of the Gallo-Roman museum and the City of Tongeren (Geoloket ‘*Gis3700*’).

The overall aim of the project ‘*Mapping the civitas Tungrorum*’ is thus to map and analyze the human occupation and land use in the territory of the Roman administrative district of the *civitas Tungrorum* (fig. 1) between the end of the Late Iron Age (LTD, *ca.* 100 BC) and the end of Early Middle Ages (*ca.* AD 750).

In the first step of this project, a geodatabase system¹ was developed containing the archaeological site-inventory in combination with relevant digital landscape layers within the boundaries of the Roman *civitas Tungrorum*. As stated, its primary goal is to serve as a platform to facilitate future museum projects. As a secondary objective, the geodatabase can also be used for research and communication purposes to both specialists and the general public. At this point, the first version of the *civitas Tungrorum Geodatabase* (CT-GeoDB) does not yet represent an exhaustive overview of all archaeological

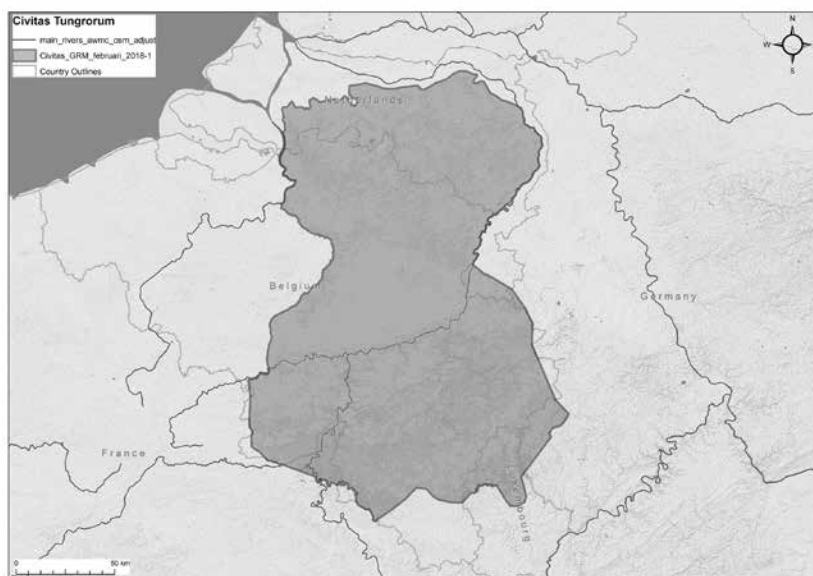


Fig. 1. Outline of the *civitas Tungrorum*.

sites within the predefined geographical and chronological borders, but it is a first overview of information available through synthesis literature, public databases and previous research projects². The structure of the geodatabase and the site-inventory have been developed as a flexible system to which information can easily be added in order to complete current regional or periodical oversights.

Chronological framework and geographical extent

Given that the *civitas Tungrorum* was a Roman administrative unit, the initial focus has been placed on sites from the Roman period. Additionally, in order to frame the Roman period within the demographic dynamics of the region, a number of sites from the preceding phase, namely the (final) Late Iron Age and the successive period of the Early Middle Ages were collected. The current site-inventory ranges between *ca.* 100 BC and AD 750, although it has to be stressed that in this stage sites

¹ In ESRI ArcGIS 10.4.

² In the future, we would welcome collaborations with outside parties to provide additional information that is currently lacking or to correct known errors.

from the final Late Iron Age and the Early Medieval phase have only been integrated on a minimal scale and (for now) only serve as direct comparisons with the Roman occupation and landscape-use.

The exact extent of the *civitas Tungrorum* territory is still a theme on which there is a lot of discussion.³ The version used in this project tried to represent a more or less 'maximal' area based on literature research and some natural landscape borders (e.g. the sandy soils in the northern part). By means of working within the assumed 'maximal' area, we try to incorporate all potentially relevant sites.⁴ The *civitas* territory largely covers eastern Belgium, parts of the southeastern Netherlands and northern Luxembourg, as well as small parts of western Germany and northern France (fig. 2).

Recorded data and sources

The project consists of two main datasets⁵: (1) the archaeological site-inventory and (2) the landscape layers. First, the archaeological dataset has been compiled mainly from literature⁶ and previous research projects, specifically the UGent-GRM Tongeren project on mapping Roman sites in the Meuse-Demer-Scheldt region⁷, K. Jeneson's study of the *villa* landscape⁸, and V. Van Thienen's inventory of the Late Roman period⁹. Additional information was extracted from the public archaeological databases for Flanders (Centrale Archeologische Inventaris) and the Netherlands (Archis), as well as from existing open source projects such as the Archaeological Atlas of Antiquity.

Second, at this point, the collected landscape information includes the borders of the *civitas Tungrorum*, the major Roman Roads, rivers and

streams, a soil association map, a topographical visualization, a geological map, and modern administrative borders for Belgium, the Netherlands, France, Germany and Luxembourg.

CT-GeoDB structure

The structure of the CT-GeoDB consists of three main layers. First, there is the basic information about the site-location with unique identifiers, sources and main references. The second layer contains summary data representing the general chronology and content of the site. And the third layer consists of specific data subdivided into various themes. At this point, seven themes have been chosen to record and order the archaeological information:

T1: Habitation

archaeological features related to places where people lived and worked

T2: Burial

archaeological features related to places where people were buried

T3: Infrastructure

archaeological features connected with infrastructure of any character and scale

T4: Military

archaeological features that can be interpreted as military or defensive in nature

T5: Crafts

archaeological features that can be associated with any type of craft production

T6: Sanctuary

archaeological features that can be interpreted as religious, ritual or spiritual

T7: Finds

archaeological finds or features that lack clear contextual information that would allow them to be associated with a particular feature of one of the previous themes

Within these themes, the archaeological information is again subdivided into categories and subcategories in order to describe the encountered archaeological features at a specific site. Each category has its own chronological field, so that a differentiation can be made between the overall chronology of the site-location and the various features recorded at that specific site. Furthermore, the subdivision of archaeological information into themes and multiple categories with specific chronologies, allows a differentiated recording and representation of archaeological

³ See for instance RAEPSAET-CHARLIER 1994.

⁴ The Gallo-Roman museum is currently working on an inquiry about the location of the borders of the *civitas Tungrorum*. This work is executed by Stéphanie Derwael. The final results will be presented on one of the future editions of Romeinendag / Journée d'Archéologie Romaine.

⁵ An overview of the digital sources that provided archaeological or landscape information can be found in the reference section of this article.

⁶ In this first stage, mainly synthesis studies, e.g. BRULET, 2008; COQUELET et al. 2014a,b; MARTIN 2017; MASSART 2015; ROYMANS & DERKS 2011; ROYMANS et al. 2015.

⁷ CREEMERS et al. 2015, 33-44.

⁸ JENESON 2011, 259-274; JENESON 2013.

⁹ VAN THIENEN 2016.

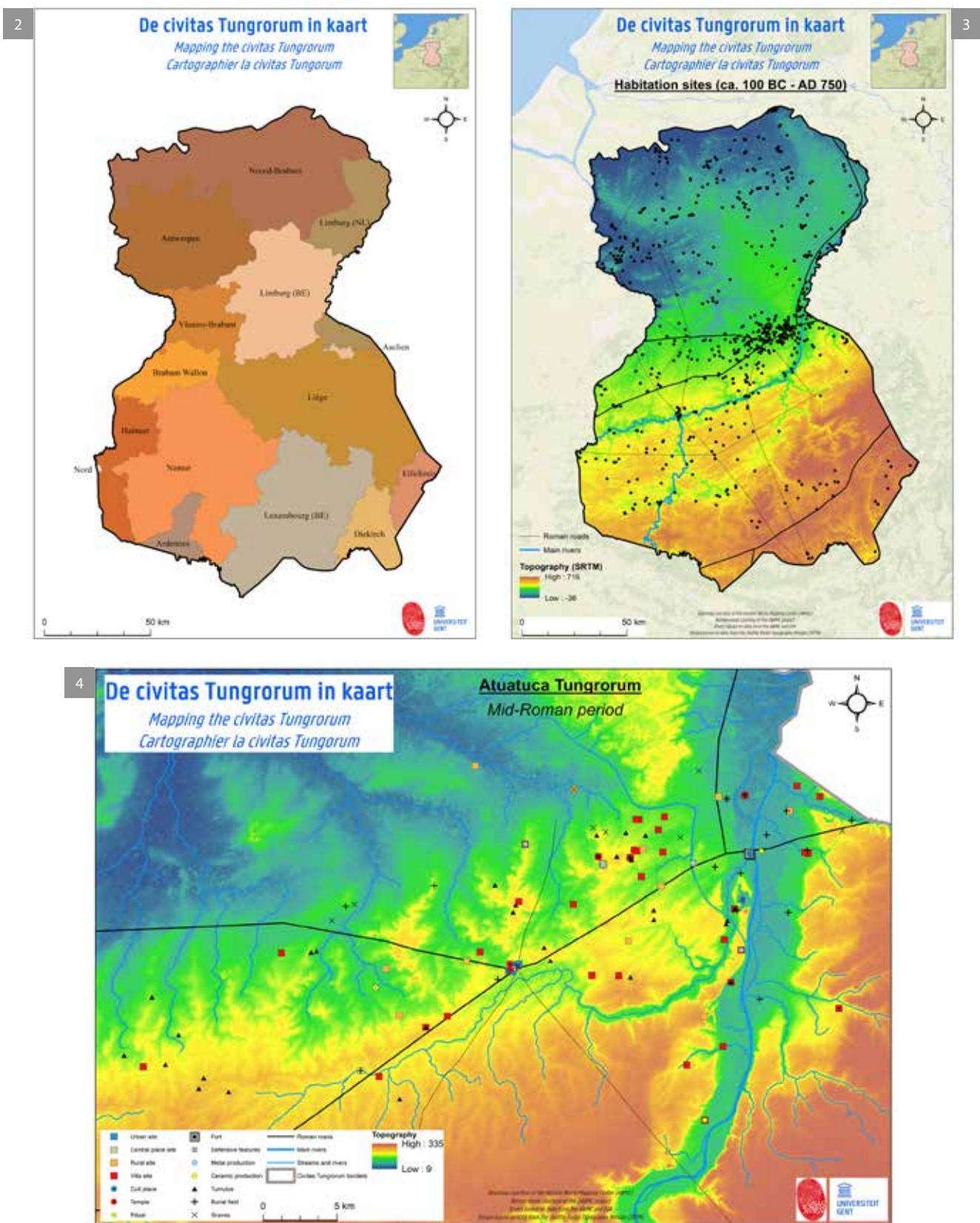


Fig. 2. The extent of modern-day provinces within the *civitas Tungrorum*.

Fig. 3. Distribution of all habitation sites (theme 1) currently in the site-inventory, including topography, major rivers and Roman roads.

Fig. 4. Micro-regional map of the area around Tongeren in the Mid-Roman period, with topography, rivers and major Roman roads.

features. Consequently, the information recorded and visualized in the CT-GeoDB is a reflection of the current state of research, as it was not the intention of this project to review, correct or homogenize the collected information. Finally, new themes and categories can be developed in the future in order to expand the chronological or topical focus of the geodatabase.

Visualizing archaeological information in the *civitas Tungrorum*

The first version of the CT-GeoDB recorded *ca.* 1700 sites within the territory of the *civitas Tungrorum*, mainly consisting of Roman habitation and burial sites, and a smaller amount of Late Iron Age (only 1st century BC) and Early Medieval sites.

At this point, the system allows the visualization of general distribution patterns (fig. 3) of the recorded data related to the themes mentioned above, e.g. *vici*, *villa* sites, rural sites, burial fields, *tumuli*, temples, etc. To a certain degree, it is also possible to chronologically distinguish the distribution patterns, depending on what chronological resolution was available in the sources to date the sites. These distributions can be paired with one or more landscape layers to stress certain relationships between the type of occupation and landscape, e.g. the distribution of *villae* on the loamy soils vs. the distribution of indigenous farmsteads on the sandy soils in the *civitas*, or the alignment of (rural) agglomerations along rivers and roads, or the placement of fortifications based on topography. However, only general overviews are possible on the level of the *civitas*, with only a minimal chronological distinction based on the general period, e.g. Early Roman, Mid-Roman or Late Roman.

A more detailed exploration of the data can be achieved by either exploring a specific theme in GIS (where information becomes available by clicking on the sites), by focusing on a micro-region in GIS (where all themes can be combined to provide an overview of the archaeological landscape, see fig. 4), or by querying the site-inventory and constructing case studies for specific questions pertaining Roman population dynamics. While these approaches do allow a more comprehensive evaluation of the collected sites, it is limited to a specific geographical, chronological and/or topical framework. Furthermore, the main goal of the CT-GeoDB was to map sites rather than individual finds, meaning that artefact distribution patterns cannot be studied through it. Similarly, the

landscape layers incorporated in GIS are meant as landscape-backgrounds and, for now, several are not suited to go beyond simple correlations.

The current collection of sites (*ca.* 1700) in the first version of the CT-GeoDB is a good start, but is not yet complete. Although this version is already useful as a starting point for students, scientists and a broader public/non-specialists, it is only a first step towards creating a resource for future archaeological studies and public outreach through exhibitions and digital platforms. Further literature studies and collaborations with various institutes are needed in the future to fill in the regional and chronological gaps. It is our purpose to initiate new projects in order to further complete this inventory.

Short list of references

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RAEPSAET-CHARLIER M.-T., 1994. La cit  des Tongres sous le Haut-Empire: probl mes de g ographie historique, *Bonner Jahrb cher*, 194, p. 43-59.

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ROYMANS N., DERKS T. & HIDDINK H., 2015. *The Roman Villa of Hoogeloon and the Archaeology of the Periphery*, Amsterdam (Amsterdam Archaeological Studies, 22).

VAN THIENEN V., 2016. *Abandoned, neglected and revived: aspects of Late Roman society in Northern Gaul*, Unpublished PhD dissertation, Universiteit Gent, Gent.

List of digital sources

Centrale Archeologische Inventaris: part of the archaeological information is based on data deriving from the CAI Synthesis Database (version April 2018), made available by the Flanders Heritage Agency through the CAI portal (cai.erfgoed.net).

Archis: part of the archaeological information is based on data deriving from Archis (v3.6), made available by the Rijksdienst voor het Cultureel Erfgoed through the Archis portal (archis.cultureelerfgoed.nl).

Archaeological Atlas of Antiquity: Available through the webpage: vici.org

Civitas Tungrorum: the determination of the territory of the *civitas Tungrorum* is based on an investigation by the GRM Tongeren (S. Derwael cf. supra), created during the joint GRM Tongeren-UGent project: ‘*Mapping the civitas Tungrorum*’ (version 1, February 2018).

Roman roads: the Roman roads have been made accessible by the DARMC Roman Road Network (version 2008).

Rivers and streams: the rivers and streams are based on data made accessible by the Ancient World Mapping Center (AWMC) and by the European Environment Agency (EEA) (Data Prod-ID: DAT-120-en, Created 13 Jun 2012, Published 13 Jun 2012, Last modified 04 Jan 2018).

Soil: the soil association map is based on data from the Soil Geographical Database of Eurasia (SGDBE) (scale 1:1,000,000; version 4 beta, 25/09/2001).

Topography: the topographical terrain data (SRTM) has been made available by NASA and the US government (downloaded on 24/11/2017, 1 arc-second (30m) resolution).

Geology: the European geological data has been created by BRGM / GISEurope (France) and made available by OneGeology (scale 1:1.5M, version 26/10/2015). The geological map of Belgium has been created for OneGeology-Europe by P.-Y. Declercq & L. Dejonghe (1:250 000) of the Geological Survey of Belgium.

Belgian borders: the Belgian administrative data has been made available by the Atlas van België, provided by ‘Atlas commissie/commission’: created by E. Van Hecke, Katholieke Universiteit Leuven and Unit  de G omatique, Universit  de Li ge.

Dutch borders: the Dutch administrative data has been made available by the BRK Bestuurlijke grenzen van Kadaster through ‘Imergis’, created by Jan-Willem van Aalst, CC-BY licence.

French borders: the French administrative data has been made available by OpenStreetMap and GEOFLA through the online portals ‘cadastre.gouv.fr’ and ‘data.gouv.fr’.

German borders: the German administrative data has been made available by the ‘Bundesamt f r Kartographie und Geod sue (BKG)’ (GeoBasis-DE / BKG 2013, 1:250 000, stand 01.01.2018) through <http://www.bkg.bund.de>

Luxembourg borders: the Luxembourg administrative data has been made available by La plate-forme de donn es luxembourgeoise through the online portal ‘data.public.lu’.