

# Early Iron Age urbanism in the south-eastern Alpine region: a case study of the Pungrt hillfort

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**ABSTRACT** – Large-scale excavation at the Iron Age and Roman period Pungrt hillfort (8<sup>th</sup> century BC to 2<sup>nd</sup> century AD) has revealed a distinctly urban character of the settlement in its best-preserved Late Hallstatt phase from the 6<sup>th</sup> to 4<sup>th</sup> centuries BC. This study provides an important contribution to the understanding of the settlement's internal organization and its socio-economic development. By examining the previously unaddressed phenomena of settlement nucleation, population aggregation and urbanism along with the possibility of early-state formation, the paper broadens the narrative on the fundamental social and political development in the south-eastern Alpine region during the Early Iron Age and contributes to the wider field of early urbanism research.

**KEY WORDS** – south-eastern Alpine region; Iron Age; Roman period; hillfort; early urbanism

## **Urbanizem jugovzhodnega alpskega prostora v starejši železni dobi: študijski primer gradišča Pungrt nad Igom**

**IZVLEČEK** – Obsežna arheološka izkopavanja železnodobnega in rimskodobnega gradišča Pungrt (8. st. pr. n. št. do 2. st. n. št.) so v njegovi najbolj ohranjeni fazi, ki jo uvrščamo v mlajše halštatsko obdobje (6.–4. st. pr. n. št.), razkrila izrazit urbani značaj naselbine. Predstavljena raziskava pomembno prispeva ne le k poznavanju notranje organizacije naselbine, temveč tudi k razumevanju njenega družbeno-gospodarskega razvoja. Z naslavljanjem pojavov kot sta centralizacija in urbanizacija, ki sta med drugim privedla tudi do oblikovanja zgodnjih držav, ponovno odpiramo razpravo o družbenem in političnem razvoju jugovzhodnoalpskega prostora v starejši železni dobi in hkrati poskušamo prispevati k razumevanju širše slike pojava zgodnjega urbanizma.

**KLJUČNE BESEDE** – jugovzhodnoalpski prostor; železna doba; rimsko obdobje; gradišče; zgodnji urbanizem

## **Introduction**

European Iron Age hillforts provide information on the emergence and characteristics of Europe's earliest cities and processes of centralization, urbanization,

and even early state formation (e.g., Fernández-Götz 2015; 2018; Fernández-Götz, Krausse 2017a; Bintliff 2018). For more than a hundred years, hillforts in Slo-

venia have been the subject of landscape and settlement studies that revealed their central role within the prehistoric landscapes. However, the lack of sufficient data on their internal organization hindered the study of early urbanism associated with this settlement type. The recent excavations at the Pungrt hillfort – the largest excavations of any hillfort in Slovenia – have not only filled this gap but also revealed a distinctly urban character of the settlement. This groundbreaking discovery opens up the possibility of studying Iron Age urbanism in the south-eastern Alpine region of present-day Slovenia and marks a significant milestone in our understanding of its early settlement history.

To contextualize the discovery, we begin this paper with a brief historical outline of hillfort research in Slovenia, and provide an overview of the site's environmental and archaeological setting. We then present the results of excavations conducted at the site in 2020 and 2021. These are given in a chronological order, from burial activities in the 10<sup>th</sup> century BC to the building of the first rampart in the 8<sup>th</sup> century BC, through its main flourishing phase from the 6<sup>th</sup> to 4<sup>th</sup> century BC, up until its gradual decline in the mid-2<sup>nd</sup> century AD. In addition, the excavation data are complemented by the geophysical survey results of select unexcavated sections of the site.

The main aim of this paper is to examine the results of excavation and geophysical survey from the perspective of early urbanism by discussing urban attributes identified at Pungrt, which range from the site's size and estimated population density through the settlement's defence system, layout and distinct social and economic features. In doing so, we provide important insights into the Early Iron Age urbanism in the south-eastern Alpine region, and suggest that the area would have undergone the processes of centralization, urbanization and perhaps even early state formation concurrently with other regions south of the Alps, such as Etruria and Latium Vetus (*Fulminante 2014; Stoddart 2020*), on which the discussions of early urbanism in Europe have mainly been focused.

### **A brief history of hillfort and early urbanism research in Slovenia**

Hillforts are, due to their monumental remains, one of the most recognizable elements of prehistoric landscapes in Slovenia. The oldest date back to the Late Neolithic and Copper Age, but most were raised in the (Late) Bronze and/or Early Iron Ages (*e.g., Teržan*

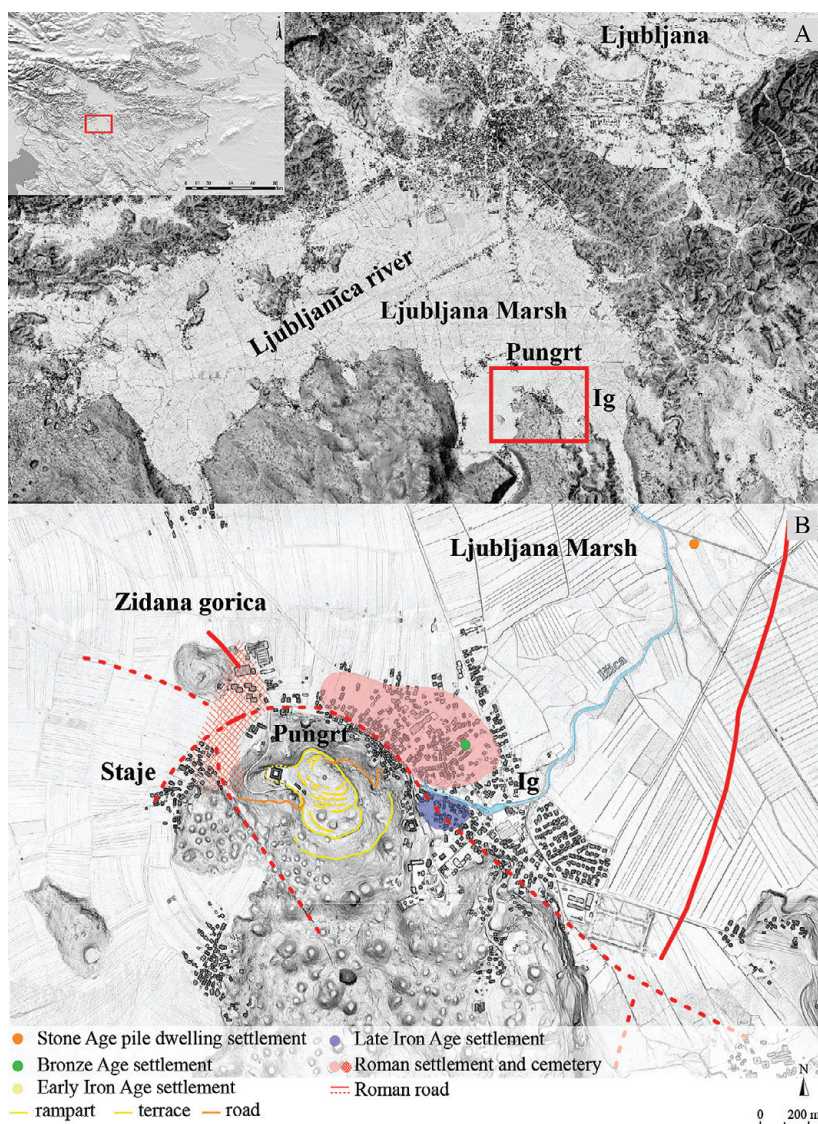
*1990; Dular, Tecco Hvala 2007; Dular 2021*). Although known to intellectuals and antiquarians in the preceding centuries, the first scientific research of hillforts took place in the second half of the 19<sup>th</sup> century. The researchers of the time (*e.g., Carlo Marchesetti*) and the first professional archaeologists (*e.g., Josef Szombathy*) studied them mainly by topographic surveys, mapping their defensive systems and occasionally digging test trenches (*Marchesetti 1903; Szombathy, Tagebuch. Büchel Krain I [Fundaktenarchiv NHMW]*). At that time, major archaeological excavations centred on prehistoric (barrow) cemeteries, which yielded rich finds for then-developing museum collections. The first large-scale excavations of hillforts took place in the first half of the 20<sup>th</sup> century under the leadership of Walter Schmid (*Schmid 1915; 1937; 1939*). However, the majority of them have not yet undergone a comprehensive study or publication (*e.g., Teržan 1990; Dular 2013*). In the years 1967–1974, Stane Gabrovec and co-workers executed a prominent and, for its time, extensive and methodologically advanced excavation at the Iron Age hillfort of Stična. Even though 22 test trenches almost exclusively targeted the remains of defence structures, the results of their campaigns and subsequent studies of the finds marked an important shift in the study of the Iron Age settlements (*Gabrovec 1994; Grahek 2016*). Trial trenching of defence systems was also the approach taken in the subsequent excavations at Libna (*Guštin 1976*), Kučar (*Dular et al. 1995*) and Cvinger near Dolenjske Toplice (*Dular, Križ 2004*). Among these, Kučar near Podzemelj stands out with three excavated Iron Age buildings. Another fundamental study on Iron Age settlements was the result of the extensive survey project conducted across SE Slovenia by Janez Dular and co-workers. Their survey began in 1989 and was focused on examining and dating numerous hillforts and their fortifications. Although crucial for the understanding of the broader role of hillforts in the region (*Dular, Tecco Hvala 2007; Dular 2021*), the research provided scarce data on the hillfort interiors.

Hillforts have also played an important role in the theoretical and methodological development of landscape and settlement archaeology in Slovenia. While pioneering works can be traced back to the beginning of the 20<sup>th</sup> century (*e.g., Marchesetti 1903*), the site catchment and settlement hierarchy studies of Karst hillforts stand out as particularly important (*Slapsak 1995; Novaković 2003*). The rapid technological and methodological developments in recent decades have led to further shifts in the study of hillforts and their

wider landscape settings. Recent advances have focused on interdisciplinary research and the use of non- as well as low-invasive methods, particularly airborne laser scanning (ALS), multi-method geophysical prospections, and geochemical mapping in combination with coring and trial trenching (e.g., Črešnar et al. 2015; 2020; Črešnar, Vinazza 2019; Mušič et al. 2022).

Despite its long history, hillfort research in Slovenia has never been concerned with prehistoric urbanism. In fact, until recently an urban character has been ascribed only to Tribuna in Ljubljana. The site was located in a strategic lowland position along the Ljubljana River and represents the lower town, which was associated with a hillfort on the Ljubljana Castle hill. Significantly, the urban character of Tribuna was re-

cognized during a large-scale, development-led excavation covering 4200m<sup>2</sup>, which unearthed a section of the Late Bronze and Iron Age settlement displaying an exceptionally well-organized orthogonal layout of contiguous buildings with intermediate streets, roads and squares (Vojaković 2014a; 2014b; 2023; Novšak et al. 2017; for more on contiguous housing see Smith 2014). In addition, large-scale excavations have revealed several urban elements at the Late Bronze Age and Early Iron Age settlement in Ormož and at the Iron Age settlement at Most na Soči. However, researchers have so far been reluctant to interpret these sites as urban (Dular, Tomanič Jevremov 2010; Dular, Tecco Hvala 2018.90–92; Tecco Hvala 2020; for a contrasting opinion see Teržan 1999.106–107; Zamboni et al. 2020.17).



**Fig. 1. Pungrt hillfort: A location, and B wider archaeological context (figure by the authors; open source base maps by the Environmental Agency of the Republic of Slovenia).**

### Pungrt hillfort and its archaeological setting

The hill of Pungrt (366m asl) rises above the small town of Ig some 10km south of the capital Ljubljana. Located on the southern edge of the Ljubljana Marsh, it belongs to the larger Krim-Mokrec hill range (Fig. 1.A).

The wider area of Ig is of significant archaeological and historical importance due to the numerous archaeological discoveries made here. The peatland north of Ig was inhabited during the Neolithic and Eneolithic periods, as attested by a number of pile dwelling settlements (Velušček 2006; Leghissa 2021; Achino, Velušček 2022; Velušček et al. 2023). In the area of Iška Loka and Ig Bronze Age lowland settlements have been found (Velušček 2005.73–89; Draksler 2015.417–423; Grahek 2017.101–122). Prior to the excavations, the existence of an Early Iron Age fortified settlement on the Pungrt hill was only assumed based on topographical observations (Fig. 1.B). On the other hand, Roman literary sources suggest that in the Late Iron Age, a port for the transfer of goods existed in the marshy

area at the north-eastern foot of the hill (Šašel 1959). As with the nearby *Nauportus* (Vrhnika) (Horvat 1990; 2020), the area is thought to have retained this function well into the Roman period. Information on the Roman settlement of Ig is, likewise, scarce. Unlike the tombstones from the Roman colony of *Iulia Emona* (Ljubljana), which belonged mostly to the Italian colonizers, the Roman tombstones at Ig reveal the presence of the local population without Roman citizenship (Šašel 1959; 1975; Vuga 1980a; 1980b). The personal names on the Ig gravestones suggest a population of ‘pre-Celtic’ character, which managed to preserve its distinct linguistic identity well into the Roman period (Repanšek 2016). The origin of these personal names can be traced back to at least the Early Iron Age – a time when the Pungrt hillfort might have played a significant role in the wider cultural landscape due to its location at the junction of three different cultural groups: the Dolenjska, Gorenjska-Ljubljana and Notranjska-Kras Hallstatt groups.

### Archaeological research at the Pungrt hillfort

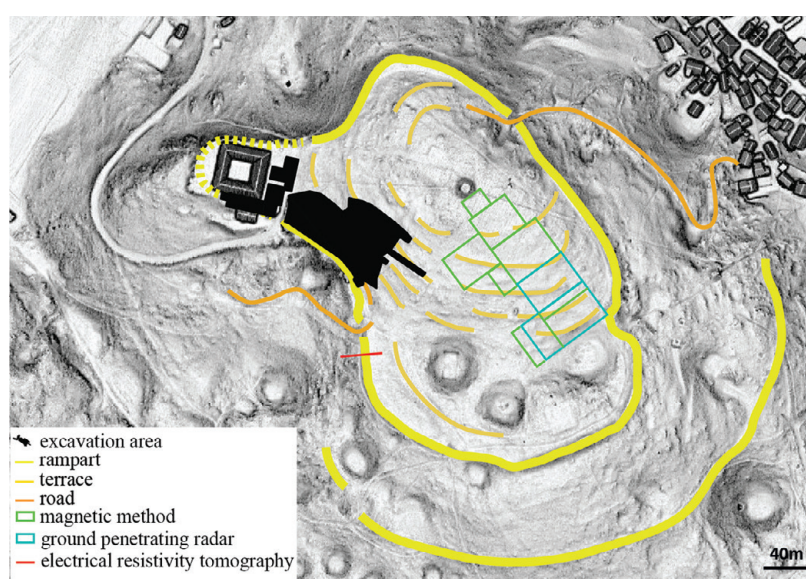
The topography and ALS data for the Pungrt hill reveal a fortified settlement enclosed by two ramparts (Fig. 2). The first or inner rampart can be clearly traced around the entire hilltop except for the narrow promontory where the Ženek (also Sonnegk or Sonnegg) castle was built in the 15<sup>th</sup> century (Stopar 2003:170). In places where the rampart is best preserved, it still reaches 3m high. The settlement seems to have had two entrances, one in the west and the other in the north-east. The inner rampart bounds an area of approximately 10ha, which is divided into several terraces. The second or outer rampart is more damaged and cannot be delineated in its entirety. It stands only up to 1m high and can be identified only in the area to the south, where it encloses an additional area of approximately 6ha, although the entire area would originally have been larger.

In 2020 and 2021, development-led rescue excavations were carried out on the south-western slope of the Pungrt hill, in the area of the first five terraces along the inner rampart. Over the course of 10 months, 8800m<sup>2</sup> of the 16-ha hillfort inte-

rior were uncovered (Figs. 2, 3). The fieldwork revealed several settlement phases spanning from the beginning of the Early Iron Age (8<sup>th</sup>–7<sup>th</sup> century BC) to the Roman period (mid-2<sup>nd</sup> century AD) (Fig. 7), while individual finds indicate habitation up until the 4<sup>th</sup> century AD. Parallel to the fieldwork, rigorous and extensive geoarchaeological sampling was carried out for the purpose of integrated geoarchaeological (*i.e.* micromorphological, micro-refuse and physio-chemical sediment analyses), archaeobotanical and archaeozoological research. Notably, this is the first time that this methodology has been applied to settlement research in Slovenia. Some 200 micromorphological blocks and 1850 bulk samples were collected from the best-preserved settlement contexts, which makes this exercise comparable to some of the largest sampling programmes at prehistoric settlement sites across Europe (*e.g.*, Mateu et al. 2019; Brönniman et al. 2020; Golanova 2023; Tomé et al. 2024). As such, it allows for detailed high-resolution analysis of the Pungrt hillfort’s long-term biography (*e.g.*, Milek, Roberts 2013; Wouters 2020; Prijatelj et al. 2024).

### Excavation results and settlement history

The earliest remains at the site consisted of a burial of a 30 to 40-year-old man documented at the easternmost edge of the excavation area (Fig. 3.A and B). The deceased was laid down in a prone position within the large burial pit (4.5m×2.5 m×0.85m), with his head facing west. The grave was covered with limestone boulders (up to 50cm in size), forming a small mound



**Fig. 2. Pungrt hillfort. ALS data interpretation (figure by the authors; open source base maps by the Environmental Agency of the Republic of Slovenia).**

(Fig. 4.A). Radiocarbon analysis dates the burial to the 10<sup>th</sup> century BC (Fig. 7), *i.e.* the end of the Late Bronze Age period. Some individual pottery fragments found in colluvial layers and pits, mainly in the third and fourth terraces, represent other ephemeral traces of human presence from this period.

Despite the grave's earlier date, the first substantial settlement remains date to the Early Hallstatt period (8<sup>th</sup>/7<sup>th</sup> century BC), when the site was fortified for the first time. A massive stone wall, just over 2m wide, with a corresponding outer earthen embankment enclosed the settlement (Figs. 3.A and B, 5.B). The faces

of the wall were constructed of large unworked limestone boulders (up to 80cm in size), and its interior filled with a mixture of stone rubble and earthen material. Behind the wall, the preservation of the settlement remains varies considerably. This is due to the different construction techniques chosen to suit the natural conditions of the site. The first terrace was the area with the deepest natural soil sequence at the site. Over time, the settlement stratigraphy rapidly built up atop of it, due to the extensive use of levelling deposits in the course of every building renovation and regular spreading of gravel material across the accumulated dirt on the road and alleys. This, in effect, led to the de-



**Fig. 3. Pungrt hillfort. Composite plan of the excavated area: A all phases; B Early and Late Hallstatt period; C Late Iron Age and Early Roman period (figures P. Vojaković).**

velopment of deep and well-preserved stratigraphy on the first terrace.

In contrast, the limestone bedrock lay close to the surface or was exposed on the eastern side of the first terrace and the area of the second, third and fourth terraces. Here, the buildings and roads were built directly on the bedrock, which was partly chiselled and levelled out for this purpose. The practice of positioning of all constructions directly on the bedrock was maintained throughout the centuries, which effectively led to the preservation of almost exclusively the youngest structural remains associated with the Roman period.

Despite the well-preserved stratigraphy on the first terrace, the remains of the first building phase were scarce and poorly preserved due to reworking by later building activities (Fig. 3.A and B). As a result, the layout of the oldest settlement phase is hard to discern. Nevertheless, the ephemeral traces suggest that the buildings were concentrated on the first, second and third terraces, where they were erected with earth fast post-construction and timber-framed construction techniques. In addition, along the road running parallel to the wall, there was a series of hearths and furnaces with slag remains (Fig. 11.7), suggesting that the area of the lowermost terrace was used for metallurgical activity.

The settlement underwent several major changes at the beginning of the Late Hallstatt period (early 6<sup>th</sup> century BC). These were mainly reflected in the layout of the first terrace (Figs. 3.B), where a new, even more

imposing stone rampart was built atop the old one. It was almost 3m wide and offset 1m outwards (Fig. 5.A and B) with corresponding outer embankments. In contrast to the old rampart, the faces of the wall were made of small carved limestone blocks (up to 40cm in size), while the interior was again filled with stone rubble and earthen material. Post holes for vertical beams discovered under the wall suggest a timbered rampart (Ralston 2006; Krausz 2019), similar to the one discovered in Stična (Gabrovec 1994.144–165, Fig. 135a) as well as a few other sites in south-eastern Slovenia (Dular, Tecco Hvala 2007.91–97).

The road along the wall was also moved one metre outwards so that enough space would have been provided for the newly erected buildings on the first terrace, 14 of which were uncovered during the excavation. The rectangular (approx. 6m×10m) timber-framed buildings with stone foundations were regularly spaced (Figs. 3.B, 5.A and D) along the road with their shorter ends facing it. Between them ran narrow (c. 1m wide) alleys perpendicular to the road (Figs. 3.B, 5.A, C and D). Each house was renovated and rebuilt several times, indicating a continuous use of the building plots and the longevity of their layout. Fragmentary preserved traces of such a regularly structured layout were also uncovered on the higher three terraces. If not inherited from the Early Hallstatt period, the road infrastructure represented by Roads 1, 2, 4 and 7 was established during the Late Hallstatt settlement restructuring.

The rebuilding of the fortification and the dense building development on the first terrace would have re-



**Fig. 4.** Pungrt hillfort. Late Bronze Age burial: A skeleton grave and B exposed section next to the grave (photos N. Ciglar, Arhej d.o.o., and L. Gruškovnjak).

flected settlement-wide changes. These would have probably been related to the population growth and the accompanying political and social changes signifying the flourishing of the settlement. A combination of macro- and micro-finds indicates that the inhabitants of buildings on the first terrace were involved in craft activities, such as weaving, spinning, bronze casting and blacksmithing (Vojaković et al. 2023; Gruškovnjak et al. 2024a).

The organization of the settlement during the Late Iron Age remains unclear due to a combination of highly fragmentary preservation and currently unresolved problems in local typo chronology. While the regular road network was undoubtedly retained, the layout of contemporary buildings remains challenging to ascertain. According to the current typo-chronology, none of the buildings on the first terrace seem to continue into the Late Iron Age. However, given that a series of radiocarbon dates suggest the settlement continuity (Fig. 7), it is more likely that we are currently unable to differentiate between the Late Hallstatt and Late Iron Age pottery production at least up until the 2<sup>nd</sup> century BC.

Even at this stage, it is apparent that some changes in the settlement layout and building typology did occur during the Late Iron Age. These changes are reflected in a new architectural feature, identified as large rectangular cuts (around 3m×3m or smaller and 0.15–0.5m deep) into the limestone bedrock. These are presumed to be cellars, which represent a new type of distinct storage facility below the larger ground floor of buildings to which they belonged (also known as *Casa dei dolii*, see Zupančič, Vinazza 2015.696, Fig. 5). Still, understanding these and related changes is difficult because only the parts cut into the bedrock were preserved, while any structures above or any contemporary buildings without cellars were absent from the archaeological record. The cellars appear to be randomly scattered across the third and fourth terraces (Figs. 3.C, 6.C), which might indicate that the regular building layout was no longer maintained at the time. The changes reflected in this new type of architecture began in the transition between the Early and Late Iron Age, as demonstrated by the cellar in Building 31 dated to the end of the Late Hallstatt period. Material typical of the 2<sup>nd</sup> and 1<sup>st</sup> centuries BC was found in most of the cellar fills, suggesting that this architectural feature



**Fig. 5. Pungrt hillfort. First terrace and its arrangement: A position of Late Hallstatt rampart, parallel road, rectangular buildings and alleys between them; B cross-section through the Early and Late Hallstatt ramparts; C Late Hallstatt buildings perpendicular to the road; D floor plan of Late Hallstatt building 24 (photos B. Plohl and N. Ciglar, Arhej d.o.o.).**

continued to be used until the Roman occupation of the area in the mid-1<sup>st</sup> century BC (Horvat 1999:219).

Further changes in the settlement layout were recorded for the Early Roman period (Figs. 3.C, 6). At this time, all the terraces were reworked to a degree, evidenced by the newly constructed retaining stone walls and associated levelling deposits. The buildings were constructed in the same way as those in the Late Hallstatt period, while their layout, dimensions, internal partitioning somewhat changed. Larger buildings had several rooms. In the vicinity of the buildings were large pits, some of which were interpreted as water reservoirs carved into the bedrock. It is also quite possible that the Late Hallstatt rampart was still in use. During the Roman period, the Iron Age road infrastructure was preserved to a large degree with the addition of the newly constructed Roads 3, 5, and 8. The most significant change in the road layout is evident in the positioning of Road 3, which was laid over an area where no other remains were documented except for

the 10<sup>th</sup> century BC grave, above which a building was erected.

### Geophysical surveys results

In order to understand the internal organization and the defensive structure of the entire hillfort, we employed an integrated suite of prospection and detection methods. In view of the expected variety of prehistoric settlement remains with a wide range of magnetic susceptibility values, magnetometry was the preferred geophysical method. The magnetic survey was carried out in the unexcavated eastern part of the hillfort over an area of 10 200m<sup>2</sup> with parallel transects spaced 0.5m apart, using a Geometrics G-858 magnetometer in gradient mode. The apparent magnetic susceptibility was measured at the present-day surface and, as expected, there was a strong contrast in the magnetic susceptibility of limestone ( $0.1-0.2 \times 10^{-3}$  SI) and topsoil ( $0.6-1.2 \times 10^{-3}$  SI). The difference in magnetic susceptibility predicted a good contrast in magne-



**Fig. 6.** Pungrt hillfort. Upper terraces and their arrangement: A crossroads of the road, the upper fortified stone terrace and the remains of buildings cut into the rock; B the new Roman road; C building and infrastructure layout on the third terrace (photos B. Plohl and N. Ciglar, Arhej d.o.o.).



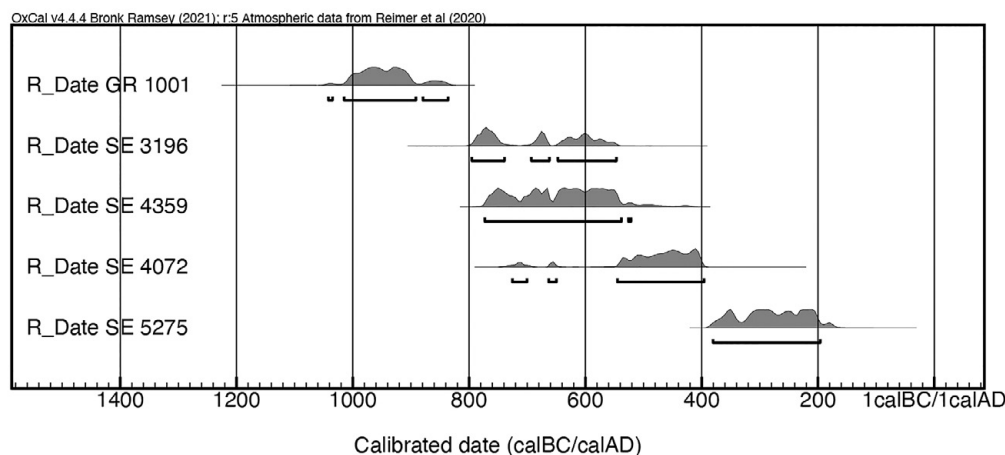
tic anomalies between the drystone walls and surrounding soil, which was confirmed by the results of the magnetic measurements.

Based on the results of the magnetic survey, we can relatively clearly identify the otherwise poorly preserved dry-stone wall remains of Late Hallstatt buildings in a row, which have similar ground plan shapes and dimensions to those found during archaeological excavations (Figs. 3, 8). The results also clearly show linear magnetic anomalies along the folds of the terraces, which is probably due to the reinforcement of the terrace edges with retaining walls. In addition, areas of relatively strong magnetic anomalies due to larger depressions in the limestone filled with soil variations and/or burned clay with high magnetic susceptibility (and therefore very different from the immediate surroundings) are clearly recognizable from the magnetic survey results in several places. There are also relatively many strong, ‘punctual’ magnetic anomalies that can be attributed to iron objects. These cannot be clearly defined as the magnetic effect of archaeological objects, as they may also be smaller pieces of modern iron than are usually found on cultivated surfaces.

On a smaller scale of the same eastern part of the hillfort (an area of approximately 4300m<sup>2</sup>), ground-penetrating radar (GPR) measurements were carried out with the GSSI SIR3000, 400MHz antenna. The results, together with the previously positive archaeological results of the magnetic method, indicate building remains in a row, similar to those found during the archaeological excavations (Figs. 3, 8, 9). With the help of georadar measurements, we independently verified the findings based on magnetic measurements and supplemented them with precise data on the depth

range in which the dry stone remains of the Late Hallstatt buildings are located. Similar to the magnetic measurements, the georadar measurements also revealed stronger anomalies due to consolidation at the edges or folding terraces (Figs. 8, 9).

Compared to other geophysical techniques (*e.g.*, magnetometry, GPR), electrical resistivity tomography (ERT) offers slightly more flexibility in performing measurements and is the best choice for mapping defence structures such as ramparts with walls and ditches (*e.g.*, Horn et al. 2018; 2019; Črešnar et al. 2020; Horn 2024). For this reason, we measured the 2D profile ERT-1 over the rampart on the west side of Pungrt (Fig. 10.A and B) using a dipole-dipole electrode array with a spacing of 0.8m, which gave us a vertical and horizontal resolution of about 0.4m in the shallower part of the ERT model (Fig. 10.C). The remains of the defensive wall appear to be present in depression D3, where we can observe a high resistivity anomaly with a thickness of up to ~1m and a width of ~2m above the low resistivity sediments (which may as well contain archaeological material). Further ruins of the defensive circuit may also be present to the west of the wall in the form of a high resistivity anomaly (dimensions ~0.7m×1m) covering the possible small ditch as an extension of D3 to the west. Another low resistivity anomaly, which could represent the ditch, is marked D2 and located about 7m to the west of the rampart. It is ~1.5m deep and probably ~1.5m wide, perhaps even wider, as it may be partially covered by gravitationally redeposited weathered limestone on its eastern side. Towards the east of the rampart (between 24m and 30m of the profile distance) we can recognize anomalies with high resistivity that lie directly on (partially weathered) limestone bedrock. It is not clear



**Fig. 7. Pungrt hillfort. Cumulative diagram of selected Late Bronze Age and Iron Age radiocarbon dates (figure T. Leskovar).**

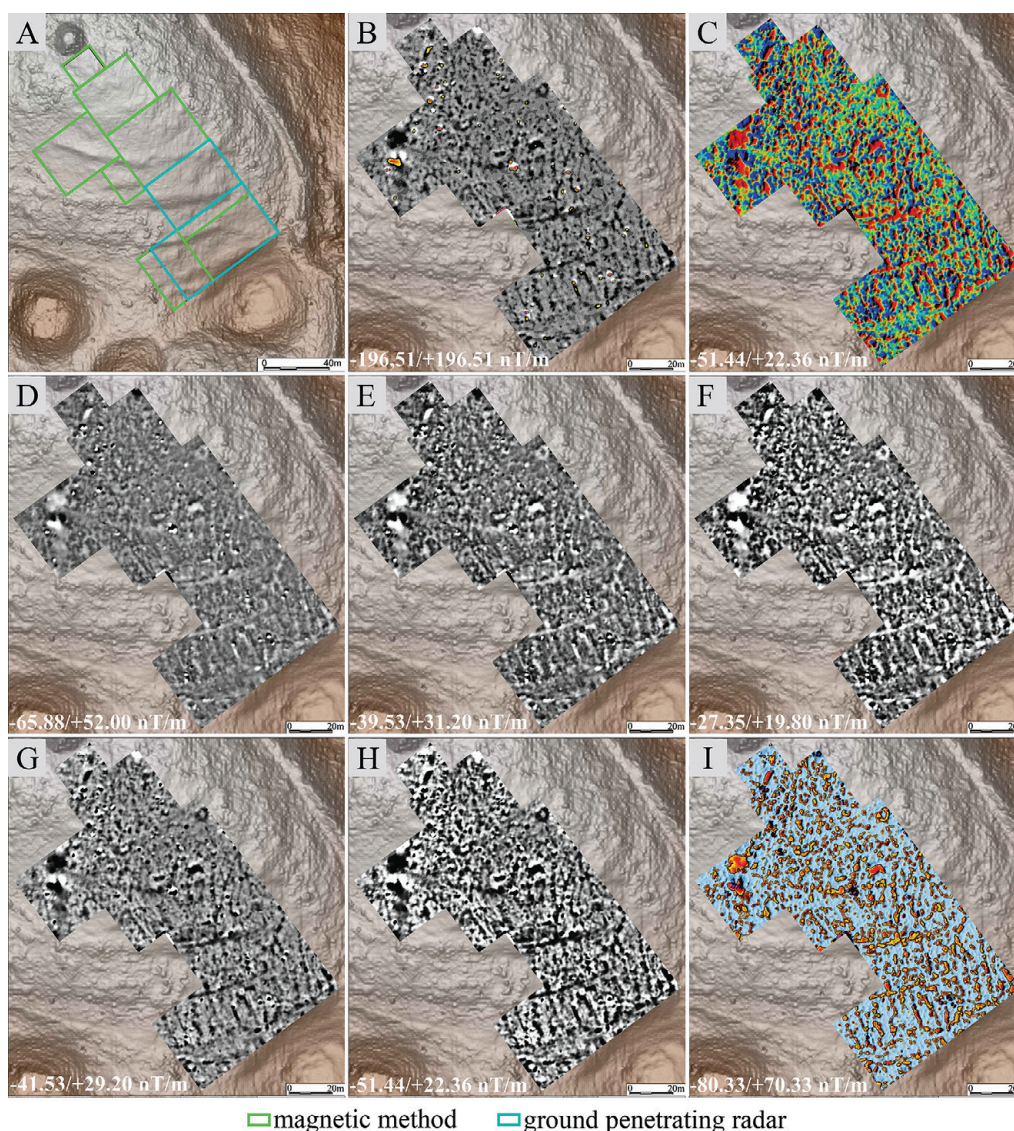
whether they are related to archaeological stone remains or to the shape of the bedrock, which could also be anthropogenically reshaped. Depression D4 is up to 1.7m deep and may contain a higher amount of archaeological remains (including stone).

Geophysical surveys revealed the regular pattern of similarly sized rectangular buildings arranged side by side on further consolidated terraces in the eastern part of the unexcavated hillfort (10 200m<sup>2</sup>). The regular grid provides evidence of a carefully planned and densely populated hillfort. The surveys also confirmed

that the preservation and depth of the remains diminish towards the top and that a possible defensive ditch lies at the foot of the embankment.

### The nature of urbanism at the Pungrt hillfort

Hillforts in Slovenia have long been examined in the wider context of landscape and settlement studies, which have revealed their central role in prehistoric landscapes. Until recently, however, there was little or no data on their internal organization. The development-led excavation and ongoing research at the Pun-

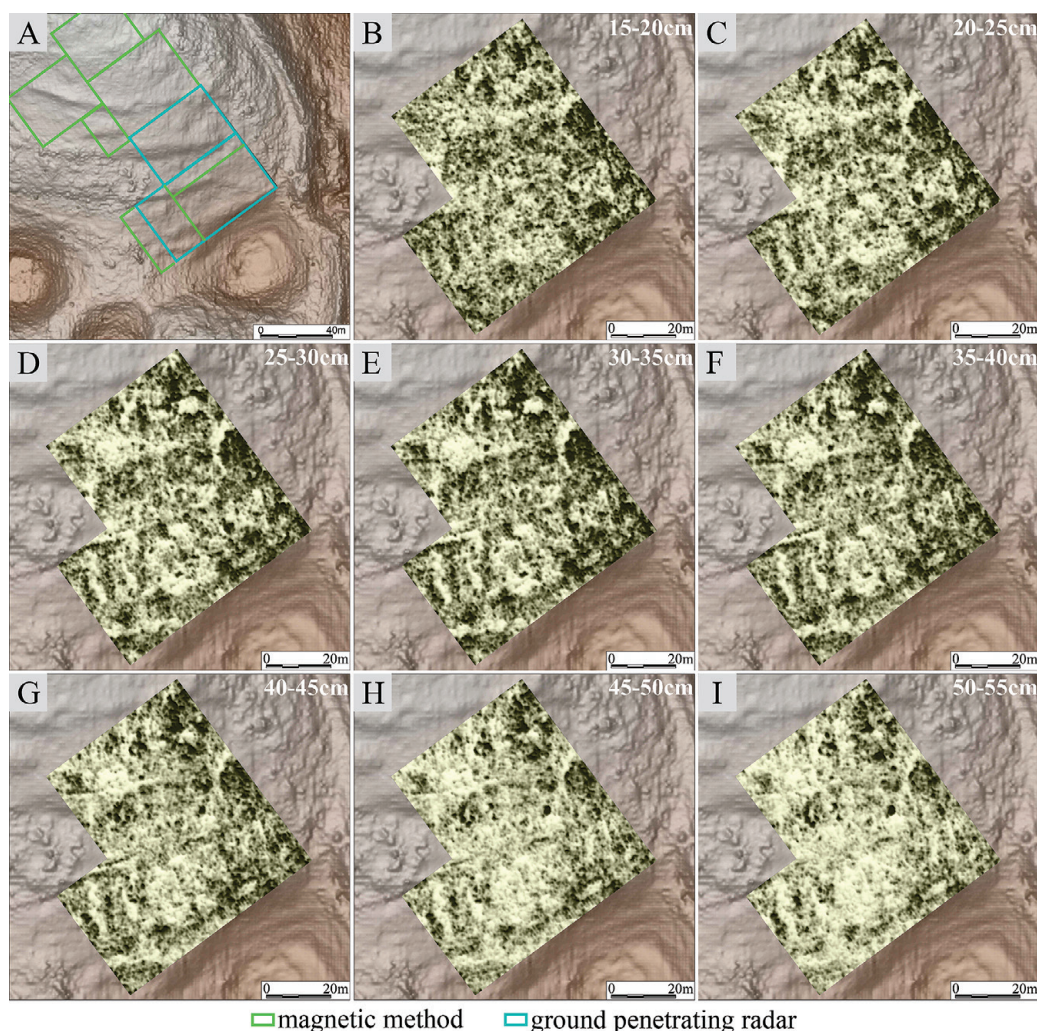


**Fig. 8.** Pungrt hillfort. Position of the area surveyed by magnetometry on the eastern slope of Pungrt settlement with terraces (A). Results on magnetic prospection applying a Geometrics G-858 total field magnetometer in gradient mode. Gradient data after applying Gaussian filter and grey scale and colour scale display using a linear distribution (B, D, E, G and I) and Histogram equalization (C, F and H). On the most south-eastern part of surveyed area are several nearly parallel lines indicating the remains of prehistoric houses. The clearly discernible area also shows terrace walls, areas with relatively stronger anomalies of supposed thermoremanent magnetization of burnt clay and several small, almost circular, very strong anomalies because of small iron objects (figures B. Mušič).

grt hillfort have been the first to reveal a settlement layout that, on the one hand, appears distinctly urban for its temporal and geographic context and, on the other, is comparable to other contemporary urban settlements in temperate central Europe. The discovery is highly significant for two reasons. First, because of the importance of the phenomenon of early urbanism itself, the process of urbanization acts as one of the great turning points of human societies across history, leading to social and material complexity, which are at the core of today's civilizations (Raja, Sindbaek 2020). In the context of temperate Europe, the emergence of urban settlements in the Early Iron Age signifies the rise of the first cities related to the processes of centralization and even early state for-

mation (Fernández-Götz 2015; 2017; 2018; Bintliff 2017; Fernández-Götz, Krausse 2017a). Second, the urban character of Pungrt is important given that much of the discussion on the early prehistoric urbanism in Europe has centred on the area south of the central Alps (Italy) (e.g., Fulminante 2014; Stoddart 2017; Pearce 2020; Zamboni 2021) and on the area north of the Alps (France, Germany and Czech Republic) (e.g., Fernández-Götz, Krausse 2013; 2017a; Fernández-Götz 2015; 2018). Meanwhile, the south-eastern alpine region of present-day Slovenia has so far been absent from the ongoing discourse.

Past urbanism is notoriously hard to define. At the same time, it is also challenging to analyse because of

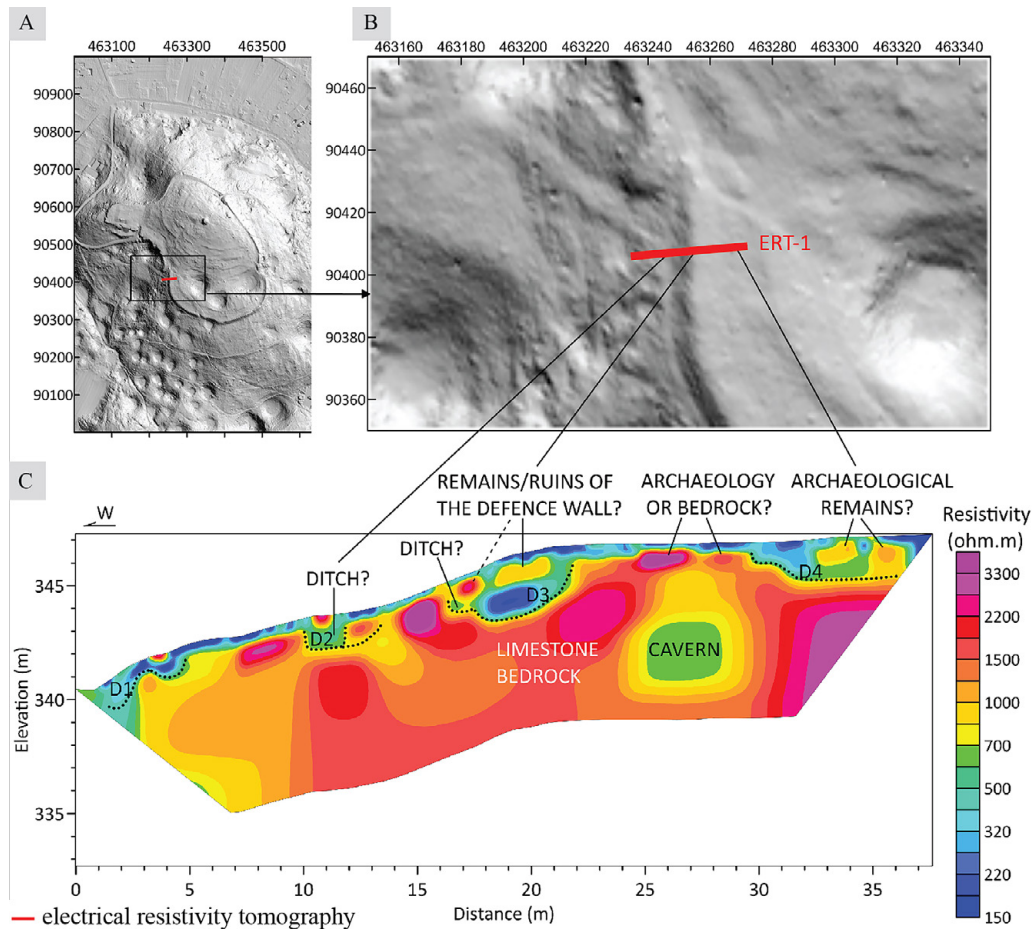


**Fig. 9. Pungrt hillfort.** Position of the area surveyed by the georadar method on the most southern part of eastern slope with terraces (A). Diagram of time slices, with equal amplitudes of the reflections in the same time range of the return waves (B-I). Similar to the results of the magnetic method, the results of the georadar method also show relatively clear parallel lines of stronger anomalies, which represent relatively stronger reflections at the locations of the dry stone remains of prehistoric houses. They are best visible at a depth interval of 20–45 cm (C-G), which represents the prehistoric archaeological layer with dry-stone remains (figures B. Mušič).

its complexity. No single best definition of urbanism exists, and its expressions vary considerably within and between past urban traditions (Stoddart 1999; Smith 2017; 2020; Fletcher 2020). Traditionally, the debate on early urbanism in temperate Europe was limited by definitions based on classical urban traditions. Such approaches, however, hindered the exploration of significant societal developments across Europe at the turn of the 2<sup>nd</sup> and 1<sup>st</sup> millennia BC, which did not fit the classical criteria (see Collis 2017; Pearce 2020; 2023; Zomboni 2021). In the last decade, the work of various researchers has, nevertheless, significantly changed this perspective (e.g., Fernández-Götz, Krausse 2017b; Gyucha 2019; Zomboni et al. 2020), demonstrating that exploring early urbanism demands a flexible and context-dependent approach that enables us to view and understand the complexity of the studied societies in a new light.

Adopting such a flexible approach, we address here the nature of early urbanism at the Pungrt hillfort and its implications for understanding the local Early Iron Age societies by examining the characteristics

of the hillfort's best-preserved Late Hallstatt phase. Our discussion is based on two different sets of urban attributes that lend themselves to exploring the Early Iron Age cities. The first is the list of twelve attributes (Tab. 1) proposed by Carolyn Heighway (1972:8–9) for studying medieval settlements and determining their town status. Like pre-Roman settlements in temperate Europe, medieval towns do not fit the classical criteria for urbanism and, in fact, show more similarities with their prehistoric predecessors (Danielsova, Mařík 2012; Pearce 2020:20–21). Notably, settlements with three or four of the listed attributes are usually considered towns within the medieval contexts (Pearce 2020:21). The second is a provisional list of attributes proposed by Michael E. Smith (2016) designed specifically for exploring the nature of early urbanism and worldwide comparative urbanism studies (Tab. 2). The list has already been applied to the Early Iron Age hillfort at Heuneburg, Germany (Smith 2016:Tab. 10.3), whose urban characteristics have already been explored in great detail (e.g., Fernández-Götz, Krausse 2013; Nakoinz 2017). Considering its great wealth of data, Heuneburg provides an impor-



**Fig. 10.** Pungrt hillfort. A, B the position of the ERT-1 profile on a Lidar map; C interpreted inverse resistivity model of the profile ERT-1 (figures B. Horn).

tant point of reference in the present discussion on the urban attributes of the Pungrt hillfort, including its settlement size, population density and structuring of settlement space, as well as a number of its social and political aspects (Tabs. 1 and 2).

### Settlement and population size

The size of the Pungrt settlement can currently only be estimated based on the area enclosed by its fortification system, which consists of the inner rampart built in the 8<sup>th</sup>/7<sup>th</sup> century BC and the outer one of unknown date. The former encloses an area of about 10ha, while the latter encloses an additional area of at least about 6ha, with the overall hillfort size totalling at least 16ha. The estimation is considered provisional, as the full extent of the outer rampart, its dating and the presence of an extramural settlement remain unknown. Based on the available data, the estimated size of 10ha places the Pungrt hillfort among the largest hillfort settlements in Slovenia (e.g., Dular, Tecco Hvala 2007, Fig. 88).

There are many approaches to estimating population size and density in archaeology, all of them with distinct strengths and weaknesses (Hanson, Ortman 2017, 302; Schumann 2019, 173). To calculate the population size and density at the Pungrt hillfort, we employed the data on the number of buildings in the best preserved Late Hallstatt phase (24 buildings) within the excavated area (8800m<sup>2</sup>) with the assumption that a household consists of five people on average, which is a well-established estimate based on studying ancient demographics (Hanson, Ortman 2017, 306, 308; Bintliff 2019, 190; Schumann 2019, 176). However, to make the calculations comparable with those at Heuneburg, we also included an estimate of seven persons per household, which was employed in calculating its population size. These figures have been extrapolated to the 10ha surrounded by the contemporary inner rampart, within which the area so far covered by the geophysical survey displays the same form of built environment. The area between the inner and the outer walls has been excluded from these calculations because its characteristics and the date of the outer wall are currently unknown.

In this way, we can estimate the population density to have been within the range of c. 136–191 persons per hectare, with the total population reaching c. 1364–1909 people. These estimates are only approximations, however, without consideration of temporal variations

in settlement size and spatial variations in building density and function (e.g., Bintliff 2019, 191; Schumann 2019, 196), as these remain unknown at present. In fact, because only the preserved building remains are included in the calculation, it unrealistically assumes the second and third terraces were mainly empty, probably underestimating the population size at the time and overestimating the empty space within the settlement. Nevertheless, the two numbers can still serve as useful reference points for wider comparisons (see Smith 2023, 60–64). For example, the estimated population density at Pungrt is well within the range of Greek city-states (Hansen 2000a, 155–156, 172; Morris 2003, 33–34; Bintliff 2019, 191), ancient cities in general (Hanson, Ortman 2017, 304) and European medieval towns (Pearce 2023, 101). In addition, this is within the range where most settlements can stably exist for a long period of time (Fletcher 2020, 41).

Compared to Heuneburg, the settlement size at Pungrt is drastically smaller, while its population density is notably higher (Tab. 1). This is primarily related to the state of research at both sites. For a long time the extent of the Heuneburg settlement was, similarly to Pungrt and hillforts in general, judged on the extent of its fortification enclosing a small area of 3ha. It was only after the discovery of the lower city and the extramural settlement covering around 100ha that its actual extent was realized (e.g., Krausse et al. 2019; Schumann 2019). This clearly dictates caution in estimating and comparing hillfort settlement sizes, and demonstrates the need for research beyond their fortified boundaries. Nevertheless, the dimensions of the Pungrt hil-

		Pungrt
1	Urban defences	X
2	A deliberately planned street lay-out	X
3	Presence of a market	?
4	Presence of a mint	?
5	Legal recognition	?
6	Central position in a network of communications	X
7	High density and size of population compared with surrounding places	X
8	Concentration of crafts and evidence of long-distance trade	X
9	Houses of urban rather than rural in form	X
10	Wide range of social classes	?
11	Complex religious organisation	?
12	Judicial centre	?

**Tab. 1. Pungrt hillfort. Table of archaeological urban attributes after Heighway (1972). Note: ? absence of data.**

Attributes	Type of variable	Pungrt	Heuneburg (Smith 2016)
<b>Settlement Size</b>			
population	M	1364-1909	5000
area (ha)	M	10	100
density (person/ha)	M	136-191	50
<b>Built Environment</b>			
fortifications	P/A	X	X
gates	P/A	?	X
connective infrastructure	P/A	X	X
intermediate-order temples	P/A	?	?
residences, lower elite	P/A	?	X
formal public space	P/A	X	?
planning of epicenter	P/A	?	X
<b>Social Impact (urban functions)</b>			
royal palace	P/A	?	?
royal or high aristocratic burials	P/A	?	X
large (high-order) temples	P/A	?	?
civic architecture	S	?	1
craft production	S	2	2
market or shops	S	?	?
<b>Social &amp; Economic Features</b>			
burials, lower elite	P/A	?	X
social diversity (nonclass)	P/A	X	X
neighborhoods	P/A	X	X
agriculture within settlement	P/A	?	X
imports	S	1	2

**Tab. 2. Pungrt hillfort. Table of archaeological urban attributes compared with those at Heuneburg (after Smith 2016). Notes: type of variable: M quantitative measurement; P/A presence/absence; S measurement scale (1 low; 2 moderate; 3 high); ? absence of data.**

lfort enclosure alone clearly highlight the highly significant role the settlement had in its local setting.

The comparison of population densities at Pungrt and Heuneburg needs to take into account two factors. The much lower density at Heuneburg is due to the relatively low density of *c.* 35 people per hectare within the extramural settlement, while the density within the fortified enclosure could be estimated at 3333 (Krausse et al. 2019) or 1666–3333 people per hectare (Schumann 2019). Both sites thus display a similarly compact settlement with similarly high population density within the fortified enclosure, which clearly sets them apart from contemporary rural villages and is, therefore, a very clear qualitative indication of urbanization (*cf.* Nakoinz 2017.90). Crucially, because there is a relationship between population size and social complexity, the estimates provided represent a proxy for social organization. Namely, they demonstrate an agglomeration of people which fundamentally influences social and economic structures and goes far beyond the threshold at which corporate communities such

as, for example, Greek city-states start to emerge (Carneiro 1987; Bintliff 2000; 2019; Morris 2003.42–43; Nakoinz 2017; Rassmann 2019).

However, an important difference between the two sites can be observed in the duration of their distinctly urban phase. At Heuneburg, the latter is limited mainly to the period of the mudbrick wall (*c.* 600/590–540/530 BC) that lasted for some 50 years and met a violent end followed by a significant population drop (Kurz 2006; Arnold 2010; Fernández-Götz, Krausse 2013; Nakoinz 2017; Krausse et al. 2019). At Pungrt, the clearly urban settlement flourished between the 6<sup>th</sup> and 4<sup>th</sup> centuries BC, after which its trajectory becomes unclear due to uncertainties in regional chrono-typology and fragmentary survival of subsequent settlement remains. Nevertheless, the distinctly urban period seems to have lasted at least three centuries without any evidence of social upheaval, which has important implications for the development of social and political structures at the site. More specifically, a growing population in an urbanizing town would have required changes in organizational structures that would have allowed for the stability of such an agglomeration (Bintliff 2000; 2017; 2019; Nakoinz 2017). A quick and sudden end of the urbanizing phase at Heuneburg indicates that the social system was not able to keep up with rapid population growth (Nakoinz 2017). At Pungrt, on the other hand, adaptations seem to have been more successful, allowing for a much longer period of urban development. However, the way the social system adapted remains unknown even though a type of clan politics seems the most likely (Terrenato 2011; Bintliff 2017; 2019; Stoddart 2020.114) and would fit well with some interpretations of contemporary funerary evidence (*e.g.*, Teržan 2008; 2010).

### Fortification

In addition to the settlement and population size, the presence of a fortification is often considered an essential attribute of a city, which distinguishes it from its rural surroundings. Even though the validity of such traditional assumptions has rightfully been questioned (Reymann 2020), the functional, symbolic and ritual

importance of an Iron Age hillfort's fortification cannot be denied. Archaeologically, this is often expressed by various structured ritual deposits related to the physical boundaries of the settlement, with ritual offerings providing a means of taking possession of a certain space and strengthening the identity of the local community (Smith 2007.36; von Nicolai 2020). For example, in the Roman tradition the city boundary was delineated with great ceremony, and fortifying it was an essential process in the city's foundation. Its interior represented not only a residential but also a religious space, which would have played a vital role in the process of early city-state formation (Terrenato 2011.241–242; Fulminante 2021.22; Rüpke 2021). Similarly, a walled city was also an essential part of the concept of the Greek *polis* and demarcated the *polis* (in the sense of town) from its *chora* (in the sense of hinterland) (Hansen 2000a.160,162).

In this light, interpreting monumental fortifications as manifestations of social and cultural transformations becomes even more tangible (e.g., Arnold 2010). The act of construction itself is highly significant as it reflects an important aspect of political dynamics within ancient societies and requires an extensive amount of labour along with labour organization (Smith 2007.36; Reymann 2020.11). At Heuneburg, for example, the construction of the mudbrick wall on a stone foundation enclosing an area of 3ha is estimated to have required two work seasons and a formidable workforce of over 400 people at peak moments (Krausse et al. 2019.180; cf. Arnold, Fernández-Götz 2018.149). However, building a mudbrick wall is much cheaper and quicker compared to a stone wall (Arnold 2010.105). From this perspective, the construction of the inner stone wall at Pungrt in c. 8th/7th century BC, enclosing an area of 10ha, can be viewed as an extraordinary and symbolically charged community investment and achievement suggestive of a high degree of planning (cf. Smith 2007.23–24). Its renovation in the 6th century BC, resulting in an even more massive wall, would have been another highly significant event in the city's development. The same could be said for the addition of the outer wall, whose dating and construction techniques still need to be established. The delimitation of the inner and outer spheres by constructing a wall would have been especially significant in such an urbanizing city with a growing population in which the lifeworld would be becoming increasingly more internalized into itself as it reached a size (>500 people) at which it could have gained possession of almost all its resources and became an endogamous community

that would begin to take on *mini-state* attributes of communal organization (Bintliff 2000.27; 2019.191).

### Settlement layout

One of the most archaeologically apparent elements signalling the process of urbanization at the Pungrt hillfort is its combination of well-defined connective infrastructure and regularly sized building plots, which were maintained over a long period of time. They were coordinated with the layout of the city wall, roads, and terraces, which followed the terrain. The building plots shared orientation and arrangement in reference to the road network and city walls, providing strong evidence for urban planning (Smith 2007.4,8). The site yielded neither evidence of an integrated orthogonal plan in which buildings were aligned orthogonally with respect to one or more large-scale features, which suggests a high level of planning (O.c.15), nor of semi-orthogonal urban blocks, created from the practicality of building in relation to existing rectangular buildings (O.c.14–15). Instead, the settlement at Pungrt had a distorted orthogonal layout, which was distorted/modified due to local topography (Grant 2001.219–220; Smith 2007.16, Fig. 12).

The layout of the settlement is indicative of central urban planning (Smith 2007.21), which seems to be supported by the fact that the buildings were equal in size and that their size and position were maintained over a long period of time, as evidenced by the regular rebuilding within the same plot boundaries. We could interpret this in terms of formal planning and division of the space within the settlement, which was successfully maintained and reinforced over time. This, in turn, has implications for the social organization and structure of the settlement. The formality and longevity of the layout suggest efficient governing bodies, while the regular size of the building plots indicates that the community living in the excavated part of the settlement was not strongly differentiated. On the other hand, the presence of inner and outer walls would imply the intentional limitation of access to the inner parts of the city, which could be related to social differences (O.c.23–25,35–37). In fact, social practices designed to artificially flatten social differences, which were common in Iron Age Europe, could be responsible for the undifferentiated residential structures (Thurston 2010). Furthermore, an orthogonal layout is most often found in societies where power and wealth are concentrated by a centralizing authority, and town planning itself is even more indicative of centralization

than urbanism *per se* (Grant 2001.220–221,237; Morris 2003.49). All these aspects of planning are highly significant for the interpretation of an early city and indicative of centralized, not necessarily autocratic, authority and perhaps of an emerging city-state. In this regard, it is important to note that even some Greek classical cities, such as Athens, were not strongly planned except for the public spaces (Bintliff 2014.269).

### Buildings

In past societies, the household was typically the basic and most important social and economic unit, which is therefore fundamental for studying the relationship between housing and society (Smith 2014.208). Following the housing typology presented by Smith (O.c.209–216), the Late Hallstatt buildings at Pungrt do not readily fall into any of the proposed categories, including individual houses, house groups, contiguous houses, walled compounds and apartment buildings. They stood detached in densely and formally arranged rows along the roads, with buildings separated only by the narrow alleys, therefore displaying strong spatial association with the road network and among themselves. As such, they cannot be regarded simply as individual houses, which are not spatially associated with other dwellings; instead, they are often accompanied by external features for domestic tasks, craft production and leisure, and are typical of rural settlements and low-density cities. At the same time, they also escape the definition of contiguous houses, which are formally arranged along a street, share at least two walls with adjoining buildings and are typical of densely built urban environments. However, the formal and dense configuration of the houses at Pungrt is a characteristic they share with the contiguous type. The layout of individual buildings that seem to be standardized, therefore, indicates a very dense urban environment created through deliberate planning of individual settlement zones (see Hansen 2000a.162; Izzet 2007.151,161,171; Gailledrat 2021.358). Such urban planning could be used as a proxy to infer the political organization of a city, as it is more common in collective regimes characterized by greater citizen participation, as opposed to autocratic regimes (Smith 2014.218; 2023.117–121).

The Early Iron Age buildings at Pungrt were mostly two- or three-room houses. The entrance into the buildings was presumably located on the short side facing the road (Gruškovnjak et al. 2024b). In two-room

houses, the interior was divided into a room in the front and another in the back, while in three-room houses, these would be joined by a third room on the side. Such an internal division indicates a desire to differentiate between internal activities and spaces. However, this probably should not be interpreted as strict functional division between the individual rooms. Due to their small number and the dynamism of the social use of space, all of them would have been multi-functional (see Lang 2005.20,24,26,30; Izzet 2007.158–159). In Building 24, for example, which is one of the most thoroughly analysed buildings so far, it was established that the first room was used for both craft (a blacksmith's workshop) and domestic activities, while the room in the back is presumed to be mainly domestic in nature (Gruškovnjak et al. 2024a). A similar division into a more working, public multi-functional space in the front and a more private and domestic space in the back can probably be anticipated in other buildings as well.

It is also interesting to note that even though the buildings were renovated and rebuilt several times during the Early Iron Age, their size and layout remained largely unchanged. Therefore, the sociobiological cycles of marriage, reproduction, death, and the changing of generations, along with developments and changes in household activities over two to three centuries, had almost no impact on housing, which indicates its regulation by the government of the city. It is only during the Late Iron Age and the Roman period that some changes to the housing types occurred, probably indicating significant changes in social and economic structures within the settlement (see Lang 2005.18,20,24)

### Open empty space

In urban areas, deliberately empty spaces may be encountered at many different scales, such as the household, neighbourhood and city. They can be charged with particular meanings and provide insights into corresponding levels of urban interactions (Smith 2008). Within the excavated area at Pungrt, the open empty space at the household level was conspicuously absent, suggesting that most activities and uses on that level, such as domestic and productive activities, storage, hosting, and keeping animals (e.g., O.c. 220), were confined to the buildings' interiors. The main type of open empty space currently evident within the densely built environment at Pungrt are streets and alleys, which were primarily used for transport, waste disposal, and possibly for some craft activities such as



weaving. Without the waste infrastructure established at the site, streets and alleys would also have been places where human and animal faecal matter would have accumulated (see *O.c. 219–220, 224–225; Gruškovnjak et al. 2024a; 2024b*).

A portion of a much larger empty space in the settlement, which would have been significant on a civic scale, has probably been uncovered at the easternmost edge of the excavation area, located in the central part of the hillfort. The most significant feature of this area is the Late Bronze Age burial. The excavation uncovered no remains dating to the Iron Age but only a Roman period building and road covering the grave and the surrounding area, which lies on a pocket of deep soil. All other such places within the excavated area were characterized by very deep and well-preserved settlement stratigraphy. Therefore, the absence of Iron Age remains in the area surrounding the grave is conspicuous. The possibility of eroded Iron Age stratigraphy can be excluded as the area is not at all steep, and the deep soil indicates a depositional or stable microtopographic location (see *Johnson 1985; Gruškovnjak 2024*). The possibility of (Late) Iron Age or Roman Period interventions in the form of removal of earlier building remains also seems unlikely, considering that at the time, the use of levelling deposits was the preferred method, and no evidence of such behaviour has been detected anywhere else within the excavated area. The most likely explanation thus seems to be that this place would have been intentionally preserved and maintained as a distinct open space in which no buildings or roads were constructed throughout the Iron Age.

Compared to the empty spaces of roads and alleys, the absence of accumulated refuse suggests a very different kind of public behaviour in this part of the settlement. We could, therefore, interpret it as a communal space which was highly significant at the civic scale. As such, it would have probably been created and maintained by the city's authorities (see *Smith 2008.223, 225, 228*). Especially striking is the fact that the area remained empty for a whole millennium, from the 10<sup>th</sup> century BC to the end of the 1<sup>st</sup> century BC or the beginning of the 1<sup>st</sup> century AD, when a building and a road were constructed over it. This suggests a continuity in the way this area was used, perceived and maintained, pointing to a long-lasting social memory of its community (see *Van Dyke 2019*), and signals significant changes in the political and social setting in the Roman period.

The social memory tied to the area of the grave could perhaps have been related to some kind of a foundation myth, which would have been kept alive by recurring rituals and ceremonies. Such myths played an important role in the placement of early urban sites within the landscape and in the cohesion and legitimation of their communities. Founding hero or heroine myths, in particular, played a central role in the ideologies of 1<sup>st</sup> millennium BC communities in Europe. Furthermore, the supposed burial places of founding heroes were often located in the public spaces within the settlement and acted as foci for religious and political gatherings. This is clearly attested through written sources in the Mediterranean and there are archaeological indications of this phenomenon in temperate Europe where Iron Age sanctuaries and assembly spaces within cities are often linked to older burial monuments (*Almagro-Gorbea 2017; Fernández-Götz 2021; see Guidi 2014.644; 2016*).

The open empty space containing the Late Bronze Age burial within the Pungrt hillfort can be understood as yet another such indication. The presence of an older burial at the site may have played an important role in the cultural memory of people living in the area, influenced the later placing of the hillfort at this location, and taken on a role in the construction of memories of a common past, perhaps tied to a mythical founding hero, and thus served as a powerful cohesive mechanism of the community (*Fernández-Götz 2021. 8–9*). However, it is important to note that the grave cannot be interpreted simply in terms of ancestral memories tied to an older Late Bronze Age burial ground, as it is highly atypical for the time, *i.e.* the Urnfield Period, which was characterized by cremation burials (*e.g., Teržan 1999*), with very few exceptions (Obrežje and Dobova sites in Slovenia, *Stare 1975.25, gr. 97, 202, 305a, 354a; Mason, Kramberger 2022.gr. 81, 317, 253*). Only in the Early Iron Age did inhumation burials become common in south-eastern Slovenia (Dolenjska Hallstatt group) or appear alongside cremation burials in some cemeteries in central and west Slovenia (Gorenjska-Ljubljana and Notranjska-Kras Hallstatt groups) (see *Urleb 1974; Gabrovec 1999; Dular 2003; Teržan 2021; Škvor Jernejčič et al. 2023; Škvor Jernejčič, Vojaković 2023*). Pungrt hillfort is located on the border between all three regions or Early Iron Age cultural groups, and the 10<sup>th</sup>-century BC inhumation within the hillfort may represent an early expressions of changes occurring during the transition between the Late Bronze Age and Early Iron Age. It may even be linked to the beginnings of settlement at the site, in-

licated also by some sporadic Late Bronze Age finds. This would push the beginning of the settlement back to an earlier date than the building of the first wall in the 8th/7th century BC and the oldest settlement remains in the excavated area suggest.

### Religious functions

The burial within the settlement and related empty space, which were probably the focus of ritual and ceremonial activities, allude to the importance of religion within the emerging city. In fact, foundational myths and religion may represent important factors in the development of early cities. Religion itself plays a vital role in urbanization, which in turn leads to religious change (Rüpke 2021.7–8; 2023). As part of the urbanization process during the Early Iron Age, we could, for example, expect the emergence of buildings that served a cultic role for the whole community and a growing complexity of ritual activities that ultimately lead to the state-organized religious practices (see *Guidi* 2014.643; *Fulminante* 2021.15).

The religious sphere, however, remains largely absent from the archaeological record at Pungrt. None of the buildings have been identified as having a cultic role, and no deposits related to ceremonial activity have been identified beyond the household level. Nonetheless, the presence of cultic activities within the settlement is indirectly but clearly indicated by a single find – namely, a bronze half-round ornamented disc belonging to a stick or sceptre (Fig. 12.5). In Slovenia, such sceptres are known from rich female burials of the 6th and 5th centuries BC in the Dolenjska region (Stare 1973; *Tecco Hvala* 2012.334–338). Their form and method of manufacture were similar to those from the burial sites in Este (*Chieco Bianchi, Capuis* 1985. *Tab.* 69:29, 85:6, 119:17, 137:51, 214:23, 249:13, 262:5, 6, 263:7, 274:11, 295:205; *Capuis, Chieco Bianchi* 2006. *Tab.* 51:47, 54:29,30, 65:38,39, 97:22, 148:21, 180:26,27) and Padua (*Gambacurta* 2005.354, *Fig.* 13:54) in Italy. Female burials with sceptres are typically interpreted as those of priestesses. The sceptre as a sign of the priest was already mentioned by Homer and is also indicated in several finds and representations on Pontic and Etruscan vessels (Stare 1973. 731). The discovery of an artefact related to a priestly function thus indicates the presence of such religious offices at the Pungrt hillfort, even though buildings or areas intended for religious ceremonies within the settlement still need to be identified.

### Social hierarchy

The association of the sceptre with elite female burials also indirectly alludes to the presence of social hierarchy within the city, which otherwise remains mainly invisible within the excavated area. However, Early Iron Age funerary practices clearly indicate the presence of social differentiation within contemporary communities, even though they are expressed somewhat differently in each cultural group. It is most pronounced in the Dolenjska and Štajerska Hallstatt groups, expressed, for example, through the quantity and luxury of grave goods in Dolenjska (*Dular* 2003; *Gabrovec, Teržan* 2008/2010; *Tecco Hvala* 2012; *Križ* 2019) and through the funerary architecture of burial mounds in Štajerska (*Teržan* 1990; *Teržan, Črešnar* 2021). In the Gorenjska-Ljubljana, Notranjska-Kras and St Lucia Hallstatt groups, where significant elements of Late Bronze Age funerary traditions were preserved, social differentiation is less pronounced but nonetheless present (*Urleb* 1974; *Guštin* 1979; *Teržan et al.* 1984–1985; *Škvor Jernejčič* 2017; 2018; *Škvor Jernejčič, Vojaković* 2021; 2023; *Škvor Jernejčič et al.* 2023).

Although there are reasons for caution in interpreting the presence of elites from funerary assemblages (*Nakoinz* 2017; *Schumann* 2019) and the burial grounds of Pungrt hillfort's inhabitants still need to be discovered, the chronological and regional context suggest that distinct social stratification can be expected within its community. After all, social stratification often plays an important role as an agent of urbanism (*Fulminante* 2021.10) and is probably indicated in the settlement's significant reorganization in the 6th century BC. Similar reorganizations have, for example, been documented at Heuneburg and various Etruscan towns. There, they were interpreted as the result of a planned political decision or as adaptations to new social needs and requirements for effective use of internal space within the emerging urban environment (*Fernández-Götz* 2015.13; *Stoddart* 2017.309). A governing urban elite would have sponsored the investment of resources into community features and constructions (*Smith* 2007.5,30), such as the planning, building and upkeep of the settlement's defensive system, road infrastructure and individual neighbourhoods like the potential craftsmen's quarters in the excavated area. Buildings belonging to the upper social class (e.g., *Fernández-Götz* 2015.18–19) may therefore be expected within the settlement and/or in the surrounding countryside (e.g., *Thurston* 2010.225), but

are yet to be discovered. After all, it is the elite who would have been the main driver in the process of centralization, urbanization and early state formation during the Iron Age (*Terrenato 2011; Bintliff 2017; Fernández-Götz, Krausse 2017a*).

### Craft and trade

Although not directly visible, the elites would have made use of craftsmen and traders, and thus been the driving force in craft specialization and long-distance trade, which are often considered as some of the main attributes in defining urban centres (*e.g., Fernández-Götz 2015.15; Fulminante 2021.11–12; Galedrat 2021.361–363; Zamboni 2021*). Indeed, in the current state of research it is the craftsmen who are the most visible social class at Pungrt hillfort. In fact, the first terrace within the excavated area appears to be a craft quarter, as suggested by numerous discoveries of craft-related artefacts, such as moulds (Fig. 11.6), melting pots (Fig. 11.4), bronze semi-finished products (Fig. 11.8), tuyeres (Fig. 11.1), spindle whorls, loom weights (Fig. 11.2), and bobbins (Fig. 11.3). The integrated micro-archaeological research has revealed a blacksmith's workshop in Building 24, which further confirms our hypothesis (*Gruškovnjak et al. 2024a*). The presence of a craftworkers' quarter would simultaneously indicate the presence of different neighbourhoods in the settlement, which is another distinctly urban characteristic (*Smith 2010*).

Finds evidencing long-distance trade or the exchange of goods indicate the presence of traders operating within the city. Contacts with the Baltic region are suggested by the presence of amber beads (Fig. 12.4; *e.g., Tecco Hvala 2012.280–287*), while links with the Aegean or south Adriatic region are indicated by an Eastern amphora (Fig. 12.3; *Whitbread 1995*). Matt-painted pottery with ornaments typical of the Subgeometric Ofanto IIa or Daunia II period (550/525–475/450 BC) points to contacts with Southern Italy (Fig. 12.1; *De Juliis 1977*), while black and red coated ware (*i.e.* Este type *situlae* or *pithoi*) suggests trade with Northern Italy (Venetian area of Padua and Este) (Fig. 12.2; *Tecco Hvala 2014.329–336*).

Amphora-shaped glass beads are related to networks which may go as far as the Black Sea region. They

were produced in workshops in the Mediterranean or Black Sea region between the end of the 5<sup>th</sup> century and the beginning of the 3<sup>rd</sup> century BC. The beads are usually made of translucent glass paste, but the examples from Pungrt (Fig. 12.6), which are made of cobalt blue or turquoise glass paste, belong to a rare variety occasionally found both in the areas close to the Mediterranean workshops (*e.g., Slovenia*) and in more distant places (*e.g., Slovakia or Moravia*). They are usually discovered in women's and children's graves and interpreted as cultural goods (based on diplomatic agreements between the leaders of different communities, gift or/and hostage exchanges, matrimonial alliances) (*Rustoiu 2015.365,370*).

The discovery of graphite schist, which would have been imported from the area of Tisa-Dacia or the Eastern Alps, is yet another indication of Pungrt's involvement in long-distance trade networks (*Gruškovnjak et al. 2024a*). Trade is also indirectly indicated by the discovery of ingots, several of them belonging to shaft-hole axes (Fig. 11.5). Their manufacture and use can be dated between the 10<sup>th</sup> and 8<sup>th</sup> centuries BC (*Teržan 2008(2010).297–298*), but their circulation as pre-monetary currency and their storage in hoards continued as late as the 5<sup>th</sup> century BC (*Pavlin, Turk 2014.48–49; Svobljšak, Dular 2016.Tab. 40:9; Laharnar 2022.261*). According to some views, objects that serve as money first emerged to facilitate exchange, while according to others, their origin is related to state formation and their use as units of account (see *Smith 2004.90–91*).

### Pungrt hillfort from regional and supraregional perspectives

The broader Iron Age landscape in which the Pungrt hillfort was situated is under-researched, so we currently do not know how the site fits into the settlement dynamics of the Ljubljana basin in central Slovenia. However, the site is located on the border of the exten-



**Fig. 11. Pungrt hillfort. Craft-related finds from Pungrt hillfort (photos J. Skorupan).**

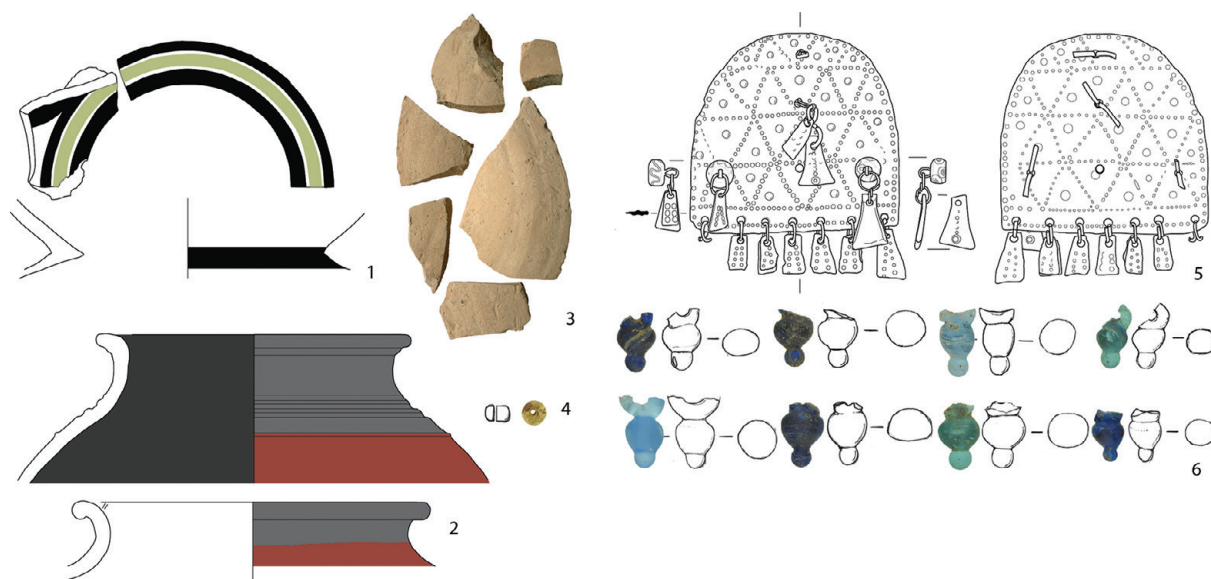
sively and thoroughly researched Iron Age landscape of south-eastern Slovenia (Dolenjska Hallstatt group), where significant changes in settlement patterns at the beginning of the Iron Age point to settlement nucleation and population aggregation. Most of the smaller fortified and unfortified Bronze Age settlements were abandoned, and new, larger Early Hallstatt hillforts were established during the 8<sup>th</sup> century BC. This resulted in the reduction of the number of fortified settlements by half while, at the same time, the total area of hillforts doubled as their average size increased dramatically (from 1.1 to 5.9ha). The newly established hillforts were constructed to their complete extent in single campaigns, although the development of their extramural settlements, which are known to exist, is still not well understood. They would go on to represent centres which played a key role in the region's development throughout the Early Iron Age. It was only in the Late Hallstatt period that a new wave of colonization was reflected in the appearance of new, smaller hillforts, which were not strongly fortified or unfortified (Dular, Tecco Hvala 2007).

The data for other regions is more fragmentary. Research in northeastern Slovenia indicates that most of the sites which developed into Early Iron Age centres have their beginnings in the Late Bronze Age (Teržan 1990; Dular 2013:122). However, in one of the most thoroughly explored microregions there, the Pohorsko Podravje, the investigations revealed a picture similar to south-eastern Slovenia. The rural Late Bronze Age lowland settlements were abandoned in the late 9<sup>th</sup> to the early 8<sup>th</sup> centuries BC, when the Poštela hillfort,

over 6ha in size, was established. The hillfort acted as a major regional centre, accompanied by newly established smaller rural settlements (Teržan, Črešnar 2021:572–579).

The data for western Slovenia (Notranjska-Karst Hallstatt groups) suggests that the building and development of hillfort settlements reached its peak in the Late Bronze Age and especially in the Early Iron Age, to which the majority of their monumental dry-stone walls can be dated (Laharnar 2022:251–261,351–355). However, the settlement pattern may be more complicated than the model of a central hillfort surrounded by lower-ranking settlements would suggest (O.c.355; cf. Slapšak 1995).

The overall picture suggests that hillforts that took on the role of micro-regional centres, emerged during the Late Bronze Age and the beginning of the Early Iron Age. Where data is sufficient, it implies a simultaneous abandonment of previous settlements, which points to the demographic process of urbanization and the political process of centralization. The construction of the first wall at Pungrt hillfort in the 8<sup>th</sup>/7<sup>th</sup> century BC could be seen as part of a similar development, namely the establishment of an Early Hallstatt centre to which the population from the surrounding territory aggregated. However, the burial discovered at the site could perhaps point to still earlier beginnings, in the 10<sup>th</sup> century BC. In fact, the nearby centre in Ljubljana originated as early as the 13<sup>th</sup> century BC, while its extramural settlement, characterized by an orthogonal layout of contiguous houses, developed in the 11<sup>th</sup>–10<sup>th</sup>



**Fig. 12.** Pungrt hillfort. Long-distance trade and cultic finds from Pungrt hillfort. 1–3 pottery; 4 amber; 5 bronze; 6 glass. M = pottery 1:3; bronze 1:2; glass and amber 1:1. (photos J. Skorupan, drawings J. Brečić).

century BC (Vojaković 2023). Both sites in the Ljubljana basin suggest that urbanism was an integral part of demographic and political changes reflected in the emerging central settlements.

The overall picture is reminiscent of developments in northern and central Italy. In south Etruria, the majority of small villages were abandoned from the mid-9<sup>th</sup> to the mid-8<sup>th</sup> centuries BC, and the population coalesced into centres, which had their beginnings in the 12<sup>th</sup>–10<sup>th</sup> centuries BC (Stoddart 2017.308). A similar and more or less contemporaneous pattern is evidenced in Latium (Fulminante 2014.46,217) as well as in the Po valley (Guidi 2006; Rondelli 2008; Zamboni 2021.398). At first, the Etruscan central settlements retained the characteristics of the previous Bronze Age villages composed of irregularly laid out ovoid huts built in wattle and daub technique. In the 7<sup>th</sup> century, rectangular buildings with stone foundations began to replace them, and more regular layouts began to appear until orthogonal layouts with individual or contiguous houses became common in the 5<sup>th</sup> century BC (Izzet 2007.148–151,171,174; Stoddart 2017.309). An almost identical transition to an urbanized form of the built environment is also evidenced in 6<sup>th</sup>–5<sup>th</sup> century BC Rome (Sauer 2021.123–125). Interestingly, a comparable change in settlement pattern, seen in the abandonment of smaller scattered settlements and population nucleation at central hillfort sites, is apparent in the south-eastern Alpine region (south-eastern Slovenia and Pohorsko Podravje). Furthermore, a similar major restructuring of the settlement's interior into a planned layout during the 6<sup>th</sup> century is evidenced at Pungrt hillfort.

These developments in Etruria and Latium represent trajectories in the formation of early city-states between 1000 and 500 BC (Guidi 2006). Archaeologically, these political changes are most reliably traced through settlement change, first taking the form of a shift from dispersed to nucleated settlement, and followed somewhat later by evidence of internal reorganization and the emergence of urbanism (Stoddart 2010.31,36–37; see also Campagno 2019). In the south-eastern Alpine region, the first type of change is evidenced in the best-researched regions in Slovenia at the beginning of the Early Iron Age, while the second type is evidenced at Pungrt hillfort, the first settlement of this type that has been researched to the degree that allows such a change to be traced. This, currently still fragmentary evidence, leads us to speculate that the

Early Iron Age cultures in Slovenia underwent similar demographic and socio-political developments to those in northern and central Italy. In fact, these trajectories, as detected archaeologically, are fairly similar to those of the Greek *polis*, which are eponymous with the concept of the city-state (Hansen 2000a; 2000b).

The *polis*, in the sense of a city-state, was formed either by colonization or settlement nucleation. It first appeared in the 8<sup>th</sup> century BC colonies in Sicily and only later in the homeland (Hansen 2000a.147–150,162). Except for some colonies where the urban centre could be carefully planned from the onset, with the earliest examples from Sicily dating to the 8<sup>th</sup> century BC, organization in accordance with a rectangular street plan followed only later (O.c.162; Morris 2003.40,49) and discernible urbanism in mainland Greece prior to the late 4<sup>th</sup> century BC was rare (Rönnlund 2023.754).

The Early Iron Age polities of Etruria, Latium Vetus, and Greek *poleis* (Cornell 2000; Hansen 2000a; Torelli 2000) are especially significant as they provide the only contemporaneous and geographically relatively close ethnohistoric parallels available that can aid us in interpreting the exclusively archaeological data on settlement nucleation, urbanization, and the emergence of early urbanism in the south-eastern Alpine region during the same period. In all of them, these changes are seen as closely related to the process of early state formation, which led to the development of city-states and city-state cultures. In this context, the city-state is understood as a micro-state represented by a town and the immediate hinterland it controls. These types of states typically do not form in isolation but instead form regional city-state cultures, which in turn often appear in neighbouring regions, thus forming clusters of city-state cultures (Hansen 2000b). Furthermore, studies show that although early urbanism and early state formation are two separate processes, they are often tightly linked as one follows the other in all civilizations where written sources supplement the archaeological remains (see Stoddart 1999; Hansen 2000b.15; Daems 2021.23–26; Feinman 2023.355; Smith 2023.100–138). In fact, some researchers have suggested that during the first half of the 1<sup>st</sup> millennium BC there was a general trend of early state formation among the Iron Age societies in Europe (Bintliff 2018), which appear to have shared overarching similarities in political ideologies that favoured various forms of corporate states with heterarchical structures (Thurston 2010).

These parallels suggest that communities in the south-eastern Alpine region may have also undergone processes of early state formation or developed some other form of similarly complex society (see *e.g.*, *Grinin 2003*). Such a view is prompted by the correlation between the increasing group size and socio-political complexity (see *e.g.*, *Carneiro 1987; Bintliff 2000; Feinman 2011; 2023; Shin et al. 2020; Daems 2021. 94–97; Smith 2023. 59–98*). The process of population aggregation at hillfort sites in the south-eastern Alpine region indicates some type of new socio-political logic (see *Campagnolo 2019. 219; Gyucha 2019*), and the population size estimated for Pungrt hillfort entails the development of some type of corporate society (*Bintliff 2000*). Its urban character also represents a proxy for high social complexity and indicates that numerous hillfort sites in the region might also represent similar early urban centres. What type of socio-political changes these sites represent is an important question that will need to be more fully addressed in future research.

## Conclusions

This study demonstrates that the Early Iron Age hillfort at Pungrt displays a set of distinct urban features. Observed in a comparative framework of similar sites in temperate Europe, the settlement can be identified as an early urban town or city (the terms are used as synonyms in this text, see *e.g.*, *Hansen 2000b; Pearce 2023. 96–97*). The site shows three or four of the attributes needed to determine the town status of medieval settlements, and shares many characteristics with the Heuneburg hillfort, which represents one of the flagships of Early Iron Age urbanism in temperate Europe (Tabs. 1, 2).

Through these attributes and characteristics, we can begin to define the nature of Early Iron Age urbanism in the south-eastern Alpine region as it is emerging through research at the Pungrt hillfort. The hillfort's urban area was clearly defined by a monumental stone wall. The enclosed area was characterized by a well-defined connective infrastructure and regularly spaced and evenly sized building plots articulated with respect to the road system. The layout points to planning and formal division of the enclosed settlement area, which was successfully maintained or enforced for at least three centuries (6<sup>th</sup> to 4<sup>th</sup> century BC). Furthermore, the walled area was very densely built-up and probably divided into different neighbourhoods. There are indications of the presence of religious functions within the city, which were probably held by the resident

elites. The settlement also had an important economic role as a centre of craft production and long-distance trade.

The Pungrt hillfort can be seen as part of wider settlement nucleation and population aggregation processes evidenced by the development of central hillfort settlements at the beginning of the Early Iron Age within the south-eastern Alpine region. A similar urban character can be expected at other such sites in the region. The changes in settlement logic, along with the emergence of early urbanism and estimated population size within the walled area of the hillfort, represent proxies for significant socio-political changes which may be comparable with contemporaneous changes in central and northern Italy and Greece, where they are interpreted in terms of early state formation. Our research at the Pungrt hillfort demonstrates the need for further detailed research of Early Iron Age hillforts in Slovenia, in order to improve our understanding of early urbanism and the related socio-political changes during this period in the south-eastern Alpine region.

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