

Protected by shooting at it – the *Öde Kloster* and an associated Roman settlement within the military training area Bruckneudorf, Austria

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Abstract

The archaeological prospection focused on a multiphase fortified settlement. It was conducted as an integrated survey using airborne laserscanning (ALS) data, aerial photography, magnetics and GPR. The results show among other things that restricted military areas provide outstanding conditions for the preservation of archaeological sites.

Keywords

aerial photography; ALS; ground penetrating radar; magnetics; multi-method

Introduction

The so-called *Öde Kloster* is a long known archaeological site within the military training area Bruckneudorf. This restricted military area has been established in 1867 and used by the Austrian Armed Forces ever since. So, the site has been protected from intensive agricultural use by ploughing or levelling and thus the massive, fortified structure is still preserved, even though it sometimes was aim of target practices and maltreated by tank driving throughout the last 150 years.

A first archaeological investigation of the *Öde Kloster* took place in 1903 under the direction of Maximilian von Groller-Mildensee (Groller 1905). The *Öde Kloster* is a roughly square complex of about 135 by 165 m, which is enclosed by an early medieval rampart and a ditch (Fig. 1). Inside the complex there are some Roman buildings of different phases which were partly covered by the medieval bank. In the 9th century AD, a probable Carolingian royal court was created with the construction of the ditch and bank, an interpretation that seems uncertain, since Carolingian finds are very poor and ambiguous. The build-

ings in the southern part of the complex are associated with the medieval-monastic use. The only recognizable access to the complex is a gate in the middle of the eastern section of the fortification.

Materials and methods

In summer and winter 2020 and 2021 geophysical measurements were carried out using magnetics and GPR inside and around the *Öde Kloster*. The main aim of these measurements was to examine the area northeast of a shooting range of the military training area for unexploded ordnance in the ground. The survey was additionally carried out using orthophotos and airborne laserscanning (ALS) data provided by the Austrian Federal Office of Metrology and Surveying. The ALS data have been processed using the Relief Visualization Toolbox (RVT) (Zakšek et al. 2011; Kokalj et al. 2019). A motorized measurement system with eight FEREX CON650 probes in a line of 25

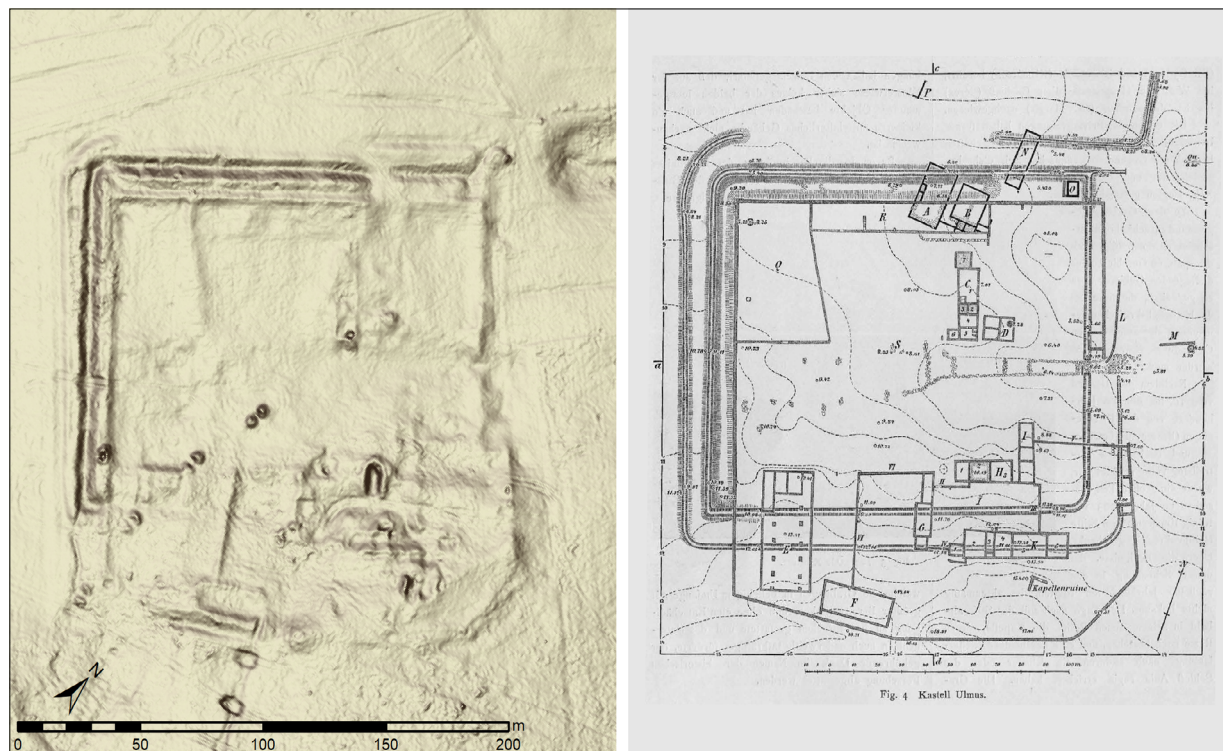


Fig. 1: The ALS data of the *Öde Kloster* complex (left, data provided by INSPIRE BEV) and the excavation map of Groller 1905 (right).

cm was used for the magnetic surveys. The GPR data were collected using a Sensors & Software SPIDAR multichannel system with six 500 MHz antenna pairs with a line spacing of 25 cm, and a Malå MIRA multichannel system with 16 channels of 400 MHz antennas with 8 cm line spacing.

The geophysical data have been processed using the APSoft software package by ZAMG (Trinks et al. 2018) and the resulting images and data integrated into ArcGIS Pro together with the orthophotos and the ALS data.

The Roman settlement with a potential villa

The newly discovered structures comprise the extensive area of a Roman settlement around a Roman villa, which is located next to a road connecting the south of the Leitha mountains to the Roman town of Carnuntum.

About 200 m northeast of the *Öde Kloster*, where the remains of already known settlement structures could be identified by the survey, a potential main building of a Roman villa, about 15 by 22 m in size, was discovered in the data of the geophysical measurements (Fig. 2). The villa is situated inside of a large, trapezoidal area enclosed by a wall of approximately 140 to 200 by 150 to 180 m. In this enclosed

area are numerous other buildings such as possible residential buildings, farm buildings (both stone and wooden buildings), a drying kiln, a potential bathhouse, and – in the south of the complex – three remarkable buildings, which could probably be addressed as stables. These three buildings have sizes of about 14 to 15 by 24 to 25 m each and, due to their interior layout, allow comparisons with similar buildings for auxiliary troops.

If these three large buildings really are stable buildings, then a function of the settlement as a place of horse breeding might be reasonable. A connection to the Roman army in Carnuntum or perhaps even as a *mansio* (Roman road station) is imaginable. Groller had associated the *Öde Kloster* with the Roman *mansio* of “Ulmo”, but this was denied by later publications. Perhaps the discovery of this new site will bring new momentum to this discussion.

Due to its structure, the newly discovered settlement also has similarities with the rural settlement (*vicus*) of Vienna-Unterlaa (Adler-Wölfl 2015). Wooden and stone buildings were found there, although the wooden buildings are older and were built as early as the 1st century AD. The stone buildings date from the 3rd century and the settlement ends at the beginning of the 5th century AD. The same can be assumed for the settlement at the *Öde Kloster*, which has been

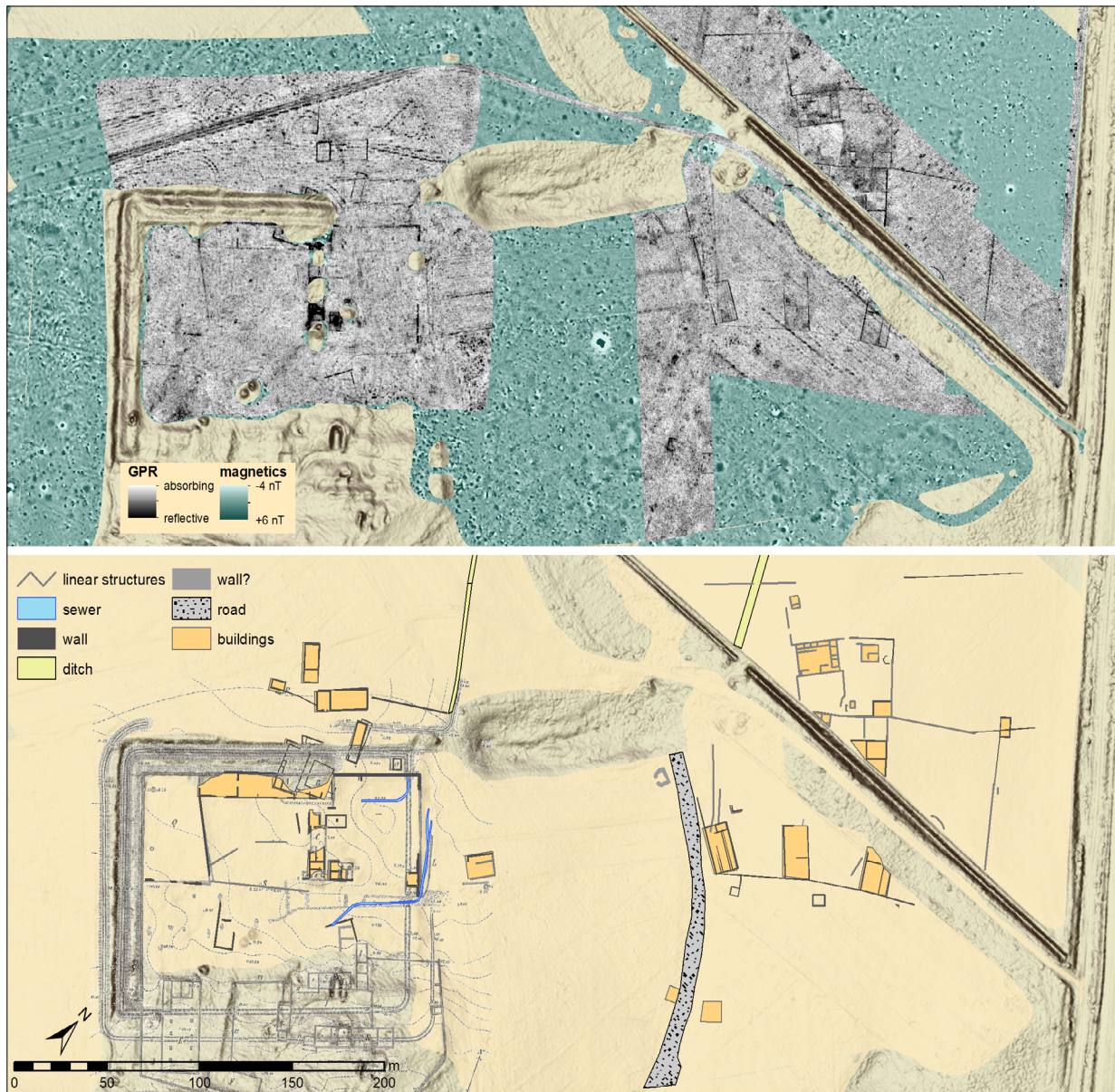


Fig. 2: Magnetics (green scale) and GPR (grey scale) data (above, data provided by INSPIRE BEV) and the interpretative map of the *Öde Kloster* complex 2022 (below, data provided by INSPIRE BEV).

built towards the end of the 1st century AD and certainly extends to the end of the 4th century. During the recovery of unexploded ordnance discovered based on the survey, two coins were found dating to the middle of the 4th century.

Conclusion

In addition to the well-known *Öde Kloster*, geophysical investigations northeast of the complex have discovered

an associated large Roman settlement (*vicus*). A Roman settlement well comparable has been excavated in Vienna-Unterlaa. Based on the types of buildings, it is also likely to have been a place of horse breeding, which could be connected to the needs of the Roman army situated in the near town of Carnuntum. ■■■■

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