Living at the Edge of the Plain. Adaptability in Late Bronze Age Husbandry at Brinjeva gora (SE Slovenia)

Življenje na robu ravnice. Prilagodljivost poznobronastodobne živinoreje na Brinjevi gori

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Izvleček

Brinjeva gora nad Zrečami je višinska naselbina z naselbinskimi ostalinami predvsem iz pozne bronaste dobe in rimskega časa. V članku so predstavljeni izsledki arheozoološke študije živalskih ostankov prazgodovinske starosti (N = 5500; NISP = 1999), ki ponujajo podroben vpogled v način tedanje živinoreje. Gospodarsko najpomembnejši vrsti sta bili govedo in ovca, pri katerih je bilo v ospredju izkoriščanje drugotnih proizvodov reje. Enako velja za kozo, medtem ko je bila prašičereja usmerjena v prirejo mesa. Vloga lova je bila v količinskem smislu zanemarljiva. Ponujena je razlaga, po kateri naj bi prazgodovinska skupnost na Brinjevi gori težila h kar najučinkovitejšem izkoriščanju velike pestrosti habitatnih tipov v širšem zaledju naselbine. Pomemben element takšnega načina reje naj bi bila celoletna paša nekaterih goved v bližini kmetijsko usmerjenih nižinskih zaselkov in vključitev preostalih v sistem planinskega pašništva na Pohorju. V sklepnem delu prispevka je podan komentar na število, vrsto in prostorsko razpršenost ostankov konja in zveri.

Ključne besede: Slovenija; Brinjeva gora; pozna bronasta doba; arheozoologija; živinoreja; transhumanca

Abstract

Brinjeva gora above Zreče is a hilltop settlement with remains dating primarily to the Late Bronze Age and the Roman period. This article presents the results of an archaeozoological study of prehistoric animal remains (N = 5500; NISP = 1999), providing detailed insight into contemporary livestock farming practices. The most economically important species were cattle and sheep, with a clear emphasis on the exploitation of secondary products. The same applies to goats, whereas pig husbandry was primarily oriented towards meat production. Hunting played a negligible role in quantitative terms. The study suggests that the prehistoric community at Brinjeva gora sought to maximise the efficient use of the diverse range of habitats in the wider hinterland of the settlement. An important component of this system was the year-round grazing of part of the cattle herd near lowland agricultural settlements, while the remainder was integrated into a mountain grazing regime on the Pohorje Mountains. The concluding section of the article discusses the number, composition, and spatial distribution of horse and carnivore remains.

Keywords: Slovenia; Brinjeva gora; Late Bronze Age; archaeozoology; livestock farming; transhumance

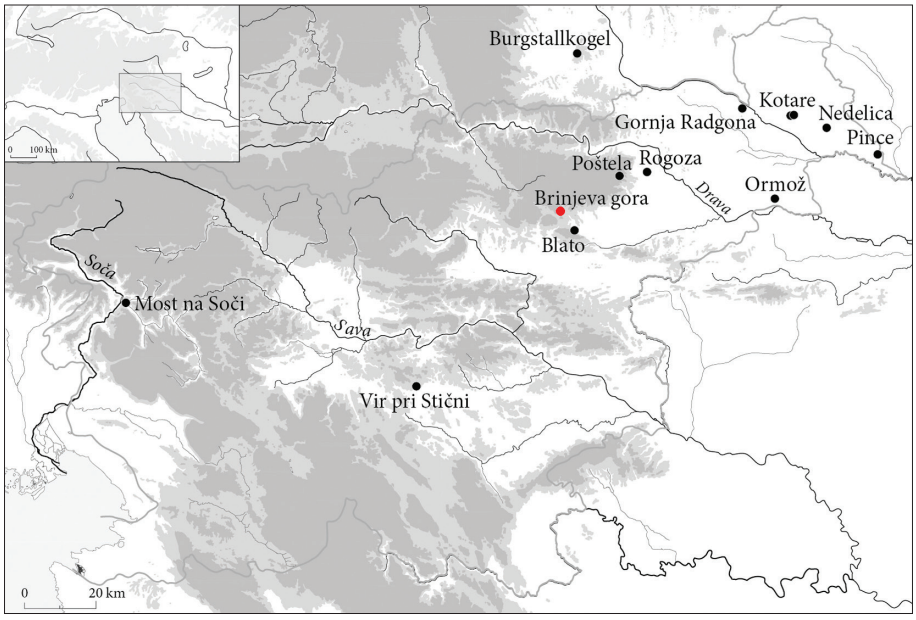

Fig. 1: Geographical location of Brinjeva gora and other sites mentioned in the text.
Sl. 1: Geografska lega Brinjeve gore in drugih v besedilu omenjenih najdišč.

The number of studies on Bronze Age archaeozoological material in Slovenia is limited. Publications are few, and the assemblages of animal remains presented are either extremely modest (see, e.g., Bartosiewicz 1999, Tab. 1; Toškan 2005; 2008; Hincak 2013; 2018; Kovač, Toškan 2017; Toškan, Bartosiewicz 2018, Tab. 1; Črešnar et al. 2019a) or mixed with material from other periods (Riedel 1977; Jamnik et al. 2002; Toškan, Dirjec 2010). As a result, accumulated knowledge about the role of animals in the economies of communities from this period remains limited. Based on the available data, it is often impossible to address even the most basic archaeozoological questions, such as the role of individual domestic species or the economic significance of hunting. The south-eastern Alpine region therefore remains a poorly understood area in archaeozoological research on the Bronze Age material (cf. e.g. Greenfield 2001, 127; Miracle, Forenbaher 2006; Stopp 2015; Bartosiewicz 2017; 2022; Gál 2017; Reitmaier et al. 2013; Zavodny et al. 2019; Marković, Bulatović (ur.) 2020; Tecchiati et al. 2020; Varalli, Moggi-Cecchi, Goude 2022; Davitashvili 2024; Reed et al. 2024).

Prehistoric material from the hilltop settlement of Brinjeva gora above Zreče, archaeologically investigated in the 1950s and the early 1960s, offers a rare opportunity to gain a more detailed insight into animal husbandry during the Late Bronze Age in the area of present-day Slovenia. However, as the archaeological material from the settlement has not yet been fully published, and the available archaeozoological assemblage exhibits the typical limitations of hand collection (such as the underrepresentation of smaller specimens), the scope of analysis remains necessarily constrained.

The study focuses on the strategies and effectiveness of adapting livestock husbandry to the natural conditions in the settlement's hinterland. Chronologically, the research centres on the Late Bronze Age (Urnified Period; phases Ha A and Ha B; approximately from the end of the 13th to the end of the 9th century BC). A smaller portion of the analysed material derives from the Middle and the early Late Bronze Age, specifically the so-called Oloris–Podsmreka horizon (Bd B2/C–Bd D; approximately from the beginning of the 15th to the end of the 13th century BC), as well as from the Early Iron Age (Ha C/D1; approximately from the end of the 9th to the middle of the 6th century BC). No bone material from secure contexts was identified for earlier settlement phases, such as the

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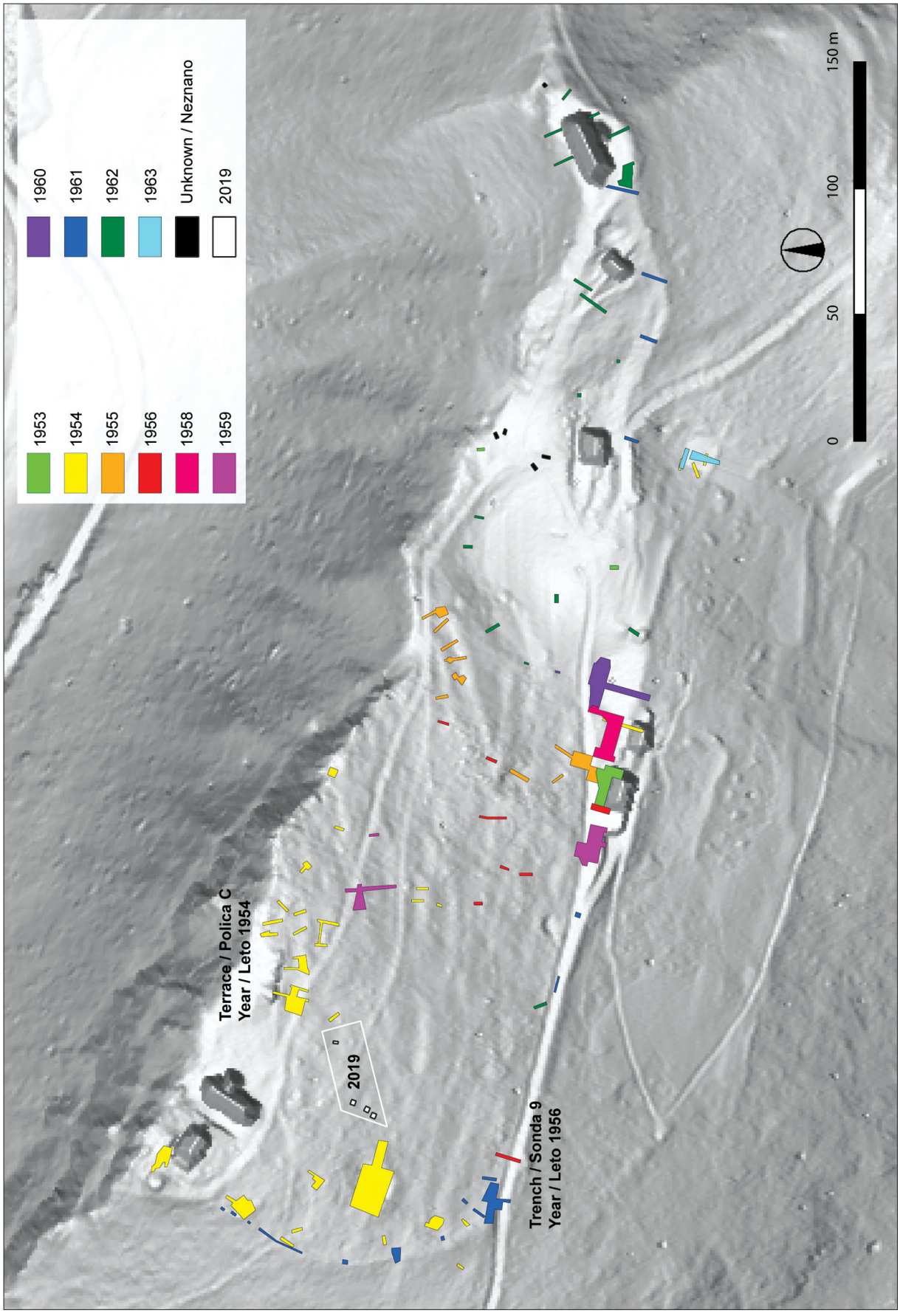
Fig. 2: Brinjeva gora with trial trenches, whose locations could be determined relatively accurately based on available field documentation.
Sl. 2: Brinjeva gora s sondami, ki jim je bilo mogoče na podlagi razpoložljive terenske dokumentacije razmeroma natančno določiti lego.


1953
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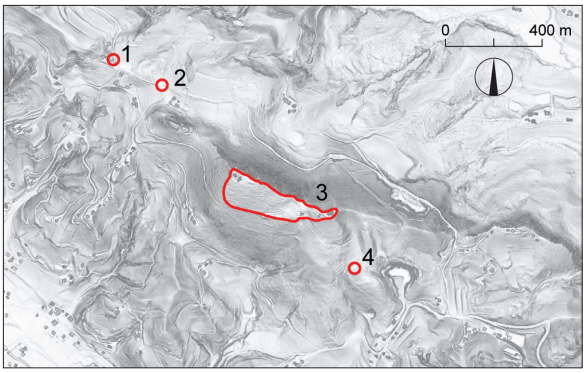

Fig. 3: Brinjeva gora and nearby burial grounds: **1** – flat burials Brezje; **2** – barrow Brezje; **3** – Brinjeva gora; **4** – Gračič.
Sl. 3: Brinjeva gora in bližnja grobišča: **1** – plano grobišče Brezje; **2** – gomila Brezje; **3** – Brinjeva gora; **4** – Gračič.

litzen pottery horizon (Bd A2/B1; approximately from the end of the 19th to the beginning of the 16th century BC), the Bronze Age tumulus culture (Bd B1; approximately 16th century BC), or for the Late Iron Age (Lt D; the end of the 2nd to the 1st century BC).

To provide a broader interpretative framework, the article also presents, for the first time, preliminary results of archaeozoological analysis of two other partly contemporaneous sites in north-eastern Slovenia: the Late Bronze Age settlement of Blato near Slovenske Konjice (Bricelj 2014) and the Late Bronze Age to Early Iron Age settlement on Grajski hrib in Gornja Radgona (Dular 2013, 179–206) (*Fig. 1*).

PRESENTATION OF THE ARCHAEOLOGICAL SITE

Brinjeva gora, a hill rising to 630 m above sea level near the town of Zreče, lies on the south-eastern slopes of the Pohorje Mountains (hereafter Pohorje), overlooking the upper Dravinja Valley (*Figs. 1* and *16*). It is the highest point of a 3.5 km-long ridge, which is interrupted by a saddle at Brezje. The northern slope is steep, probably due to a tectonic fault visible on geological maps. Brinjeva gora has two peaks (eastern and western), separated by a fairly gentle, south-facing upper slope (Pahič, S. 1981, 71; Hamrla 1987; see also *Fig. 3*).

The settlement, extending across both peaks, and associated burial grounds were discovered and systematically investigated between 1953 and 1963 by Stanko Pahič of the Maribor Regional Museum. During this period, approximately 200 larger and smaller trial trenches were excavated[1] (*Fig. 2*); however, only the results of the 1953 and 1954 campaigns have been fully published to date (Pahič, S. 1980; 1981; 1985; Oman 1981). Preliminary results from the remaining excavation campaigns are available merely as brief reports (see Pahič, S. 1981, Tab. 1, and the literature cited therein).

Chronological definition of representative selected ceramic finds

The hilltop was already inhabited at the transition from the Early to the Middle Bronze Age, as evidenced by finds of individual pieces of the characteristic litzen pottery (Bd A2/B1).[2] A needle with a perforated thickened neck and a biconical head, found in a secondary position, is either contemporary or slightly later and belongs to the repertoire of the Middle Bronze Age tumulus culture (Bd B1). Some pottery fragments, including those decorated with knobs encircled with a groove, can also be dated to the Middle Bronze Age. These can be linked already to the Oloris-Podsmreka horizon (Bd B2/C–Bd D), although based on the find from Morje near Fram, their appearance in this area can be assumed as early as the Middle Bronze Age tumulus culture. The answer to the question of whether Brinjeva gora was continuously or repeatedly settled during these periods would only be provided by the analysis of all the ceramic material and excavation archives.

The hill was undoubtedly most densely occupied during the Late Bronze Age (Ha A and Ha B), but settlement continued into the Early Iron Age (Ha C–Ha C/D1), likely ending in the mid-6th century BC. Based on individual finds, the site was briefly resettled in the late La Tène phase (Lt D), while occupation during Roman times is dated to the 3rd and 4th centuries AD. From this period, the foundations of the defensive wall and three stone-built structures have been preserved; the remaining buildings were probably wooden (Pahič, S. 1980, 104; 1981, 115–120; 1985, 15–16; Gabrovec 1983, 28, 42–45, 57, 61, T. 1: 7-15; 2:

[1] All documentation was scanned, reviewed and examined as part of the Prehistory Adventure (Interreg SI-HR) project, led by Matija Črešnar at the Faculty of Arts, University of Ljubljana. As some of Pahič's survey plans have been lost over the years, the exact locations of some trial trenches cannot be determined.

[2] S. Pahič noted that they were discovered among the artefacts from the lowest layers (Pahič, S. 1981, 115).

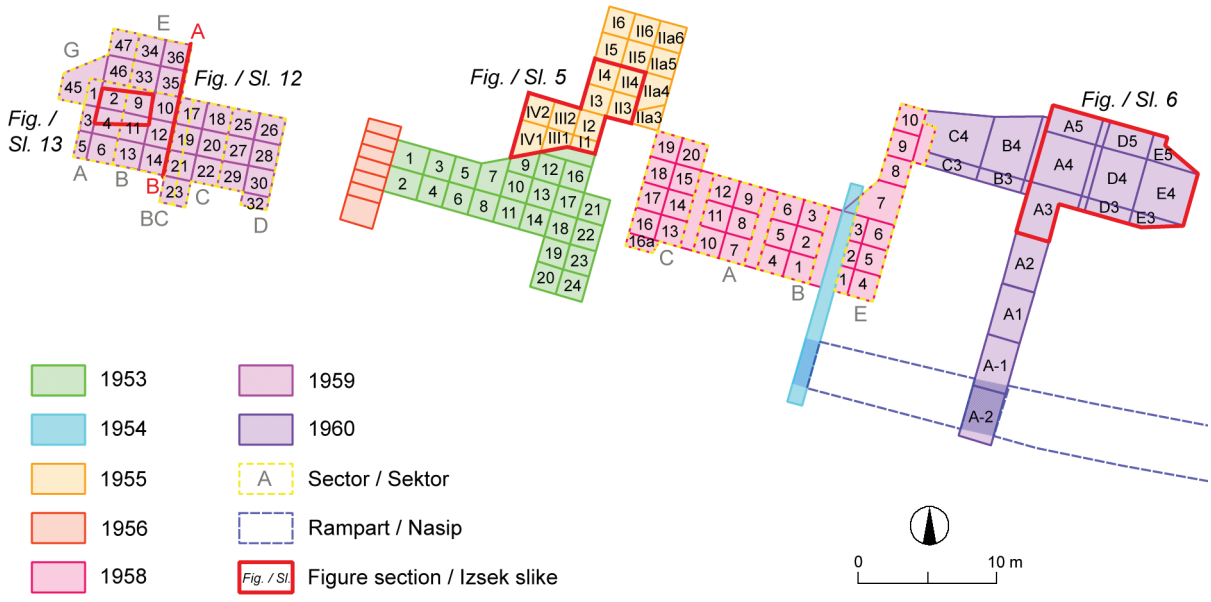

Fig. 4: Brinjeva gora. Detail of the southern part of the settlement with the trial trenches excavated there. The sections highlighted in red are shown in greater detail in *Figures 5, 6, 12* and *13*. In 1956, Pahič did not subdivide the trial trenches into individual quadrants; instead, he recorded only the distance (in metres) from a reference point located at the south-eastern corner of the excavation field.
Sl. 4: Brinjeva gora. Detajl južnega dela naselbine s tam izkopanimi sondami. Posebej so z rdečo označeni izseki, ki so podrobneje predstavljeni na *slikah 5, 6, 12* in *13*. Leta 1956 Pahič sonde ni razdelil na posamezne kvadrante, pač pa je le beležil oddaljenost (v metrih) od izhodiščne točke v jugovzhodnem vogalu izkopnega polja.

14–17; Teržan 1990, 36–43; Črešnar, Teržan 2014, 679–681).

The surrounding burial grounds (*Fig. 3*) have been published in detail. North-east of the settlement, in Brezje below Brinjeva gora, a Middle Bronze Age mound (Bd B1) was excavated. Nearby, there was also a cemetery from the 3rd and 4th centuries AD, as well as an early medieval cemetery. Remains of an earlier settlement dating to the early Eneolithic period were found at the same location (Pahič, S. 1955; 1956; 1962–1963; 1969; Črešnar, Koprivnik 2014; Kramberger 2018). South-east of Brinjeva gora, on the slope above the village of Gračič, a necropolis from the Urnfield period was discovered. Partially reported by Vitko Pahič (Pahič, V. 1988–1989), it was only recently published in its entirety (Črešnar et al. 2014; Koprivnik 2021a; 2021b; Koprivnik, Teržan 2021; Teržan 2021).

Although much of the Brinjeva gora settlement archive remains unprocessed – particularly the vast ceramic assemblage – it is still possible to draw preliminary conclusions about the period based on the published finds and a review of the field documentation.

The archaeological layers were best preserved in the southern part of the settlement, which is why Pahič carried out the most extensive excavations there (*Fig. 4*). Most of the animal remains originate from these larger trenches. The rest of the settlement was heavily affected by erosion. The generalised stratigraphic situation presented below focuses on the most significant archaeozoological contexts from the southern area.

Excavations were carried out in arbitrary levels, the standard method of field research at the time. However, the dynamic terrain of Brinjeva gora made it difficult to collate and interpret the data. The situation was further complicated by significant changes in the southern part of the settlement due to erosion and accumulation. For example, an originally steep slope near the Falnoga farmstead has since become levelled. Consequently, Pahič initially excavated a relatively flat terrain, but later often worked through layers from different periods. Consistent quadrant excavation and careful profile drawings, however, made it easier to link finds and excavation data. A thorough review of layer depths by quadrant, aligned with the profiles, facilitates the identification of finds from distinct periods.

Among the oldest identified archaeological remains are areas of burnt house plaster, charcoal, and pebble paving. These are remnants of buildings,

although their floor plans cannot be reconstructed. One such context from the 1953 excavation (the so-called Building A; Pahič, S. 1981, 79–82) was dated to the Ha A period based on ceramic finds (Oman 1981, 149). After reviewing the field documentation, it appears that these remains are slightly younger than other similar contexts, which probably belong to the Oloris-Podsmreka horizon. The most prominent examples are found in the 1958 excavation[3], in the adjacent 1954 trench, and in Trench 9 from 1956 in the south-western part of the settlement.

Among the finds from the oldest layers of the 1954 trench, which was later expanded in 1958, there is a fragment of a large bowl with ribs, decorated with finger impressions (*Pl. 1*: 3). It can be compared to some vessels classified as Sk7 type bowls at the Podsmreka settlement (Murgelj 2013, Fig. 29c, G667, G499; see also Murgelj 2022). The L2 type of pots from the contemporary site of Svetje pri Medvodah is similar (Leghissa 2011, Fig. 63). The vessel with a handle (*Pl. 1*: 4) has good comparisons at Ptuj during the Middle and the Late Bronze Age, both in Rabelčja vas and in Grave 2 on Potrčeva cesta (Strmčnik Gulič 1988–1989, T.3:3, T.4:8; Jevremov 1988–1989, Fig. 3:2).

Among the finds from 1958 (*Pl. 1*: 5–11), there are knobs encircled with a groove (*Pl. 1*: 8,9). These were already mentioned by S. Pahič, who compared them to similarly decorated jugs discovered in 1953. Although they come from different contexts, he suggested that the pieces discovered in 1958 belong to the earliest finds, citing several Middle Bronze Age parallels (Pahič, S. 1981, 115, n. 177–180; Fig. 28). In this regard, it is worth mentioning the numerous knobs encircled with incisions or grooves found at Podsmreka and, more broadly, across sites of the Oloris-Podsmreka horizon. In Istria and the Karst, they are found at sites of the Kaštelir culture (Turk, Svetličič, Pavlovič 2022, 53–54). Comparisons for them appear from Moravia, Hungary, and continental Croatia, extending to Istria and northern Italy (Murgelj 2013, 37–39; 2022, 72–75). The motif of concentric circles around the knob (*Pl. 1*: 10) is widespread from Hungary to Lika, Istria, and the Po Valley, from the Early and the Middle Bronze Age to the Early Ha A (Murgelj 2022, 63). The fragment of a bowl (*Pl. 1*: 5) with a horizontal rib, decorated with finger impressions, can be classified as a type S7 bowl from Oloris (Dular, Šavel, Tecco Hvala 2002, 152, Fig. 8, especially Pl. 57:2). The fragment of a pot shown in *Pl. 1*: 6 can be compared to pots of type L5 from Oloris (Dular, Šavel, Tecco Hvala 2002, 148, Fig. 5). Among the finds from the lower layers in trench 9 (*Pl. 1*: 1,2), the pot in *Plate 1*: 1 also resembles type L5 vessels from Oloris, but differs in the triangular form of its rim (Dular, Šavel, Tecco Hvala 2002, Fig. 5).

The next settlement level, dated to Ha A, is associated with the construction of a defensive earthwork on the southern edge of the settlement, which was identified in two parallel trenches dug in 1954 and 1960 (*Fig. 4*). Pahič, however, did not understand it as a defensive structure, but rather as an embankment that fenced off the slope on the lower side and a nearby large 'clay extraction pit' (Pahič, S. 1962, 190–191). Upon reviewing the field documentation, especially the profile drawings, and the current dynamic surface of Brinjeva gora, it seems more likely that the terrain drop at this location is natural and not anthropogenic. The interpretation that the embankment was probably intended for defence is supported by the remains of burnt wooden planks discovered on it. These indicate the existence of a wooden-earthen construction, possibly similar to the one discovered at Ormož (Dular, Tomanič Jevremov 2010, 84–86). It appears that the embankment was repaired at least once. The remains from the Ha A period found during the 1953, 1956 and 1958–1960 campaigns are most likely connected with it or the period of its use.

The lower parts of the embankment yielded a pot with an everted rim and a gentle transition from the shoulder to the neck (*Pl. 2:* 1), as well as a vessel with a strap handle (*Pl. 2:* 2). The pot is comparable to a fragment of a jug featuring a partially preserved knob with a groove, found in the Middle and the early Late Bronze Age layers of the settlement at Obrežje (Mason, Kramberger 2022, 46–47, G 100). It also resembles small vessels from the Tri lesnice – Pekov graben site, which are characterised by a triangular high handle. Further parallels can be drawn with finds from Jelarji, dated to the late Middle and the Late Bronze Age (Bd C/D) (Lonza 1981, Pl. 5; 7: 16; Erjavec, Gaspari 2012, 274; Gaspari 2012, Pl. 6: 51–53). A similar vessel from Layer 3 of the 1953 trench does not have a pronounced transition from the shoulders to the neck (Oman 1981, Pl. 29: 8). The vessel with a strap handle has parallels at the Middle and the early Late Bronze Age sites of Pod Grunti – Pince

[3] Pahič already defined them as Middle Bronze Age contexts (Pahič, S. 1960, 296).

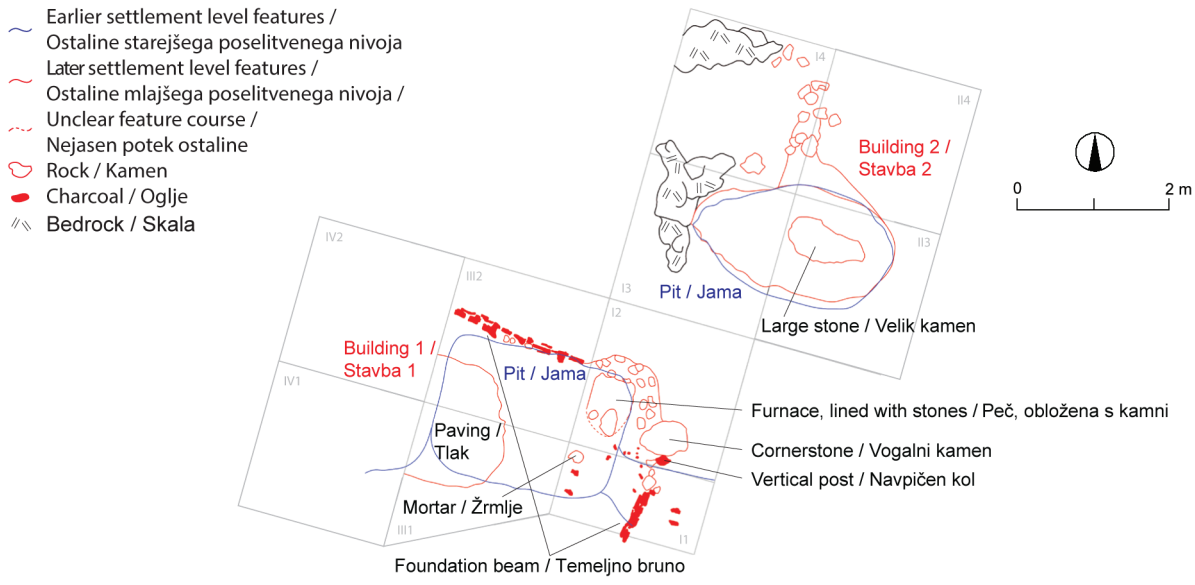

Fig. 5: Brinjeva gora. Detailed view of the building remains and associated waste/storage pits in part of the trench excavated in 1955. For the exact location of the area shown, see *Figure 4*.
Sl. 5: Brinjeva gora. Podroben vpogled v stavbne ostaline in spremljevalne odpadne/skladiščne jame na delu izkopnega polja iz leta 1955. Za označbo natančne lege predstavljenega območja glej *sliko 4*.

near Pince (Kerman 2018, 72, Fig. 43, G 379) and Šiman near Gotovlje (cylindrical pots, variant III; Tomažič, Olič 2009, 34, Fig. 37, G 372). A later parallel is found in Late Bronze Age type L2 pots from Obrežje (Mason, Kramberger 2022, 55, Fig. 23, G 286).

Among the finds from the upper part of the embankment (*Pl. 2:* 3–5), a fragment of a biconical vessel with a shallow knob encircled by a groove (*Pl. 2:* 4) is particularly noteworthy. At Brinjeva gora, fragments of similar vessels with knobs and grooves are also known from Layers 3 and 4 of the 1953 trench (Oman 1981, Pl. 29: 2, 3; Pl. 35: 20). Pahič regarded these vessels as intrusive in the younger layers, placing them among the oldest finds from Brinjeva gora, where they were also recovered in 1958 and were dated to the Middle Bronze Age (Pahič, S. 1981, 115, Fig. 28). The pot in *Plate 2*: 5 has older comparisons in some pots of type L2 from Oloris (Dular, Šavel, Tecco Hvala 2002, Fig. 4 and especially Pl. 39: 6), while later examples appear among the pots of type L2 from north-eastern Slovenia, ranging from Ha A to Ha C0 (Dular 2013, 31, Fig. 7). From the top of the embankment, near the charred wood remains, a fragment of a pot with an everted rim, decorated with finger impressions was recovered (*Pl. 2:* 6). It is comparable to type L3 pots from Orehova vas, which are the most numerous type at that site (Grahek 2015, 35, Fig. 27; 2021, 36–39, Fig. 5). A similar pot is also known from Rogoza (Črešnar 2022, G 477) and as type L2 from Ormož (Dular, Tomanič Jevremov 2010, Fig. 88).

Erosion was presumably particularly pronounced at the transition from Ha A to Ha B, significantly reshaping the southern edge of the settlement. Here, the space behind the embankment was filled with erosional deposits. Ceramic finds from the area of the subsequent buildings display characteristics of Ha B (e.g. Building D, discovered in 1953; Oman 1981, 150–151). These structures extend northwards from the 1953 trench into the adjacent Trench 1955.

Excavations conducted in 1953 and 1955 yielded several hundred animal remains. Based on the available field documentation, approximately half can be directly associated with individual buildings, pits, or settlement levels (*Fig. 11*). The features and layers from the 1953 trench have been published (Pahič, S. 1981), whereas those excavated in 1955 remain unpublished. A selection of the latter is presented here on a preliminary basis.

In the 1955 trench, Pahič identified two settlement levels: the earlier was associated with two large pits, possibly semi-sunken huts, and the later with the remains of two buildings, labelled Building 1 and Building 2 (*Fig. 5*). He attributed Building 1 to a large interior corner support stone, next to which a charred vertical post and two charred horizontal foundation beams were discovered. In

one corner of the building, a stone-lined furnace was found. The walking surface was described as grey-brown loam, with a black cultural layer containing charcoal to the south of the furnace. A fragment of a shallow bowl with an inverted, thickened rim decorated with oblique grooves was found beneath one of the charred beams (*Pl. 3:* 12). It is comparable to decorated Sz3b-type bowls from Rogoza. This type is characteristic mainly of the Ha A and Ha B periods, but it continued to be in use into the Early Iron Age (Dular 2013, 43–47, 56–57; Črešnar 2022, 73–75, Pl. 66).

Building 2 was defined by a large stone, from which a row of slightly smaller stones set in a trench extended northwards. A grey cultural layer presumably served as the walking surface. A fragment of a vessel with a horizontal groove at the transition from the shoulder to the neck and stripes of oblique grooves running in zigzag patterns below it (*Pl. 3:* 13) originates from the brown layer on which the structure was set. At Brinjeva gora, a similar fragment was previously discovered in Layer 3 of the 1953 trench, which dates to the Ha B period (Oman 1981, 150, Pl. 27: 17). Decoration consisting of grooved triangles on the shoulder, combined with a carinated transition between the neck and the shoulder, appears on vessels with a conical neck in the second horizon of Poštela (Ha C), although the triangles are more widely spaced (Teržan 1990, 32, 35–36, especially Pl. 11: 4, 5; 39: 1; 40: 3).

Traces of an earlier settlement level were identified in two larger pits, possibly semi-sunken huts, discovered beneath buildings from a later phase. Among the finds from the pit beneath Building 2 (*Pl. 3:* 9–11), a jug or a bowl (*Pl. 3:* 9) is particularly noteworthy. Another significant piece is a bowl with a rim decorated with oblique grooves (*Pl. 3:* 10), comparable to type Sz4b, known from the early Urnfield period to the Early Iron Age (Črešnar 2022, 75, Fig. 66). A similar vessel was discovered in the settlement of Pobrežje, with parallels in Ha B period graves at the cemeteries of Pobrežje and Ruše (Kramberger, Črešnar 2021, Fig. 4: 4), as well as at the settlement of Dragomelj from the Rogoza-Orehova vas horizon (Turk, Svetličič, Pavlovič 2022, 111, G 648). Incised decoration with dots, as seen on a vessel fragment from this pit (*Pl. 3:* 11), is characteristic of the cemeteries of the Ruše Urnfield period group. Its earlier appearance is placed at the transition from the Early to the Late Urnfield period (Črešnar 2022, 97 and the literature cited therein).

Phase Ha B includes, among other features, a large, probably two-phase building in the eastern part of the settlement, excavated in 1960 (*Fig. 6*). Its subphases cannot be chronologically distinguished due to the uniformity of the associated finds. The structure was excavated to an area of approximately 8 × 7 m, but extends beyond the excavation limits and was therefore likely larger. It is of particular zooarchaeological interest due to the above-average taxonomic richness of the recovered material (*Fig. 11*). The ceramic finds have not yet been fully studied, drawn, or analysed; therefore, only a small selection of representative pieces is presented here (*Pl. 3:* 1–8).

The first phase of the building is represented by three ditches, interpreted as foundation trenches for beams, meeting at the right angles. These likely mark the outer walls, while a transverse ditch probably indicates a partition wall separating two internal spaces. It remains uncertain whether some of the postholes, especially those within the trenches (e.g. in the northernmost trench), are also to be dated to this phase; in the present interpretation, they are attributed to a second phase of the building. This later phase is characterised by straight rows of postholes for supporting posts (pillars and walls), all aligned along the previously established NW-SE orientation, possibly reusing or partially relying on the earlier structure. The longest and densest row consists of postholes dug into the northern trench, followed by three additional rows of generally slightly larger postholes, running parallel to it and spaced approximately 1 m apart.

The situation in the southernmost part of the building is rather unclear. Based on the layout of the first phase, the southern outer wall would be expected here; however, only a single posthole was identified in the trench or its fill. This may indicate a different construction method in this area. Alternatively, the postholes may not have reached the lower, more clearly distinguishable layers and were instead cut into the heterogeneous trench fill, making them difficult to detect. Although the southern extension of the ditch was not recorded in the excavation plan, it can be reconstructed based on Pahič's unpublished profiles and its connections with the other ditches (*Fig. 6*). Most of the archaeozoological material from this area is thought to derive from the fill of the trench along the southern side of the building, in Quadrant A3.

A bowl with an inverted rim decorated with incised lines and impressed dots, filled with incrustation (*Pl. 3:* 1), has parallels both from the

Fig. 6: Brinjeva gora. Plan of the settlement remains in part of the trench excavated in 1960. For the exact location of the area shown, see *Figure 4*.
Sl. 6: Brinjeva gora. Načrt dela naselbinskih ostalin na delu izkopnega polja iz leta 1960. Za označbo natančne lege predstavljenega območja glej *sliko 4*.

cemetery (Graves 38 and 134; Pahič, S. 1972, Pl. 9: 7; 26: 10) and the settlement of Pobrežje from the Late Urnfield period (Ha B) (Kramberger, Črešnar 2021, 78, Fig. 10, types S4/4 and 4/5 and the literature cited therein). A bowl decorated with a zigzag line (*Pl. 3:* 5) is similar. Fragments of such bowls were also found on Brinjeva gora during the 1953 campaign, specifically in Layers 4 and 5 (Ha B; Oman 1981, Pl. 34: 3; 46: 1, 7). Similarities can also be found in the bowl from Grave 52 of the first cemetery in Ruše (Müller-Karpe 1959, Fig. 109: F1). In Graves 38, 49, and 100 in Pobrežje, parallels exist for the incrusted decoration of incised lines, short oblique incisions and garlands (*Pl. 3:* 2; Pahič, S. 1972, Pl. 9: 11; 11: 1; 19: 6). A fragment of a vessel with two horizontal incisions and stripes of vertical incisions (*Pl. 3:* 3) has parallels in pottery from Grave 41 at Gračič below Brinjeva gora (Koprivnik 2021a, Pl. 15: 7–9), in a jug from Grave 5 at Miklavž on Dravsko polje, dated to the later part of Ha B (Črešnar, Murko 2014, 210–213, Fig. 10.7: 1; Fig. 10.9; Črešnar, Teržan 2014, 697), and vessels from the first phase of the settlement in Ormož (Ha B1, B2; Lamut 1988–89, Pl. 3: 2; 11: 18).

The decoration of incised hatched triangles (*Pl. 3:* 4) represents a younger element within Ha B, but is characteristic of Early Iron Age and Early Hallstatt pottery in the Danube–Balkan and Bessarabian styles (Teržan 1990, 42; Vojaković 2014, 394, 401–402). Pseudo-corded decoration (*Pl. 3:* 6) is characteristic of the Ruše group and thus the later part of the Urnfield period. Rare examples, however, extend into the Early Iron Age (Horvat 1983, 150, e.g. Pl. 7: 4–12; Müller Karpe 1959, 118, e.g. Fig. 108: C, M2; 110: E4; F: Gr. 64, Gr. 71;

111: A1). Applied ribs in the form of single and double garlands also occur (*Pl. 3:* 7,8). Fragments of both decoration types were already documented in the 1953 Brinjeva gora campaign, in Layers 5 and 6 (Oman 1981, Pl. 45: 11; 52: 19). The pot with single garlands (*Pl. 3:* 7) has strong parallels in Ormož (Dular, Tomanič Jevremov 2010, Pl. 40: 3; 158: 6, 8), at the settlement of Obrežje (type L3, dating to the later part of Ha B and Ha C0; Mason, Kramberger 2022, 56, Fig. 23, G 1473) and at the Mastni hrib site near Škocjan in Dolenjska (Ha B; Dular et al. 2000, 132–134, Pl. 9: 7).

During a decade of archaeological excavations on Brinjeva gora, the largest number of prehistoric animal remains was recovered in 1959 (*Fig. 11*). Excavations in the westernmost part of the excavation field, on a surface of grey-brown humic loam (*Fig. 12*: Layer vii), revealed the remains of two superimposed hearths from the Ha B phase (*Fig. 13:* Hearths A and B). The earlier one (Hearth B) was cut by at least one posthole. Fragments of a vessel with a conical neck and a bowl with an inverted rim were found on the floor associated with both hearths (*Pl. 2:* 12,13). The vessel with a conical neck is comparable to type Sv3b bowls from Rogoza (usually decorated) and to type C4/1 cups. Both types are dated to Ha A and Ha B, although the Rogoza type may also occur in the Early Iron Age (Črešnar 2022, 72, Fig. 65; Mason, Kramberger 2022, 84, Fig. 35). Similar jugs are known from Pobrežje (Grave 85; Pahič, S 1972, Pl. 15: 18) and Ruše (Grave 5/1993; Črešnar 2006, Pl. 2: A1).

Beneath the greyish-brown humic loam, a greyish-brown layer with crushed burnt clay was discovered (*Fig. 12*: Layer iv), overlain by a third, earliest hearth (*Fig. 13*: Hearth C). Among the finds from the layer between Hearths A and B and Hearth C (*Pl. 2:* 10,11), the presence of vessels decorated with horizontal incised lines and impressed dots (*Pl. 2:* 10) is noteworthy. Another fragment of a bowl with an inverted, obliquely grooved rim (*Pl. 2:* 7) derives from the layer beneath Hearth C (*Pl. 2:* 7–9). The decoration of horizontal incisions at the transition from the shoulder to the neck, combined with clusters of oblique incisions arranged in zigzag patterns on the shoulders (*Pl. 2:* 8) finds parallels in material from cemeteries at Pobrežje, Ruše, Maribor, and Obrežje (Pahič, S. 1972, Figs. 5: 1; 16: 9; 17: 1; 18: 2; 31: 5; Koprivnik 2021b, Fig. 14: 1; Müller Karpe 1959, Figs. 110: D4; 112: D6; 112: H2; 114: N; 115: D6; 120: 11; Mason, Kramberger 2022, G641). A fragment of a vessel with an everted rim and remains of a handle (*Pl. 2:* 9) may represent an older element; it can be compared to some type Sk 1 bowls from Orehova vas (Ha A; Grahek 2015, 39, Fig. 31, G 622, 623; 2014, 258, 272, Figs. 14.1.11: 15, 16; 14.1.22). Hearth C can therefore most likely be assigned to phase Ha B.

It should be emphasised that, at least in phase Ha B, parts of the settlement were terraced. Pahič identified several dry-stone walls that may mark the edges of terraces, serve as retaining walls, or form building foundations (cf. Building D from 1953; Pahič, S. 1981, 86–89). Remains of buildings from this period were found in all larger trenches on the southern side of the settlement and span several stratigraphic levels.

No *in situ* archaeological remains or layers from the Hallstatt or La Tène periods were identified on the southern side of the site. Only remains from the Roman period settlement, enclosed by a stone fortification, are present. These include several layers, possible remains of a burnt wooden building, several hearths, and a large pit of unknown function, approximately 5 m deep. The only reliable Hallstatt-period (Ha C) context is a pit – possibly part of a building[4] – discovered in 1954 during excavations of the so-called Terrace C in the north-eastern part of the site (Pahič, S. 1985, 11–12).

In addition to the usual ceramic and metal finds, Pahič stood out from prevailing local practice at the time by also collecting and storing animal remains from Brinjeva gora. However, while ceramics were consistently recorded by quadrants and arbitrary levels during the excavations, faunal remains from multiple quadrants or even levels were often combined in the same bag or box, making it difficult to link individual bones to a specific stratigraphic context or time period. The material from the final three years of excavation (1961–1963), when mostly smaller-scale trenches were investigated, has not been preserved.

For this study, faunal remains that could not be attributed with sufficient confidence to a particular time period were excluded from further analysis.

ARCHAEOZOOLOGICAL ANALYSIS: METHODS AND MATERIAL

During Pahič's excavations at Brinjeva gora, animal remains were collected by hand. Consequently,

[4] Pahič associated it with clay digging (Pahič, S. 1962, 190).

the proportion of smaller specimens in the final assemblage is likely somewhat underestimated (cf. O'Connor 2000, 28–35). To assess the extent of this bias, the present study includes preliminary insights from a separate, modest assemblage of animal bones and teeth recovered at the same site in 2019 (Omahen, Črešnar, Mušič 2020; Črešnar, Omahen, Mušič 2020, 8). In this case, the material was obtained by sieving all excavated sediments through a mesh with a size of 1 × 1 cm. This method did not allow for the satisfactory recovery of small vertebrate remains, and some of the smallest skeletal elements of medium- to large-sized mammals, such as phalanges and isolated teeth, were likely missed. Nevertheless, the assemblage provides a much better insight into their presence than hand-collected material and a fairly reliable picture of the composition of other skeletal elements in larger mammals (cf. Toškan, Dirjec 2004, 157–161).

The taxonomic analysis included remains of all skeletal elements except ribs, which are highly fragmented and therefore difficult to identify to the species level. Consequently, rib specimens were assigned to one of the two ad hoc size categories: a 'large herbivore' class (e.g., cattle, red deer, wild boar) and a 'small herbivore' class (e.g., sheep, goats, roe deer, domestic pigs). Although this approach does not allow a reliable assessment of the relative proportions of rib specimens among similarly sized species, it facilitates more effective comparisons between animals of different size classes.

Identification was carried out using the Osteological Collection of the Institute of Archaeology at the Research Centre of the Slovenian Academy of Sciences and Arts, in combination with generally accepted identification keys (e.g., Boessneck, Müller, Teichert 1964; Schmid 1972; Brown, Gustafson 1979; Fernandez 2001; Zeder, Lapham 2010; Zeder, Pilaar 2010). The ratio of domestic to wild pig, as well as dog to wolf remains, was estimated based on the size of the better-preserved specimens (cf. Morey 2010 and the literature cited therein; Payne, Bull 1988; see also Bökönyi 1995). Measurements were taken in accordance with the guidelines published by von den Driesch (1976).

In archaeozoology, age at death is traditionally estimated from tooth wear or epiphyseal fusion data. The latter method is less informative because it only indicates whether an animal died before or after the ossification of a particular bone, or part of a bone, was complete (Toškan 2016, 113). Nevertheless, the mortality profiles presented here are based solely on epiphyseal fusion, as the recovery of isolated teeth was inadequate due to exclusive hand collection of remains. Epiphyseal fusion timing was drawn from Silver (1972) for cattle, Zeder (2006) for caprines, and Zeder, Lemoine, and Payne (2015) for pigs.

In cattle, generally regarded as the most economically important and numerically dominant domesticate in roughly contemporary central settlements of the region (*Figs. 17* and *18*; Toškan and Dirjec 2010), the pattern of skeletal element representation was examined in detail. The procedure (see O'Connor 2000, 71–75) corrects for differences in the number of recovered specimens of individual elements caused by their unequal representation in the cattle skeleton (e.g., each vertebra occurs once, long limb bones twice, i.e. the left and right specimen, phalanges 24 times, i.e. pairs of first, second, and third phalanges on each limb). Rather than using the raw counts of individual bones and teeth, 'modified counts' (MC; *sensu* O'Connor 2000, 71) were calculated as the ratio between the number of finds of a given skeletal element and the number of that element present in the bovine skeleton. To identify elements represented above or below average in the analysed assemblage, 'observed *vs*. expected values' (OvE; *sensu* O'Connor 2000, 72) were also calculated. This is the ratio between the MC of a given element and the mean OvE of all elements included in the analysis. Elements with OvE > 1 are considered better represented than average, while those with OvE < 1 are considered less well represented relative to the average. Deviations from OvE = 1 exceeding one standard deviation are treated as significant in this study.

RESULTS

The study initially included approximately 5,500 animal remains from contexts considered chronologically definable. However, for several hundred specimens within this group, dating proved unattainable. Of the remainder, about one fifth (N = 1,264; NISP = 580) derive from the Roman period (Omahen et al. 2019a; Toškan 2019a), while nearly 3,500 are prehistoric, of which 1,927 were taxonomically identified. Among these, teeth and bones from the Late Bronze Age predominate, accounting for NISP = 1,815 (94.2% of the total prehistoric NISP). In contrast, remains from the Middle Bronze Age and the transitional phase

Taxon / Takson	NISP	% NISP
Bos taurus (cattle / domače govedo)	647	32.3
Caprinae (sheep, goat / ovca, koza)	744	37.2
Sus cf. *domesticus* (presumably domestic pig / verjetno domači prašič)	513	25.6
Canis familiaris (dog / pes)	14	0.7
Equus caballus (domestic horse / domači konj*)*	16	0.8
Cervus elaphus (red deer / jelen*)*	42	2.1
Capreolus capreolus (roe deer / srna)	9	0.5
Sus cf. *scrofa* (presumably wild boar / verjetno divji prašič)	8	0.4
Canis lupus (wolf / volk)	1	0.1
Ursus arctos (brown bear / rjavi medved)	4	0.2
Hydrozoa (?) gen. indet. (hydrozoans / trdoživnjaki)	1	0.1
TOTAL / SKUPAJ	1999	100.0

Fig. 7: Brinjeva gora. Representation of animal taxa in material from the Middle Bronze Age, Late Bronze Age, and Early Iron Age layers (excavations 1953–1960).
Sl. 7: Brinjeva gora. Zastopanost živalskih taksonov v gradivu iz srednjebronastodobnih, poznobronastodobnih in starejšeželeznodobnih plasti (izkopavanja iz let 1953–1960).

Skeletal element / Skeletni element	Dimension / Dimenzija	Measurements (in mm) / Izmerki (v mm)		
Mandibula	M_1: breadth / širina	13.5	--	--
	M_2: breadth / širina	18.5	18.5	--
	M_3: lenght / dolžina	54.0	50.5	52.5
	M_3: breadth / širina	20.0	20.5	20.5
Scapula	BG	33.0		
Ulna	BPC	24.5*		
Tibia	SD	27.5	25.5*	
	Bd	38.5	37.5*	
	Dd	34.0	30.5*	

Fig. 8: Brinjeva gora. List of putative wild boar remains from Middle Bronze Age, Late Bronze Age, and Early Iron Age layers (excavations 1953–1960). Measurements of the finds are also provided. An asterisk (*) indicates specimens tentatively attributed to wild boar. Measurements within each individual rectangle refer to the same bone specimen. All dimensions follow von den Driesch (1976). Abbreviations: Bd – breadth of the distal end; BG – breadth of the glenoid cavity (*cavitas glenoidalis*); BPC – breadth of the proximal articular surface (*processus coronoideus ulnae*); Dd – depth of the distal end; SD – smallest breadth of the diaphysis.
Sl. 8: Brinjeva gora. Popis domnevnih ostankov divjega prašiča v gradivu iz srednjebronastodobnih, poznobronastodobnih in starejšeželeznodobnih plasti (izkopavanja iz let 1953–1960). Podani so tudi podatki o velikosti najdb. Zvezdica (*) označuje primerka, ki sta bila divjemu prašiču pripisana pogojno. Izmerki znotraj vsakega posameznega pravokotnika se nanašajo na isti kostni odlomek. Dimenzije so povzete po von den Driesch (1976). Obrazložitev okrajšav: Bd – širina distalnega konca; BG – širina sklepne jamice (*cavitas glenoidalis*); BPC – največja širina proksimalne sklepne gladčine (*processus coronoideus ulnae*); Dd – debelina distalnega konca; SD – najmanjša širina diafize.

to the Late Bronze Age (NISP = 38; 1.2% of the total prehistoric NISP), as well as those from the Early Iron Age (NISP = 74; 3.8% of the total prehistoric NISP), occur in much smaller numbers. Consequently, this article, which focuses on the prehistoric material, deals predominantly with the assemblage from the Late Bronze Age.

The results of the preliminary analysis of archaeozoological finds from the 2019 trial trenching at Brinjeva gora (Omahen, Črešnar, Mušič 2020) are presented separately (see Sec. Brinjeva gora: 2019 campaign). The same applies to the material from the settlement at Blato near Slovenske Konjice (see Sec. Blato near Slovenske Konjice; Bricelj

2014; 2018) and from the settlement from Grajski hrib in Gornja Radgona (see Sec. Grajski hrib in Gornja Radgona; Dular 2013, 179–206).

Brinjeva gora: 1953–1960 excavation campaigns

The analysed prehistoric assemblage comprises 3,471 mammalian remains and a fragment of a hard calcium carbonate skeleton, tentatively attributed to a hydrozoan[5]. Of these, 1,999 specimens were identified to at least the genus level[6], representing a minimum of twelve species (*Fig. 7*). Among the remains identifiable anatomically but not taxonomically, rib fragments predominate (N = 127). Approximately one third of the assemblage (N = 1,262) could not be identified, even at the anatomical level.

The taxonomic richness of the analysed material is relatively high and does not differ markedly from that observed in richer faunal assemblages from other large, archaeozoologically investigated Late Bronze Age and/or Early Iron Age settlements in the south-eastern Alpine region (Bökönyi 1994, Tab. 2; Toškan, Dirjec 2010, Tab. 1; Toškan, Bartosiewicz 2018, Tab. 1). Of the taxonomically identified remains, 95% belong to the four principal domestic species: cattle, sheep, goat, and pig. Of the 744 caprine specimens, 81 could be identified to the species level on the basis of morphological characteristics, the majority of which are sheep (N = 51). Dogs and horses are each represented by just over a dozen remains, with cranial elements and distal limb bones predominating.

Red deer (N = 41) is the best-represented wild species. Antler fragments predominate, accounting for approximately one quarter of the finds, and typically exhibit traces of human modification. In one specimen, the basal portion of the antler with the burr is preserved, clearly indicating a naturally shed origin. The pattern of skeletal element representation in wild carnivores closely resembles that reported for dogs. Indeed, brown bear remains (N = 4) comprise a partially preserved ulna, an isolated tooth and single fragments of both the maxilla and mandible, while the sole wolf specimen is a well-preserved hemimandible. Its identification is supported by both its large size (e.g., M_1: length × width = 27.5 mm × 11.5 mm) and the relatively wide spacing between the alveoli of successive premolars. Wild boar is represented by at least five notably large specimens, with two additional, slightly smaller examples assigned more tentatively (*Fig. 8*). Since the metric analysis included only 196 of the better-preserved specimens out of a total of 521 identified suine teeth and bones, additional wild boar remains may be present in the assemblage; however, their number is likely to be small.

The only estimate of height at the withers was obtained for cattle, based on the length of a completely preserved metatarsal bone excavated in 1960 (Section A, Quadrant 3, depth: 40–115 cm; dating: Ha B). The bone belonged to an animal, most likely a cow, which would have measured approximately 111 cm at the withers (*cf.* Matolcsi 1970). Similar values are reported for Late Bronze Age and Early Iron Age material from Ormož (median: 111.5 cm, range: 110.5–116.4 cm, N = 6; Toškan, Dirjec 2010, Tab. 2), while estimates for Early Iron Age specimens from Stična are slightly lower on average (median: 106.3 cm, range: 98.88–115.96 cm, N = 7; Bökönyi 1994, Tab. 6). The size similarity of cattle and caprines from Brinjeva gora and those from Ormož and Stična remains evident even when all better-preserved bones and teeth are considered (Stična: Bökönyi 1994, 205–213; Ormož: own unpublished data[7]) (*Figs. S1*[8] and *S2*[9]).

Of the few horse remains, three could be measured by following the standard guidelines published by von den Driesch (1976) (*Fig. S3*). All were recovered from Late Bronze Age contexts, yet their size does not appear smaller than that of conspecific skeletal remains from Early Iron Age settlements and cemeteries in the region (Bökönyi 1968, 56, 63;

[5] The identification was made by Prof. Petar Kružić from the Biology Department of the Faculty of Natural Sciences and Mathematics at the University of Zagreb, Croatia.

[6] In the case of caprines, taxonomic identification was generally possible up to the subfamily level (i.e. Caprinae), whereas the hydrozoan fragment was classified at the class level (i.e. Hydrozoa).

[7] For the publication of the site, see Dular, Tomanič Jevremov (2010).

[8] *Figures S1–S6* are available as supplemental data at http://iza.zrc-sazu.si/pdf/razno/Toskan_OmahenGruskovnjak_Cresnar_Suppl_AV77_2026.pdf

[9] *Figure S2* presents a selection of the available metric data for sheep and goatz bones, specifically the smallest width of the diaphysis (SD) of the radius and tibia. These dimensions have the largest number of measurements available, with the specimens considered varying in their degree of preservation.

Taxon / Takson	Age (in years) / Starost (v letih)	Epiphysis / Epifiza	
		Unfused / Nezraščena	Fused / Zraščena
B. taurus	0–1		1
	1–2	1	12
	2–3	4	14
	3–	1	8
	Σ	**6**	**35**
Caprinae	0–0.5		7
	0.5–1		7
	1–1.5		1
	1.5–2.5	2	15
	2.5–4	1	7
	4–		1
	Σ	**3**	**38**
S. domesticus	0–0.66		1
	0.66–2	3	19
	2–3	2	3
	3–	7	2
	Σ	**12**	**25**

Fig. 9: Brinjeva gora. Representation (NISP) of not-yet-ossified (epiphysis not fused) and fully ossified (epiphysis fused) bones of cattle, caprines, and domestic pig from the Late Bronze Age layers (Ha A and Ha B; excavations 1953–1960), grouped by age category. Each group comprises parts of skeletal elements (i.e., proximal or distal ends) that ossify completely at the same ontogenetic stage: e.g., in the first, second, third, or after the third year of life.
Sl. 9: Brinjeva gora. Število (NISP) še nepopolnoma osificiranih (epifiza nezraščena) in že osificiranih kosti (epifiza zraščena) goveda, drobnice in domačega prašiča iz poznobronastodobnih plasti (Ha A in Ha B; izkopavanja iz let 1953–1960) po starostnih skupinah. Skupine sestavljajo deli skeletnih elementov (tj. proksimalni ali distalni konec posameznih kosti), ki popolnoma osificirajo pri isti ontogenetski starosti; npr. v prvem, drugem, tretjem ali po tretjem letu življenja.

1994, 210; Toškan, Bartosiewicz 2018, Tab. 2). The remains of red deer and roe deer fall within the expected size range (*Fig. S4*; cf. Wustinger, Galli, Rozpedek 2005; Aniceti, Rizzetto, Giacalone 2026).

The estimated age-at-death profile for the most economically important domesticates is presented in *Figure 9*. Most cattle and caprines were culled as adults or at an advanced age, consistent with an emphasis on the exploitation of secondary products. In contrast, pigs were primarily raised for meat and were therefore generally culled at a much younger age.

Skeletal element representation data across domestic taxa reveal a substantial proportion of cranial remains, particularly mandibles and isolated teeth (*Fig. 10*). Among the Late Bronze Age material (Ha A, Ha B), these remains make up one third of the assemblage in cattle and considerably higher proportions in caprines and pigs (44% and 63%, respectively). In contrast, phalanges are rare in these species and generally absent in other taxa. The pattern may partly – but not decisively – reflect recovery bias, as the light enamel of tooth crowns makes them more easily visible during excavation and thus more likely to be collected than brownish bone fragments, particularly the smallest elements such as phalanges. Notably, cheek teeth in cattle, sheep, goats, and domestic pigs are roughly the same size as phalanges.

The best-represented skeletal elements from the relatively meaty anatomical regions are typically the scapula and tibia, with the radius also common in caprines. Fragments of metacarpals, metatarsals, and ribs are frequent as well. The proportion of elements from the meatiest regions (i.e., category A *sensu* Uerpmann 1973) is highest in pigs (approximately 35% of all finds attributed to this species), lower in cattle (approximately 30% of all cattle remains), and lowest in caprines (just over 20% of finds attributed to sheep and goats).

The pattern of skeletal element representation among the rare wild taxa remains differs markedly

Skeletal element / Skeletni element	Chronological phase / Kronološka stopnja																	
	Bd B/C–D						Ha A–Ha B									Ha C		
	B. taurus	Caprinae	*Sus* sp.	*C. familiaris*	*C. elaphus*	*C. capreolus*	*B. taurus*	Caprinae	*Sus* sp.	*C. familiaris*	*E. caballus*	*C. elaphus*	*C. capreolus*	*C. lupus*	*U. arctos*	*B. taurus*	Caprinae	*Sus* sp.	*C. elaphus*
Cornua / Pr. cornualis							17	10				10							
Cranium							8	2	14									2	
Maxilla							7	4	26	1			1		1	1		1	
Mandibula	1	4	5				114	112	111	9	2	3	1	1	1	4	11	5	
Os hyoideum							1												
Dentes	1	1	4	1			103	176	66		7	1	1		1	9	15	3	
Vertebrae							20	3	2	1							1		
Ossa coxae	2		1		1		31	9	19	1			2			1			
Sacrum								1	4										
Scapula		1	1				41	10	49										
Humerus	1	1	2				29	40	53			1	1				1		1
Radius, Ulna							41	103	51			6			1	1	3	1	
Metacarpalia		1					28	36	5		1	5	1				1		
Carpalia							2		4										
Femur							23	23	20		1					3			
Patella								1	3										
Tibia	1	2	2				49	95	29			1					1		
Fibula									2										
Metatarsalia	3	1				1	40	38	5		1	7	1				3		
Tarsalia							10	7	9			1				2	3		
Phalanges 1							18	1	2		1					1			
Phalanges 2							3			1	1								
Phalanges 3							2												
Metapodia							2		2		1	2							

Fig. 10: Brinjeva gora. Representation (NISP) of skeletal elements for individual mammal species from Middle Bronze Age, Late Bronze Age, and Early Iron Age layers (excavations 1953–1960), by chronological phase.
Sl. 10: Brinjeva gora. Zastopanost (NISP) skeletnih elementov med ostanki posameznih vrst sesalcev iz srednjebronastodobnih, poznobronastodobnih in starejšeželeznodobnih plasti (izkopavanja iz let 1953–1960) po kronoloških stopnjah.

(*Fig. 10*). In the red deer assemblage, antler fragments are the most numerous (N = 10), although elements from nearly all anatomical regions are present. In principle, antlers could have been obtained by collecting naturally shed specimens (Bartosiewicz 2013, 340–341); however, the considerable presence of postcranial remains suggests that hunting was likely the primary source of this valuable raw material at the prehistoric settlement of Brinjeva gora. This interpretation is supported by the roe deer assemblage, which comprises nine specimens, none of them antler fragments.

Horizontal distribution of archaeozoological finds

For the animal remains recovered during Pahič's excavations at Brinjeva gora, it is generally possible to identify the trench in which the bones were found, but not the specific quadrants within those trenches. An exception is the material from the 1953 excavations, which, unlike the remains from later

Taxon / Takson	Year of excavation and context / Leto izkopavanja in kontekst												
	1953					1954		1955		1958	1959	1960	
	Level of Buildings A & B / Nivo stavb A in B	Building D, brown clay / Stavba D, rjava ilovica	Buildings D & E / Stavbi D in E	Part of Building E / Del stavbe E	Entire area of the trench / Celotna površina sonde	Large pit / Velika jama	Entire area of all trenches / Celotna površina vseh sond	Large pit (dwelling?); earlier settling level / Velika jama (bivališče?); starejši poselit. nivo	Level of two buildings; later settling level / Nivo dveh stavb; mlajši poselitveni nivo	Entire area of the trench / Celotna površina sonde	Entire area of the trench / Celotna površina sonde	Part of a large building / Del velike stavbe	Entire area of the trench / Celotna površina sonde
B. taurus	22 13.7 %	45 28.1 %	8 ≈ 47 %	67 30.2 %	142 27.2 %	22 29.7 %	33 34.4 %	19 ≈ 38 %	38 67.9 %	67 33.5 %	217 31.1 %	35 32.1 %	99 39.7 %
Caprinae	41 25.5 %	62 38.1 %	5 ≈ 30 %	97 43.7 %	206 39.5 %	39 52.7 %	42 43.8 %	15 ≈ 30 %	2 3.6 %	60 30.0 %	302 43.5 %	23 21.1 %	74 27.4 %
Sus sp.	40 24.8 %	47 29.4 %	4 ≈ 23 %	52 23.4 %	143 27.4 %	12 16.2 %	17 17.7 %	16 ≈ 32 %	15 26.8 %	61 30.5 %	148 21.3 %	46 42.2 %	89 33.0 %
C. familiaris	1 0.6 %	2 1.3 %			3 0.6 %					3 1.5 %	6 0.9 %	1 0.9 %	2 0.7 %
E. caballus	1 0.6 %			1 0.5 %	2 0.4 %					1 0.5 %	9 1.3 %	2 1.8 %	2 0.7 %
C. elaphus	13 8.1 %	4 2.5 %		4 1.8 %	21 4.0 %	1 1.4 %	4 4.1 %		1 1.8 %	6 3.0 %	7 1.0 %	1 0.9 %	3 1.1 %
C. capreolus	2 1.2 %	2 1.3 %		1 0.5 %	5 1.0 %					1 0.5 %	3 0.4 %		
C. lupus											1 0.1 %		
U. arctos										1 0.5 %	2 0.3 %	1 0.9 %	1 0.4 %
Hydrozoa											1 0.1 %		
Σ NISP	120	161	17	222	522	74	96	50	56	200	696	109	270
Σ All / Vse	201	321	31	371	926	201	261	53	73	256	1259	182	421

Fig. 11: Brinjeva gora. Spatial distribution of animal remains from Middle Bronze Age, Late Bronze Age, and Early Iron Age layers (excavations 1953–1960). For the excavations of 1953, 1954, 1955, and 1960, data are provided both for the entire area of each trench and, where relevant, for specific contexts within them (e.g., 1953 trench: level of Buildings A and B). Only finds with a known microlocation are included (N = 3248; NISP = 1890). Quantities of remains are given as NISP and %NISP. The location of individual contexts is illustrated in *Figures 4–6*, *12* and *13*.

Sl. 11: Brinjeva gora. Razpršenost živalskih ostankov iz srednjebronastodobnih, poznobronastodobnih in starejšeželeznodobnih plasti (izkopavanja iz let 1953–1960). Pri izkopavanjih iz let 1953, 1954, 1955 in 1960 so ob podatkih, ki se nanašajo na celotno površino v danem letu izkopanih sond, ločeno podani še podatki za nekatere kontekste znotraj njih (npr. sonda iz leta 1953: nivo objektov A in B). Upoštevane so le najdbe z znanimi podatki o najdiščni legi (N = 3248; NISP = 1890). Količina ostankov je podana kot NISP in % NISP. Umestitev kontekstov v prostor je prikazana na *slikah 4–6*, *12* in *13*.

campaigns, has been published comprehensively (Pahič 1981; Oman 1981).

Figure 11 summarises the horizontal spatial distribution of animal remains. The total number of teeth and bones per trench varies widely (range: 31–1259), as does the number of taxonomically identified specimens (range: 17–696). Cattle, sheep, goats, and domestic pigs consistently account for at least two-thirds of NISP, typically exceeding 90% (median 96.4%; range: 64–100%). Notably, all 28 dog and horse remains were recovered from the saddle area on the southern edge of the settlement (Trenches 1953, 1958–1960), which is also the most intensively excavated sector and yielded the largest overall number of animal finds. Nevertheless, the observed distribution of equine and canine remains may, in theory, also reflect past patterns of spatial use within the settlement.

This interpretation is supported by the spatial distribution of red deer and roe deer remains. In the relatively small assemblage from Layer 1 of the 1953 trench (NISP = 120), the two species together account for the highest proportion of identified specimens (9.3%). Pahič interpreted this layer as associated with Buildings A and B, dated to Ha A (Pahič 1981, 79–84, 99, Fig. 22). The pattern differs in the much larger 1959 assemblage (NISP = 696), where deer remains comprise only ~2%, as well as in other trenches yielding cervid material (*Fig. 11*). Notably, however, the 1953 assemblage – both overall and in the sub-set associated with Buildings A and B – also stands out for yielding the highest absolute counts of deer remains, with 26 red deer and 15 roe deer specimens, compared to a maximum of ten teeth and bones for both taxa combined in the 1959 trench. A similar pattern is observed across other excavation campaigns, where cervid remains do not exceed ten per assemblage (median = 4), despite total numbers of taxonomically identified specimens often surpassing those of Layer 1 from 1953 (*Fig. 11*).

Cattle, caprines, and domestic pigs are the best-represented taxa across all excavation campaigns, although their proportions vary considerably between trenches. Cattle account for 13.7–39.7%, sheep/goat for 21.1–43.5%, and domestic pigs for 21.3–42.2% of the identified specimens (*Fig. 11*). The proportions of these taxa within a trench are partly interdependent. For example, the 1960 trench exhibits the highest frequencies of cattle and domestic pig, corresponding to the lowest share of caprines, whereas the 1959 trench shows the highest proportion of sheep and goats and the lowest proportion of domestic pigs. Differences in the representation of cattle, caprines, and pigs between excavation campaigns are highly statistically significant ($\chi^2 = 63.578$, df = 8, $p < 0.0001$).

Diachronic change

Based on the available data, diachronic changes in the representation of individual taxa can only be inferred tentatively (*Fig. 11*). These changes are most apparent in specific contexts from the 1953 trench. Buildings A and B are dated to Ha A, whereas the material from Building D and the adjacent brown loam is attributed to Ha B. The remaining two contexts from the 1953 campaign listed in *Figure 11* (i.e., 'Buildings D and E' and 'part of Building E') yielded finds spanning both[10] of the aforementioned Late Bronze Age phases, as well as the material from the Early Iron Age (Pahič 1981; Oman 1981[11]). Of additional interest are the data from the 1955 campaign, where animal remains from a presumed semi-sunken structure dated to Ha B, along with those from two slightly later buildings (i.e., Buildings 1 and 2) from the same phase can be arranged in a relative chronological sequence (*Figs. 5* and *11*).

Archaeozoological evidence from the 1953 campaign suggests a gradual increase in the proportion of caprines and pigs relative to cattle, whereas the 1955 trench shows an opposite trend. However, the small number of remains limits the reliability of these observations. Examination of the most archaeozoologically rich prehistoric contexts (NISP > 100) indicates that caprines are consistently the most abundant domesticates, followed by cattle and then domestic pigs. The only

[10] Buildings D and E are dated to Ha B; however, the levels associated with the contexts 'Buildings D and E' and 'part of Building E' also extend into the underlying layers of phase Ha A.

[11] Both S. Pahič and D. Oman addressed the chronological assignment of Building E. Pahič grouped the levels by quadrants in the 1953 trench into six layers (Pahič, S. 1981). Oman (1981) largely adopted this scheme in his detailed study of the ceramic material, but assigned some buildings to different layers than Pahič. This is evident from the overview tables of layers and depths in both publications (Pahič, S. 1981, 100, Fig. 22; Oman 1981, 148, Fig. 1). Pahič places Building E in Layer 4 (i.e., grey-brown clay, identified as the residential Building E), whereas Oman assigns it to Layer 5 (i.e., stony blackish soil or black stony humus). This occurred despite Pahič clearly stating that Building E was overlain by Layer 5 (Pahič, S. 1981, 98). Oman's assignment of Building E to Layer 5 is subsequently followed by Teržan (1990, 36–37).

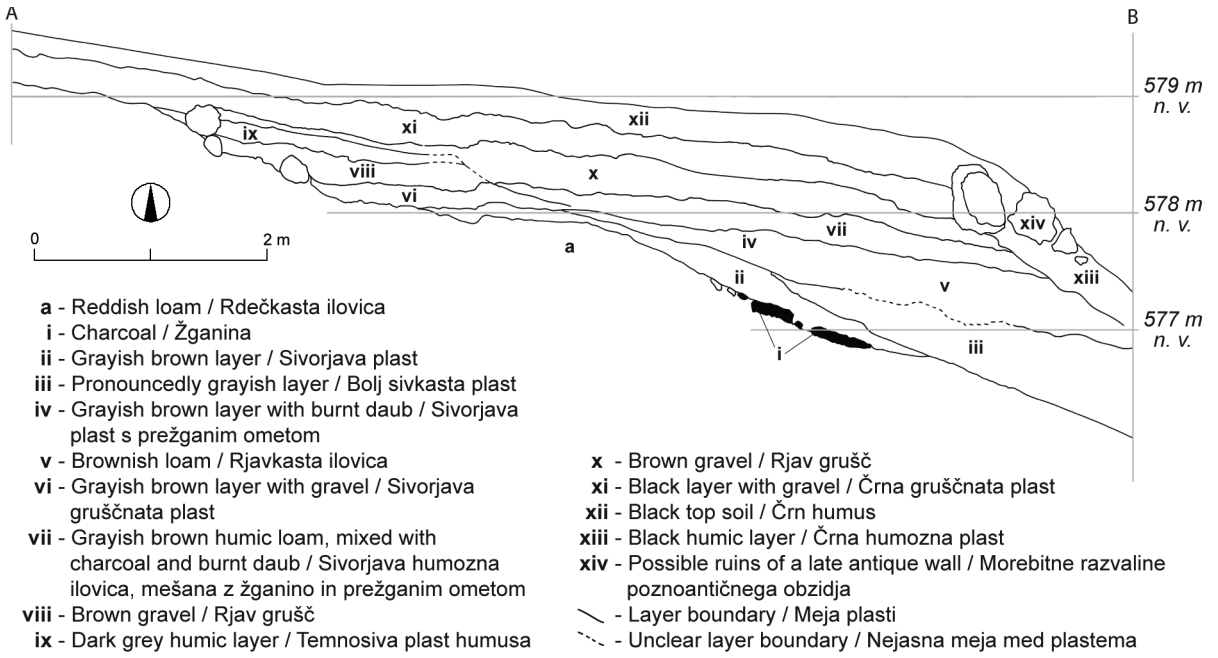

Fig. 12: Brinjeva gora. Section from the trench excavated in 1959. For the exact location of the profile shown, see *Figure 4*. *Sl. 12:* Brinjeva gora. Profil z območja izkopnega polja iz leta 1959. Za označbo natančne lege predstavljenega profila glej *sliko 4*.

notable deviation occurs in the small assemblage from the Oloris–Podsmreka horizon (Bd B2/C–Bd D), where pig accounts for up to 39% of the 38 identified specimens. Nevertheless, differences in the absolute counts of cattle, sheep/goat, and pig in this context are minimal and not statistically significant (*Fig. 10*).

Horses and dogs, as well as other carnivores

During the excavations between 1953 and 1960, 16 prehistoric horse bones and teeth were recovered, with more than half coming from Trench 1959 (*Figs. 13 and S5*). The assemblage of carnivore remains is slightly larger, comprising 14 dog and four bear specimens, as well as a relatively well-preserved wolf hemimandible (*Fig. S6*).

Among horse remains, 93% consist of cranial and foot elements. The only bone from a relatively meaty portion of the body is a femur diaphysis fragment, recovered in 1960. The marked predominance of isolated teeth, maxilla and mandible fragments, as well as foot bones, contrasts with the pattern of skeletal element representation observed in cattle, caprines, and domestic pig (*Fig. 14*), although the difference – likely reflecting the small total number of horse remains – does not reach the level of statistical significance (χ^2 test: $\chi^2 = 1.8054$; df = 1; p = 0.1791). Sparse field documentation generally precludes precise spatial localisation of the recovered (clusters of) horse bones and teeth, but most appear to have originated from within the areas of individual buildings. Notably, the remains from 1960 were found in the area of the largest prehistoric building documented at the site to date (*Fig. 6*; Omahen et al. 2019b, 71, Fig. 2: 3). In his 1960 field diary (entry dated 3 September), Pahič assigns the construction and use of this building to phase Ha B, a chronology corroborated by the selection of archaeological finds presented here (*Pl. 3:* 1–8).

Two horse remains were recovered from the area of this building: an isolated lower second premolar and the aforementioned partially preserved femur. Both were found at a depth of 40–115 cm in Quadrant A3 of Sector A (*Figs. 6* and *S5*). Quadrant A3 measured 4 × 4 m, but according to Pahič's field diary entry from 7 September 1960, both remains were discovered while excavating and cleaning the perimeter ditch of the building. The same microlocation data are attributed to 106 other taxonomically identified animal remains, including cattle (N = 35), caprines (N = 23[12]), domestic pig (N = 45), red deer (N = 1), wild boar (N = 1), and brown bear (N = 1). Additionally, the fill of

[12] Species-level identification was possible for one sheep and two goat specimens.

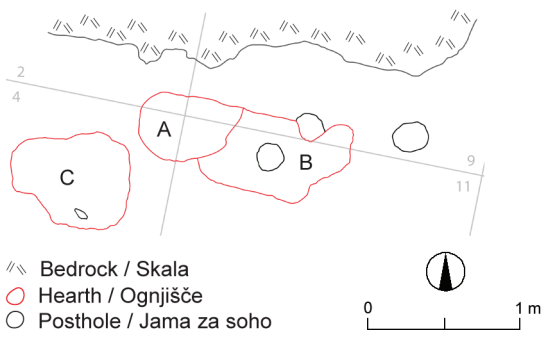

Fig. 13: Brinjeva gora. Plan of the settlement remains in the trench excavated in 1959. For the exact location of the area shown, see *Figure 4*.
Sl. 13: Brinjeva gora. Načrt dela naselbine v izkopnem polju iz leta 1959. Za označbo natančne lege predstavljenega območja glej *sliko 4*.

the nearby Posthole 10 (*Fig. 6*) yielded an almost completely preserved dog hemimandible (*Fig. S6*).

Noteworthy among the horse remains excavated in 1959 are a mandible fragment and five isolated cheek teeth, recovered at depths of up to 1.5 m below modern ground level in Sector B (*Figs. 4* and *S5*). They were found in a greyish-brown layer that presumably served as the walking surface at the time (*Fig. 12:* Layers iv and v) and was associated with the earliest of the three hearths in the sector (*Fig. 13:* Hearth C). The accompanying archaeological finds (*Pl. 2:* 7–11) are dated to Ha B. As the four isolated lower premolars and molars are of similar size but none is duplicated, and the mandible fragment preserves only the six incisors and both canines, these remains may represent a single individual (cf. Toškan, Kovač, Tolar 2022, 290–293, 309–310).

Among the 14 dog and one single wolf specimens, twelve are cranial remains, predominantly relatively well-preserved mandibles (*Fig. S6*). Although dog mandibles are roughly comparable in size to those of sheep and goats, remains of this skeletal element constitute only 15.4% of all recovered sheep/goat finds (N_{mdb} = 129; $N_{\Sigma Caprinae}$ = 839). This proportion differs statistically significantly from that observed in canids (χ^2 test: χ^2 = 20.9126; df = 1; $p < 0.00001$). Most dog mandibles are relatively well preserved, indicating a low likelihood that any specimen is represented by multiple fragments.

Most carnivore remains (N = 9), as with horses, were recovered in 1959. Some were found in close spatial association within the same settlement levels, archaeologically dated to Ha B (*Pl. 2:* 7–11). In the brownish gravelly layer above the hearths described earlier, at depths of 0.5–0.8 m, or more than 0.6 m below the modern ground level in Sectors A–E (*Fig. 4*; corresponding to Layers viii and x in the Sector B profile; *Fig. 12*), a left lower mandible of a dog, a right lower mandible of a wolf, and a fragment of a bear ulna were recovered (*Figs. S5* and *S6*).

In Sectors C and/or D within the same trench (i.e., Trench 1959; *Fig. 4*), a partially preserved maxilla and three fragments representing at least two right mandibles were found among the dog remains. These elements may originate from the deepest layer, interpreted as the earliest extensive settlement deposits in these sectors, containing streaks of charcoal and burnt earth (Layers ii and iii in the Sector B profile; *Fig. 12*). Alternatively, they may have been recovered from the overlying grey humic loam (Layer vii in the Sector B profile[13]; *Fig. 12*). The dog remains therefore most likely date to Ha A, although a slightly earlier attribution cannot be excluded.

Bear remains (N = 4) occur singly.

Brinjeva gora: 2019 campaign

Four test trenches, covering a total area of 14 m², were excavated in the western part of the settlement (*Fig. 2*). Most of the recovered archaeozoological material (99 taxonomically identified teeth and bones in total) dates to the Late Bronze Age and Early Iron Age (approximately Ha A–Ha D; NISP = 55). The remaining archaeozoological finds originate either from the Roman period (3rd–4th century CE) or from mixed layers. All identified animal remains belong to mammals.

The best-represented taxon in the pooled assemblage is caprines. Apart from two wild boar specimens, the analysed material includes exclusively domesticates (*Fig. 15*). Notably, 70% of the remains are isolated teeth, whereas only eight additional, comparatively small skeletal elements – such as carpals, tarsals, and phalanges – were identified. Bone fragments from the meatiest (category A) and moderately meaty (category B) body parts are rare across all four taxa. In cattle, such fragments account for 14% of the remains, compared to 4% in caprines and 20% in pigs. Similar patterns are observed when the analysis is restricted to material dating to the Late Bronze Age and Early Iron Age.

[13] Layers iv and v were not identified in Sectors C and D.

Taxon / Takson	Cranium / Lobanja	Feet / Stopala	Σ remains / Σ ostanki
Bos taurus	274 (43.3%)	123 (19.0%)	647
Caprinae	348 (46.8%)	95 (12.8%)	744
Sus sp.	243 (46.6%)	25 (4.8%)	521
Canis sp.	12 (≈ 80%)	1 (≈ 7%)	15
Equus caballus	9 (≈ 56%)	6 (≈ 37%)	16

Fig. 14: Brinjeva gora. Representation (NISP) of cranial remains and foot bones (i.e. carpals, metacarpals, tarsals, metatarsals, and phalanges) among the remains of cattle, caprines, domestic pig, canids (dogs, wolves), and horses from the Middle Bronze Age, Late Bronze Age, and Early Iron Age layers (excavations 1953–1960).
Sl. 14: Brinjeva gora. Število (NISP) ostankov glave in stopal (tj. zapestnic, nartnic, dlančnic, stopalnic in prstnic) med najdbami goveda, drobnice, domačega prašiča, kanidov (pes, volk) in konja iz srednjebronastodobnih, poznobronastodobnih in starejšeželeznodobnih plasti (izkopavanja iz let 1953–1960).

Period / Obdobje	Taxon / Takson	Cranium	Mandibula	Dentes	Scapula	Radius	Ulna	Carpalia	Metacarpalia	Ossa coxae	Femur	Tarsalia	Metatarsalia	Metapodia indet.	Phalanges 1	Phalanges 3	TOTAL / SKUPAJ
P	*Bos taurus*	1	1	7			1		2				1		1		14
	Caprinae			17				1	2		1	2	2				25
	Sus domesticus			10	1		1			1						1	14
	Sus scrofa					1	1										2
R	*Sus domesticus*													1			1
N	*Bos taurus*			6								1	1				8
	Caprinae			23		1		1					1				26
	Sus domesticus			7	1										1		9

Fig. 15: Brinjeva gora. Representation (NISP) of animal taxa in the material obtained from the 2019 excavation campaign, by skeletal elements. Explanation of the abbreviations: P – Prehistory (Ha A–Ha D); R – Roman period (3rd–4th century AD); N – Undetermined period.
Sl. 15: Brinjeva gora. Zastopanost (NISP) živalskih taksonov v gradivu, pridobljenem z izkopavanji v letu 2019, po skeletnih elementih. Obrazložitev okrajšav za posamezna obdobja: P – prazgodovina (Ha A–Ha D); R – rimski čas (3.–4. st.); N – časovno neopredeljeno.

Blato near Slovenske Konjice

The prehistoric settlement of Blato is situated east of Slovenske Konjice, on a terrace of the Dravinja River, just below Konjiška gora Hill (hereafter Konjiška gora; *Figs. 1* and *16*). The lack of evidence for building repairs suggests a short-term occupation, characterised by a limited number of pottery finds, ceramic spindle whorls, burnt wall plaster, and animal bones, typical of a small agricultural settlement. North-west of the excavated area, a large pit was discovered (stratigraphic unit (SU) 2012; approximately 7.4 × 9.5–10.0 m; depth 2.5 m), with clearly visible layers of dark grey-brown sandy clay containing an exceptional quantity of prehistoric pottery fragments, numerous pieces of charcoal, a smaller amount of animal bones (*Fig. 17*), and occasional pebbles of allochthonous origin. The function of the pit has not been conclusively determined. It may have functioned as a livestock watering pond, a storage or refuse pit, or a cult pit associated with the nearby settlement (Bricelj 2014; 2018; 2024).

Pottery from both the settlement and the pit dates to the Urnfield period (Ha A and Ha B), although some individual pieces may be earlier. This is consistent with the results of radiocarbon dating (Bricelj 2014; 2018).

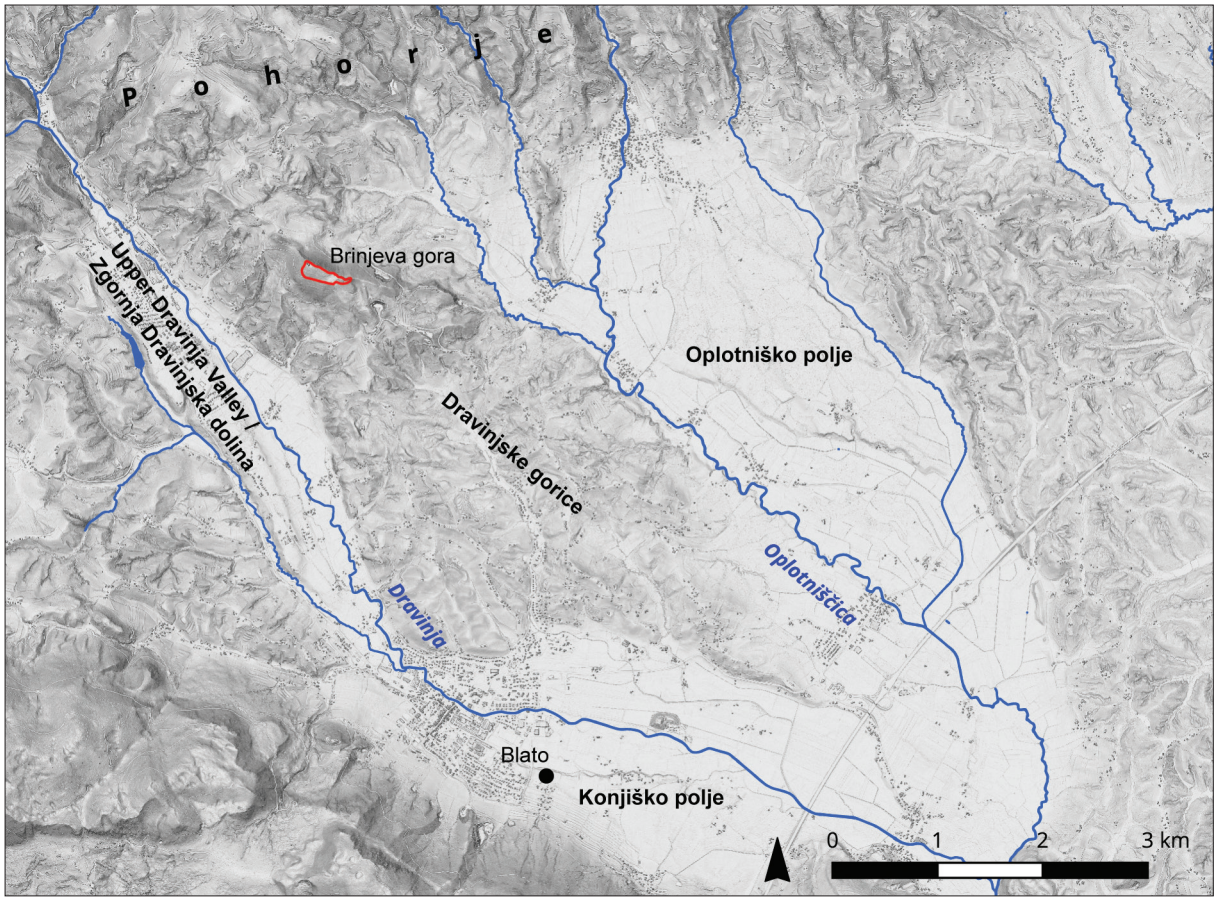

Fig. 16: Upper Dravinja Valley with the Oplotniško and Konjiško polje Fields, the Dravinjske gorice Hills, and the foothills of the Pohorje Mountains.
Sl. 16: Zgornja Dravinjska dolina z Oplotniškim in Konjiškim poljem, Dravinjskimi goricami in obronki Pohorja.

Animal remains from the settlement (N = 36; NISP = 13) were mostly recovered from a prehistoric posthole (SU 77) and from fills of later pits and ditches. Only four fragments originated from the cultural layer (SU 3). Two of these were taxonomically identified, both attributed to domestic pig. A right upper first or second molar of cattle was recovered from the fill of SU 77, which is the only unambiguously prehistoric context containing animal remains at the site.

The archaeozoological material from the large pit SU 2012 includes remains of at least five mammal taxa: cattle, caprines, domestic pig, dog, and wild boar. The assemblage may also contain a partially preserved humerus of roe deer and a fragmented scapula of aurochs, alternatively identified as sheep/goat and cattle, respectively (*Fig. 17*). Remains of the principal domesticates predominate, with all major anatomical regions represented. The only dog specimen is an almost complete hemimandible. If the scapula and humerus fragments do indeed belong to aurochs and roe deer, game would account for nearly half of the identified species. This pattern could support the hypothesis that the pit functioned as a site of ritual sacrifice (cf. Riedel 1977, 133–134; Malez 1979–80, 14–16; Jamnik et al. 2002, 35, 38, 40–41).

Grajski hrib in Gornja Radgona

Grajski hrib (Castle Hill; 267 m a.s.l.) in Gornja Radgona is a foothill of the Slovenske Gorice (Slovene Hills; *Fig. 1*), with its summit forming an elongated plateau. The earliest settlement remains at the site date to the Late Bronze Age and the transition to the Early Iron Age (Ha B2/3–Ha C0), although occupation during slightly earlier phases of the Urnfield period[14] cannot be entirely excluded. The settlement was relatively large (approximately 8 ha), extending across the hilltop and down its gentler

[14] The material also includes some ceramic forms and decorations that could belong to Ha A (Šavel 1994, 90).

Taxon / Takson	Dentes	Mandibula	Vertebrae	Scapua	Humerus	Ulna	Ossa coxae	Metatarsalia	TOTAL / SKUPAJ
Bos taurus (cattle / domače govedo)	1	1	2	1	2	1		2	10
Caprinae (sheep, goat / ovca, koza)	3	1							4
Sus cf. *domesticus* (presumably dom. pig / verjetno dom. prašič)	1	3			1		1		6
Canis familiaris (dog / pes)		1							1
Sus cf. *scrofa* (presumably wild boar / verjetno divji prašič)		1							1
Bos primigenius (?) (aurochs / pragovedo)				1					1
Capreolus capreolus (?) (roe deer / srna)					1				1

Fig. 17: Representation (NISP) of animal taxa in the Late Bronze Age assemblage from the large pit (SU 2012), associated with the settlement of Blato near Slovenske Konjice (2009 excavation campaign).
Sl. 17: Zastopanost (NISP) živalskih taksonov v gradivu poznobronastodobne starosti iz večje jame (SE 2012) ob naselbini Blato pri Slovenskih Konjicah (izkopavanja iz leta 2009).

Takson / Taxon	Year / Leto 1978	Year / Leto 1979	Year / Leto 1986	Year / Leto 1988	Year / Leto 1989	TOTAL / SKUPAJ
Bos taurus (cattle / domače govedo)	24	4	1	2	103	134
Caprinae (sheep, goat / ovca, koza)	3	2		3	24	32
Sus sp. (domestc pig & wild boar / domači in divji prašič)	4	6	1	5	61	77
Canis familiaris (dog / pes)	1				1	2
Equus caballus (domestic horse / domači konj)	1		1	1	12	15
Cervus elaphus (red deer / jelen)				1	13	14
Vulpes vulpes (red fox / lisica)			1			1
TOTAL / SKUPAJ	33	12	4	12	214	275

Fig. 18: Representation (NISP) of animal taxa in the Late Bronze Age and the Early Iron Age assemblage from Grajski hrib in Gornja Radgona (1978, 1979, 1986, 1988, and 1989 excavation campaigns).
Sl. 18: Zastopanost (NISP) živalskih taksonov v gradivu poznobronastodobne in starejšeželeznodobne starosti z Grajskega hriba v Gornji Radgoni (izkopavanja iz let 1978, 1979, 1986, 1988 in 1989).

southern slope. Its size, fortifications, evidence of metallurgical activity, and continuity across the Late Bronze to Early Iron Age transition indicate that Grajski hrib – similar to Brinjeva gora and Ormož (*Fig. 1*) – played a significant role in the settlement network of the period. The precise date of abandonment remains uncertain, but it most likely occurred at the end of the Early or the beginning of the Late Hallstatt period (Ha C2/Ha D1) (Teržan 1990, 45–48, 341–343; Dular 2013, 75–76; Kerman 2019, 397).

Archaeological fieldwork on Grajski hrib was primarily undertaken for heritage protection purposes. Most prehistoric layers on the upper plateau were removed during the construction of the castle and the levelling of its surroundings; remains on the southern slope are better preserved (Šavel 1994, 86–95; Dular 2013, 182–183). Hearths and individual structural elements were identified in several locations, but the limited size of the excavated areas prevents reconstruction of the settlement's internal layout.

Most of the archaeozoological material (NISP = 214; *Fig. 18*) comes from 1989, when a 13 × 6.5 m building plot for an extension to the house at Ilirska ulica 3[15] was investigated (Dular 2013, Fig. 62: 4). Animal remains were recovered at depths of 0.70–2.00 m and, based on associated finds, are attributed to the Late Bronze Age and Early Iron Age (Tušek 1990). Similar material was collected a year earlier during the excavation of a smaller area near the house at Vaupotičeva ulica 2[16] (Dular 2013, Fig. 62: 5), where animal teeth and bones were found slightly closer to the surface (0.40–0.80 m). The findings of this earlier campaign were briefly reported by Tušek (1989).

In 1978, Irena Šavel of the Murska Sobota Regional Museum surveyed a large natural depression just below the hilltop[17] (dimensions: 4 × 8 m; Horvat-Šavel 1981, App. 1; 1994, 87; Dular 2013, Fig. 62: 1). Animal remains from the Late Bronze Age and Early Iron Age were collected at depths of 0.60–0.90 m (Horvat-Šavel 1981, 291–298; Teržan 1990, 45–49; Dular 2013, 184–188). A second trial trench excavated in 1979 did not reach sterile geological layers[18] (Horvat-Šavel 1981, 298–302; 1994, 88; Teržan 1990, 45–49; Dular 2013, 188–190, Fig. 62: 2).

In 1986[19], construction work carried out on the site caused damage, leading to the documentation of a section of the excavation (Šavel 1987; 1994, 88–89; Dular 2013, 190–194, Fig. 62: 3). Depth information for the animal remains collected at that time is unavailable. Associated artefacts include Late Bronze Age and/or Early Iron Age pottery, which also provides the basis for dating the archaeozoological material (Dular 2013, 188–194).

Cattle are the most represented taxon, comprising nearly half of all identified remains (*Fig. 18*). Skeletal elements from the most meaty (category A; 19% NISP) and moderately meaty (category B; 38% NISP) body parts predominate. The near absence of unfused epiphyses indicates that most individuals were culled at an adult or advanced age. Suine remains are also relatively abundant and include both domestic pig and wild boar, the latter represented by a small number of the largest bones and teeth. The proportion of pig remains from the most and moderately meaty anatomical regions is notably high (80%). A similar distribution is observed in caprines[20], with skeletal elements from categories A and B accounting for approximately 70%.

Horses represent only 5% of the taxonomically identified remains in the assemblage, with isolated teeth predominating (N = 10). Two relatively well-preserved mandibles were attributed to dogs, and one to a fox. Red deer is the most common game species, with only one antler fragment among a total of 14 finds. Bones from the meatiest parts of the body make up 40%; when combined with skeletal elements from moderately meaty anatomical regions, the proportion nearly doubles.

DISCUSSION

During the Early Bronze Age, Central Europe experienced significant changes in the exploitation of animal resources, including both food supply and secondary products such as draught power, wool, milk, and manure. The origins of these developments can be traced back to the Copper Age, but the process accelerated between the mid-3rd and 2nd millennia BC. Game contributed a progressively smaller proportion of meat, largely due to deforestation, population growth, and increased reliance on livestock farming, which was becoming more complex. Cattle, caprines (particularly sheep), and domestic pig remained the principal economic species throughout, with no significant diachronic change in their overall representation; however, animals with improved traits (e.g., sheep with longer, thicker wool) were progressively introduced. There was a clear tendency to exploit the full range of available land, including high-altitude pastures; consequently, transhumance became more important, and nomadic pastoralism expanded to some extent. This development enabled Early Bronze Age communities to increase herd sizes and more effectively exploit secondary animal products (Bökönyi 1974; Greenfield 2001, 127; Bartosiewicz 2013; Migliavacca, Boscarol, Montagnari Kokelj

[15] This is plot. no. 448 in the cadastral municipality of Gornja Radgona. The excavations were led by Ivan Tušek from the Institute for the Protection of Natural and Cultural Heritage in Maribor.

[16] This concerns plot no. 453 in the cadastral municipality of Gornja Radgona.

[17] In his review of the material excavated at that time, Dular (2013, 184–188) refers to the trial trench as Trench 1.

[18] In his review of the material excavated at that time, Dular (2013, 188–190) refers to the trial trench as Trench 2.

[19] In his review of the material excavated at that time, Dular (2013, 190–194) refers to the trial trench as Trench 3.

[20] Two sheep and one goat could be identified at the species level.

Taxon / Takson	Pod Grunti – Pince pri Pincah	Nedelica pri Turnišču	Rogoza pri Mariboru	Ormož	Kotare – Krogi pri M. Soboti	Kotare – Baza pri M. Soboti	Poštela		
							Settlement / Naselbina	Tumulus 28	Ritual site / Kultni prostor
Bos taurus			7	1148		14	1	1	15
Bos s. *Cervus*				1					2
Bos s. *Equus*				1					
Caprinae			3	90			1	1	16
Sus sp.	34	2		458					
Equus caballus				48					
Canis familiaris				5					
Cervus elaphus	87			28		22			1
Alces alces				1					
Capreolus capreolus				3					2
Bos cf. *primigenius*				3					
Bos sp.	21								
Felis silvestris				3					
Ursus arctos				2					
Caprinae s. *Capreolus*	122	2			1	57			2
Ruminantia – large / velik	47					6			
Aves	1								

Fig. 19: Representation (NISP) of animal taxa in Middle Bronze Age, Late Bronze Age, and/or Early Iron Age layers at archaeozoologically studied sites in north-eastern Slovenia. Time frame of the analysed contexts: Pod Grunti – Pince pri Pincah: Bd B2/C1Ha A1 (Kerman 2018; Hincak 2018); Nedelica pri Turnišču: Bd B/C1–Ha A1 (Šavel, Sankovič 2013; Hincak 2013); Rogoza near Maribor: Bd D/Ha A–Ha B1 (Črešnar et al. 2019a); Ormož: Ha B1/2–Ha D1 (Dular, Tomanič-Jevremov 2010; Toškan, Dirjec 2010); Kotare – Krogi near Murska Sobota, Semicircular Ditch 2: Ha C–Ha D1 (Kerman 2011a; Hincak 2011a); Kotare – Baza near Murska Sobota, SU 28, 32, 57, 96, 197, and 291: late Ha B–early Ha D (Kerman 2011b; Hincak 2011b); Poštela near Maribor: Ha C–Ha D1 (Črešnar et al. 2019b; Toškan 2019b).
Sl. 19: Zastopanost (NISP) živalskih taksonov v srednjebronastodobnih, poznobronastodobnih in/ali starejšeželeznodobnih plasteh arheozoološko obdelanih najdišč severovzhodne Slovenije. Časovni okvir najdišč: Pod Grunti – Pince pri Pincah: Bd B2/C1–Ha A1 (Kerman 2018; Hincak 2018); Nedelica pri Turnišču: Bd B/C1–Ha A1 (Šavel, Sankovič 2013; Hincak 2013); Rogoza pri Mariboru: Bd D/Ha A–Ha B1 (Črešnar et al. 2019a); Ormož: Ha B1/2–Ha D1 (Dular, Tomanič-Jevremov 2010; Toškan, Dirjec 2010); Kotare – Krogi pri Murski Soboti, polkrožni jarek 2: Ha C–Ha D1 (Kerman 2011a; Hincak 2011a); Kotare – Baza pri Murski Soboti, SE 28, 32, 57, 96, 197 in 291: pozna Ha B–zgodnja Ha D (Kerman 2011b; Hincak 2011b); Poštela pri Mariboru: Ha C–Ha D1 (Črešnar et al. 2019b; Toškan 2019b).

2015; Gál 2017; Horvat 2020; Tecchiati et al. 2020; Granado et al. 2021; Ogrin 2023).

In the south-eastern Alpine region, this trajectory can only be reconstructed in outline, as archaeozoological studies of Early and Middle Bronze Age material are extremely scarce. The available data for this period primarily indicate a decline in the importance of hunting, although this process appears to have been significantly delayed in some areas (e.g., the Ljubljansko barje and possibly Prekmurje) (Velušček 2005; Toškan 2005; 2008; 2011; 2022, 88 and literature cited therein; Hincak 2018).

In the Middle and especially the Late Bronze Age, which this article addresses most directly, the Pohorsko Podravje region, located in the northern to north-eastern part of present-day Slovenia, became more densely populated. Relatively numerous nucleated settlements emerged and were typically located in lowlands, along streams and riverbanks,

or on elevated river terraces, ensuring a reliable water supply and proximity to communication routes. An important factor in site selection was the availability of an agricultural hinterland (Dular 2013, 111; Teržan, Črešnar 2021, 562–571). Gradually, some fortified settlements developed into centres that may have performed a range of functions (e.g., control, protection, craft production, trade, and cult) beyond their immediate surroundings.

At the settlement of Brinjeva gora, this development is indicated by its size, fortifications, and the presumed continuity of occupation from at least the Late Bronze Age – but possibly even the Middle Bronze Age – through to the Early Iron Age, as well as by the discovery of metallurgical remains (Teržan 1983; Gabrovec 1983; Dular 2013, 113–115, 122). Archaeozoologically, the Late Bronze Age layers are characterised by a predominance of domesticates and a high proportion of deer[21] among game species. Particularly notable is the presence of the horse. To date, this species has been attested at contemporary sites in the area between the Savinja Valley and Prekmurje only at Ormož[22], though relatively numerous finds have been reported from neighbouring regions (see, e.g., Rakovec 1973, 266; Bökönyi 1974; Bartosiewicz 2013, 335–337; Schibler 2017, 789; Tecchiati et al. 2020, 116, Figs. 8 and 9; Toškan, Achino, Becker 2020, 464, Fig. 5; Krmpotić, Trbojević Vukičević, Essert 2022). The same applies to dogs and brown bears, which were already attested locally in earlier periods (see, e.g., Modl et al. 2019, 48). The discovery of a fragment of a putative hydrozoan skeleton (*Fig. 20*), presumably recovered from a layer containing archaeological material from the Ha B phase, is exceptional for this period in north-eastern Slovenia.

While the taxonomic diversity of Late Bronze Age fauna from the south-eastern Alpine region does not differ significantly from that of the wider Central European area, the relative proportions of individual species do vary (Bartosiewicz 2013, 339–341; Stopp 2015, 181). Data for the north-eastern part of present-day Slovenia are presented in *Figures 7* and *17–19*. In terms of the quantity of analysed remains, Ormož is one of the most important archaeozoologically studied Late Bronze Age to Early Iron Age settlements in this area (Dular, Tomanič-Jevremov 2010). Unfortunately, due to the complex stratigraphic situation at the site and the excavation methods employed, it was not possible to distinguish between the Bronze Age and the Early Iron Age faunal material. Consequently, all 2,664 recovered bones and teeth were treated as a chronologically uniform sample in the archaeozoological study (Toškan, Dirjec 2010, 99). Cattle is the best-represented taxon, accounting for approximately two-thirds of taxonomically identified specimens, followed by pig with roughly one-quarter, and caprines with a modest five per cent. The proportion of game species is negligible.

Fig. 20: Fragment of what is probably a hydrozoan (Hydrozoa), discovered in a 1959 trench (Section AB, depth up to 110 cm).
Sl. 20: Odlomek najbrž trdoživnjaške korale (Hydrozoa), odkrite v sondi iz leta 1959 (odsek AB, globina do 110 cm).

A very similar pattern is observed at another roughly contemporary large settlement in the region, namely the site on Grajski hrib in Gornja Radgona (Dular 2013, 179–206). Here, the proportion of cattle remains is slightly lower (around 50%), while sheep and goats, comprising about one-tenth of all taxonomically identified specimens, rank well behind pigs in second place. Game species account for approximately 5% of all remains, with fragments of red deer long bones constituting the majority (*Fig. 18*).

The third and final Bronze Age site in north-eastern Slovenia with at least several dozen taxonomically identified animal remains is the lowland settlement of Pod Grunti–Pince in the Prekmurje region. Most finds derive from the Oloris–Podsmreka horizon, roughly corresponding to the 15th to 12th centuries BC (Kerman 2018). In the published archaeozoological report, the majority of finds are classified as reliably belonging to red deer or potentially to other game species (i.e. categories: 'caprines or roe deer', 'wild boar or domestic pig', 'aurochs or cattle'), which is unusual for this period

[21] Based on the available field documentation, the wild boar finds (N = 8; *Fig. 7*) cannot be reliably dated, but they most likely also belong to the Late Bronze Age.

[22] The horse finds from Ormož cannot be reliably dated to either the Bronze or Iron Age (Toškan, Dirjec 2010).

and region (Hincak 2018). The author emphasises that the preservation of the analysed material is very poor, with over 80% of specimens measuring less than 4 mm. It is also noteworthy that the identified remains are dominated by fragments of tooth crowns (Hincak 2018, 100–101).

Since it is difficult to distinguish between the bone remains of cattle and red deer even in better-preserved specimens (see, e.g., Brown, Gustafson 1979), attributing such a large proportion of small tooth and bone fragments to either taxon may be problematic. Hincak (2018) adopted a more cautious approach when distinguishing between similarly small remains of sheep, goats, and roe deer, whose skeletal elements are likewise morphologically difficult to differentiate (cf. Fernandez 2001). If concerns regarding the taxonomic identification of red deer and cattle remains are justified, the latter may in fact represent a (much) higher than originally estimated share among the faunal remains from Pince. A definitive assessment, however, would require a re-examination of the material.

The Bronze Age assemblage from Brinjeva gora differs markedly from those at Ormož, Gornja Radgona, and possibly Pince, as fewer than one-third of the taxonomically identified remains are attributable to cattle. Moreover, the high proportion of identified bones and teeth (NISP ≈ 60% N) suggests that more systematic recovery of smaller finds – and, consequently, of smaller taxa – would likely further reduce the relative representation of cattle. This interpretation is supported by the results of the 2019 excavation campaign at the same site. In this more recent, albeit small, assemblage (NISP = 63), only about one-quarter of the taxonomically identified remains belong to cattle (*Fig. 15*). It goes without saying that the limited sample size constrains its representativeness (cf. Davis 1987, 46). Nevertheless, comparably low proportions of cattle were not observed in any of Pahič's trenches (NISP range: 96–696), nor within individual trench contexts (NISP range: 17–222; *Fig. 11*), except in the context yielding the fewest remains (NISP = 17). Notably, the proportion of isolated teeth, which are among the smallest elements of the mammalian skeleton (e.g. Toškan 2015, 66–69), is nearly four times lower in the material from Pahič's excavations than in the 2019 assemblage (19% *vs*. 73%; *Figs. 10* and *15*). This discrepancy strongly suggests suboptimal recovery during the 1953–1960 excavations, especially in regard to smaller faunal remains.

Differences in pig representation between Brinjeva gora, Ormož, and Gornja Radgona are negligible, with suine remains comprising approximately one-quarter of the taxonomically identified specimens at each of the three sites. In contrast, caprines are significantly more abundant at Brinjeva gora, where their proportion is about seven times higher than at Ormož and Gornja Radgona (*Figs. 7*, *15*, *18* and *19*). At Pince, differentiation between sheep, goat, and roe deer was not possible due to poor preservation of the material (Hincak 2018, 100–101). Consequently, these taxa were grouped into a single category, 'caprines or roe deer' (*Fig. 19*: Caprinae s. *Capreolus*), which is more strongly represented than cattle, pig, or any other taxon at the site. Pigs account for only about one-tenth of the taxonomically identified specimens at Pince, while aurochs/cattle (*Bos* sp.) represent less than half that proportion. However, this figure likely underestimates the true representation of cattle, as a substantial proportion of bovine remains are probably classified only as 'large ruminant' (15% NISP), with some possibly also attributed to red deer (27% NISP; *Fig. 19*).

The relatively modest representation of cattle in the assemblage from Brinjeva gora is most plausibly attributable to local environmental conditions. The settlement is situated on the summit of the hill of the same name and extends onto the comparatively gentle, sun-exposed slopes immediately below it. At lower elevations, the landscape becomes steep once more, transitioning at around 500 m into transverse spurs of a former plain (Koprivnik 2002, 4). To the south-west, the terrain descends into the upper Dravinja Valley (*c*. 400 m a.s.l.), while to the north-east it opens towards the Oplotniško Polje plain (hereafter Oplotniško polje), located several tens of metres lower (*Fig. 16*).

The gently inclined upper slope, covering approximately 4 ha (Koprivnik 2002, 4), was most likely cleared during the prehistoric occupation and largely occupied by buildings. Agricultural land was probably limited, particularly for (cattle) pastures, partly due to the absence of nearby water sources, which are found at lower elevations. As noted by Pahič (1981, 72), even in modern times, the 'meagre arable land … can barely support the two families who now live on Brinjeva gora, who must supplement their income with additional earnings'.

The nearest somewhat less restricted area of arable land was most likely situated to the south-east, where the isolated hill of Brinjeva gora

transitions into the gently undulating and relatively low Dravinjske gorice Hills[23] (hereafter Dravinjske gorice). These hills, consisting of Pliocene and Pleistocene deposits, are covered by high-quality eutric brown soils. In contrast, the wetter and occasionally flooded valley floors (e.g. the Dravinja and Oplotniščica River Valleys) are characterised by poorer, shallow soils, whose development is limited by ongoing sediment accumulation and the influence of groundwater and surface water (Perko, Orožen Adamič (eds.) 2001, 608–612). Such areas are more suitable for meadows and pastures. However, along the upper courses of the Dravinja and the Oplotniščica[24], in the immediate vicinity of Brinjeva gora, soil quality is lower than further downstream along the Dravinja, due to the predominance of silicate alluvial deposits. Consequently, the turf is of lower quality, as reflected in slower grass growth and reduced nutritional value (Šifrer 1978, 80, 84, 87).

To properly understand the agricultural potential of the land around Brinjeva gora, it is necessary to consider not only soil quality but also its spatial distribution in the wider surroundings of the settlement. The lowest valley floor in the Dravinja gorge upstream of Zreče and further downstream towards the town of Slovenske Konjice is very narrow, rarely exceeding 30 m in width. Along the upper and middle course of the Oplotniščica, the valley floor is slightly wider on average, reaching a maximum width of approximately 100 m at the foot of the northern slope of Brinjeva gora (Šifrer 1978, 16–17). The valleys of the Dravinja and its tributaries on Pohorje are characterised by very steep slopes (Šifrer 1978, 15), which further limits cattle grazing (see, e.g., Ganskopp, Vavra 1984). These constraints apply not only to meadows and pastures; the area also contains relatively little arable land with eutric brown soils. In modern times, fields therefore extend onto less favourable hillslope pseudogleys (Perko, Orožen Adamič (ed.) 2001, 611), a situation that can reasonably be assumed for earlier periods as well.

For prehistoric communities, cattle husbandry posed considerably greater challenges than the management of pigs or sheep and goats. This was due to the comparatively late age at first calving, the low number of calves per female (historical and ethnographic sources report averages of 0.65–0.75 calves per cow per year), and the substantially greater amounts of pasture or fodder required. According to some 18th-century estimates, a single head of cattle weighing between 225 and 330 kg consumed 50–70 kg of grass (summer pasture) or 7 kg of hay and up to 3.5 kg of straw (winter feed) per day. Under similar conditions, the nutritional requirements of an individual sheep, which at that time weighed less than one-fifth of a cow, were roughly eight times lower (Ebersbach 2002, 213–214). Cattle breeding, which would have been primarily oriented toward meat production, was therefore likely not economically viable for these communities in Central Europe. With natural annual herd growth of barely five per cent, as reported by medieval and early modern sources for the period before the development of advanced modern breeds, the sustainable culling rate for such herds would have been extremely modest. By comparison, sheep herds could exhibit annual growth of up to 26%, while goats could exceed 40% (Ebersbach 2002, 213).

Archaeozoological evidence indicates that the primary value of cattle in the prehistoric Brinjeva gora economy lay in its secondary products, such as draught power, manure, and milk. The assemblage consists mainly of skeletal remains from adult and aged animals whose physical strength and, in the case of cows, milk yield, had already declined (*Fig. 9*). Assessing the relative importance of specific secondary products remains challenging, as this was closely linked to herd mobility. Year-round maintenance of cattle near arable fields would have facilitated the use of draught power and manure, whereas seasonal movement to high-altitude pastures in (late?) spring may have supported more intensive milk production and subsequent processing. However, only limited indirect evidence is currently available to support these interpretations.

The increased demand for high-quality pasture or fodder may have been alleviated by seasonal grazing on Pohorje, given the limited grazing areas near Brinjeva gora (cf. Ebersbach 2002, 214–215). However, this does not rule out the possibility that some herds were kept year-round in lowland areas, such as the Konjiško polje and Oplotniško polje. Support for this interpretation comes from the discovery of settlement remains

[23] Altitudes between 200 and 300 m predominate, while only one tenth of the area lies above 400 m. The mean slope is 6.7° (Perko and Orožen Adamič (eds.) 2001, 606).

[24] The Oplotniščica Valley has undergone land reclamation in the modern period; as a result, the area is now characterised by arable fields growing wheat, maize, and sugar beet (Perko and Orožen Adamič (eds.) 2001, 611).

on elevated river terraces suitable for cultivation. These locations offered relative protection from flooding (Šifrer 1978, 88) while remaining close to the fertile slopes of the Dravinjske gorice and other nearby hills of similar character (e.g. Bricelj 2018, 201). It is also plausible that an exchange system existed between the fortified prehistoric settlement at Brinjeva gora and nearby sites. One example of such villages may be Blato near Slovenske Konjice (Bricelj 2014, 287–288; 2018; 2024), where cattle bones make up the majority of the, albeit very limited, faunal assemblage recovered (*Fig. 17*).

Historical sources highlight the potential of Pohorje for transhumant practices (Melik 1956, 284–286). As various strategies of seasonal high-altitude grazing have been documented for Central European Bronze Age communities (e.g., Reitmaier et al. 2017), it is plausible that the prehistoric inhabitants of Brinjeva gora also exploited this potential to some extent. Even more so since arable and pasture areas within the settlement and its immediate lowland hinterland appear to have been limited. In the absence of evidence for arable cultivation near mountain pastures (cf. Kapfer 2010, 134; Paušič, Kaligarič 2015, 265), herding strategies may have focused on milk production and its processing into dairy products. Modelling based on historical and ethnographic data from smaller, agriculture-oriented pre-industrial communities suggests that when grazing areas substantially exceeded arable land, the number of cattle per caretaker could be relatively high (Ebersbach 2002; 2013, 215; Reitmaier et al. 2017, 28–29). Furthermore, if climatic conditions were favourable at the time (Perko, Orožen Adamič (eds.) 2001, 147–149, 608–610), it is conceivable that certain areas of Pohorje supported farms primarily or exclusively dedicated to livestock husbandry. This possibility is also supported by historical sources (Melik 1956, 285).

Vertical transhumance, likely involving a substantial proportion of cattle herds, was probably complemented by grazing the remaining animals on periodically flooded lowland pastures. Such areas were generally unsuitable for other forms of land use, except occasional hay production. The maintenance of cattle near cultivated areas on river terraces and the gentle slopes of the Dravinjske gorice, Konjiška gora and other similar locations would have enabled more efficient use of draught power and facilitated the manuring of fields and meadows. Both factors are known to significantly enhance agricultural productivity (Ebersbach 2002, 215). As this form of husbandry is closely tied to arable production, it typically involves relatively smaller cattle herds compared to the combined numbers of sheep, goats, and pigs. The hypothesis of a mixed system, integrating lowland cattle husbandry with seasonal grazing on Pohorje, is therefore consistent with the archaeozoological data. More than two-thirds of all taxonomically identified remains are attributed to caprines and pig (*Fig. 7*), supporting this interpretation.

The prehistoric inhabitants of Brinjeva gora supplemented cattle husbandry primarily through the keeping of sheep and goats. Although unsuitable for draught purposes, these animals provided comparable secondary products while requiring significantly lower labour investment (Bartosiewicz 1985, 117–119; 1986, 291–295). The relatively rapid annual growth of sheep and goat herds facilitated regular culling, ensuring a stable supply of meat. In addition, goats were likely valued for milk production, while sheep were important as a source of wool[25]. Both species also contributed manure (Dreslerová et al. 2021).

By comparison, a single head of cattle could produce approximately the same amount of manure as eight sheep, although sheep required less fodder. Estimates for the prehistoric Alpine region suggest that around 0.4 ha of meadowland was needed to produce sufficient winter fodder for one cow, assuming at least two annual cuts; when summer pastures are included, this requirement increases to approximately 1.5 ha[26] (Ebersbach 2002, 213–214). Given these constraints, the limited, fragmented, and often steep pastures in the immediate hinterland of Brinjeva gora were better suited to sheep and goat than to cattle.

In contrast to cattle and caprines, pig husbandry was primarily focused on meat production. This is indicated by the preferential culling of younger individuals (*Fig. 9*), whose meat is generally more tender and whose weight gain relative to labour investment is higher than that of adult animals of the same species. In addition to Pohorje, which was likely dominated by beech and fir forests

[25] This can be inferred from the high average age-at-death (*Fig. 9*), as well as from finds of clay spindle whorls and pyramidal loom weights, which indicate weaving activity (Pahič, S. 1981, 114; cf. Šavel 1994, 94). The growing importance of wool from the Middle Bronze Age onwards is further supported by archaeozoological studies (Benecke et al. 2017; Grömer, Saliari 2018).

[26] According to other estimates, such requirements were up to ten times higher (see, e.g., Gerling et al. 2017, 20).

(Culiberg, Šercelj 1986, 188), mixed woodlands containing fruit-bearing deciduous species probably extended across the slopes of the Dravinjske gorice and into the potentially flood-prone lowland plains (cf. Perko, Orožen Adamič (eds.) 2001, 610). According to Alojz Šercelj (1987, 20), significant anthropogenic transformations of forest vegetation in the south-eastern Alpine region did not occur until the Iron Age.

The inhabitants of Brinjeva gora were apparently directly engaged in pig husbandry rather than relying solely on supplies from agriculturally oriented lowland minor settlements. This is supported by the distribution of skeletal elements, which does not show an overrepresentation of bones from specific (i.e., meat-rich) body parts (*Fig. 10*). Furthermore, the analysis of sex ratios, though based on a limited sample of 21 metatarsals, reveals an approximately equal proportion of males and females. If pork had been primarily obtained through exchange, a higher proportion of subadult and young adult males would be expected, as these are typically the most economically efficient individuals to cull when managing herd size (cf. Stopp 2015, 198).

The environmental conditions on Brinjeva gora and its immediate surroundings differ markedly from those in Ormož and Gornja Radgona. The latter two sites are characterised by extensive flat areas with fertile soils suitable for cultivation (Ormož: Središko polje Field; Gornja Radgona: plains along the Mura River and the south-facing slopes of the Radgonsko-Kapelske gorice Hills), as well as adequate grazing areas (e.g., Dobrava near Ormož and riparian wetlands along river courses) (Perko, Orožen Adamič (eds.) 2001, 570, 575, 587–589, 595–596, 603; Mele 2014, 168–169). In these lowland regions, cattle likely fulfilled multiple functions. Given the probable intensive exploitation of high-quality arable land near both settlements (cf. Teržan 1999, 133–134; Mele 2014, 168–169), they were probably used primarily as draught animals and as a source of manure (e.g., Toškan, Dirjec 2010, 207–208; see also sec. Grajski hrib in Gornja Radgona). Finally, the large body mass of individual animals meant that their eventual culling also contributed substantially to the meat supply.

Notably, the predominance of pig remains relative to caprines in these lowland settlements may also reflect the favourable environmental conditions that supported efficient pig rearing. Unlike sheep, pigs required less labour-intensive management and could exploit a wider range of habitats, including forested and riparian environments. Accordingly, the observed differences in the proportions of principal domesticates between Ormož and Gornja Radgona, on the one hand, and Brinjeva gora, on the other, likely reflect distinct adaptive strategies employed by prehistoric communities in response to the specific environmental limitations and opportunities of each region.

Animal remains from the Late Bronze Age and Early Iron Age settlement at Burgstallkogel near Großklein and Kleinklein in Austrian Styria (Mele 2019, 354–358; see also literature cited therein) present an apparently contradictory picture in relation to the patterns of animal husbandry just discussed above. The settlement was situated on one of the peaks (458 m a.s.l.) of a low hill range between the Sulm and Saggau River Valleys. Assessment of the area's agricultural potential indicated relatively modest conditions for arable farming and only slightly better prospects for grazing (Hellmuth Kramberger, Mele, Modl 2019, 36–38). Given the narrow valley floors and their susceptibility to flooding, one would expect cattle to make up only a modest proportion of the herds. However, the archaeozoological evidence suggests otherwise: of 2,334 animal remains analysed (NISP = 1,301), cattle were the most numerous, accounting for 46% of all taxonomically identified specimens (Peters, Smolnik 1994, Tab. 1).

Another notable finding is the predominance of juvenile individuals among all four principal domestic animal species, not only in pigs, which were traditionally raised for meat (Peters, Smolnik 1994, Fig. 2). The authors interpret this pattern as suggesting that the prehistoric inhabitants of this important regional centre largely met their meat requirements through imported calves, lambs, goatlings, and piglets. These animals were presumably raised in areas with more favourable natural conditions, most likely in the Mura Valley, approximately 10 km downstream. If so, this method of meat supply would reflect the exceptional, privileged status of the central settlement and its inhabitants (Peters, Smolnik 1994, 157–158).

The close relationship between livestock farming and the environment is also evident at local Early Iron Age sites, such as the central settlements of Cvinger above Vir near Stična (Gabrovec 1994, 2006; Gabrovec, Teržan 2008; Grahek 2016) and Most na Soči (Dular, Svoljšak 2016; Dular, Tecco Hvala (eds.) 2018) (*Fig. 1*). Cvinger was located in

the Dolenjsko podolje (Dolenjska lowland), where the hilly landscape meets the Stiški kot, Šentviška kotlinica, and Grosupeljska kotlina basins, which feature fertile soils and surface water (Perko, Orožen Adamič (eds.) 2001, 464–470). Of the 3,926 taxonomically identified animal remains from the Early Iron Age contexts at this site, 1,950 specimens (49.7%) were attributed to cattle, 968 to caprines, and 560 to domestic pigs (Bökönyi 1994, Tab. 2).

Most na Soči is located in the southern part of the Tolminska kotlina (Tolmin Basin), at the confluence of the Soča and Idrijca rivers (Dular, Tecco Hvala 2018) (*Fig. 1*). Owing to the parallel north-west–south-east orientation of the Julian Alps ridges, the lowland fields receive limited sunshine, making the valley floor more suitable for livestock farming (Perko, Orožen Adamič (eds.) 2001, 68). Presumably because of the difficulty in securing sufficient feed during the long winter, cattle accounted for only 37% (N = 2,049) of the total 5,545 taxonomically identified animal remains from the assemblage dated to the Early Iron Age. Caprines were the most abundant (N = 2,831, or 51.1% $NISP_{\Sigma}$), as they were better suited to small and scattered pastures than cattle. The rugged terrain, cold climate, and limited presence of fruit-bearing deciduous trees likely contributed to the low proportion of pigs (N = 557, or 10.4% $NISP_{\Sigma}$) (Toškan, Bartosiewicz 2018, Tab. 1; see also Bartosiewicz 1985).

The discussion so far has focused on cattle, caprines, and pigs, whose remains in settlement contexts are generally interpreted as butchery and food waste. For horses, dogs, and wild carnivores, however, such an interpretation is less straightforward. In the material from Brinjeva gora, skeletal element representation data for these species show a predominance of cranial remains and the meat-poor distal portions of the limbs. This pattern clearly contrasts with that observed in cattle, sheep, goat, and pig material from waste pits, as well as other accumulations of presumed kitchen and butchery refuse (*Fig. 10*).

Among the horse remains, attention has already been drawn to a mandible fragment and five isolated cheek teeth, likely from a single skull, recovered from sector B of the 1959 trench (see sec. Horses and dogs, as well as other carnivores). Notably, a few tens of centimetres above these finds (i.e. Sectors A and B; *Fig. 12*: Layer vii), a horse phalanx was discovered together with a fragment of a presumed hydrozoan skeleton. Based on the limited contextual data, the specimens originated from a layer of grey clay containing burnt wall plaster, which can most likely be dated to the Ha B phase[27].

The horse phalanx has a parallel in another specimen recovered from a grave at Brinjeva gora, part of the Gračič cremation necropolis (B. Škvor Jernejčič, B. Toškan, unpublished data; for the publication of the cemetery, see Koprivnik 2021a; 2021b; Koprivnik, Teržan 2021; Teržan 2021). Horse foot bones have also been recorded in several Early Hallstatt period graves in Austria and Slovakia (Kmeťová 2014, 74–122), as well as possibly in the central grave of the Malenšek Tumulus in Novo mesto, Slovenia (approximate dating: 680/670–mid-6th century BC). Among the few other contemporary graves in the south-eastern Alpine region containing horse remains, more or less complete skulls, mandibles, and isolated teeth are most commonly reported (Kmeťová, Stegmann-Rajtár 2014; Toškan 2017, Tabs. 2 and 3 and the literature cited therein).

Hydrozoans are aquatic invertebrates, either solitary or colonial, which mostly inhabit saline waters. Colonial species often create coral-like hard skeletons and are therefore sometimes referred to as 'false corals'. The specimen from Brinjeva gora (*Fig. 20*) is the only known find of this kind from archaeological contexts in the south-eastern Alpine region. By contrast, several red coral plaques and pendants have been discovered during excavations of a presumed cult site in the area of House 6 in the Early Iron Age settlement at Most na Soči (Dular, Tecco-Hvala 2018, 79–80). In Central Europe, corals are considered to have held symbolic significance as early as the Neolithic and Copper Age, from which the earliest occurrences in archaeological contexts are known (Skeates 1993).

A further point of interest concerns the archaeozoological assemblage from the area of the largest prehistoric building identified at the site, excavated in 1960 (Omahen et al. 2019b, 71, Fig. 2: 3). The material includes teeth and bones of the principal domesticates, as well as remains of bear and wild boar, both represented by partially preserved mandibles, along with horse and red deer. The identified wild taxa are extremely rare

[27] This layer is likely identical to, or at least contemporary with, the grey layer recorded above Building B in the 1953 trench. It was overlain by a settlement level containing a double hearth, which is probably contemporaneous with Building D identified in 1953 (source: Pahič's field diaries).

within the overall faunal assemblage from Brinjeva gora. Additionally, an almost completely preserved dog mandible was recovered from the fill of a nearby posthole (*Fig. S6*). For cattle, caprines, and domestic pig, the representation of skeletal elements from meat-rich anatomical regions is consistent with the general pattern observed across the site. Among the goat remains, a notable find is a horn core that had been sawn off at the base.

As indicated by the data presented above, the sub-assemblage under discussion is characterised by pronounced taxonomic diversity. Of the eleven mammal species identified among nearly 2,000 taxonomically determined remains from Bronze and Iron Age contexts across the site, nine are documented within the 108 specimens recovered from the area of the largest prehistoric building. The only taxa absent are wolf, attested in the overall prehistoric assemblage by a single specimen, and roe deer, with a total of nine identified remains (*Fig. 7*). These results may point to a specific function of the building, potentially reflecting the dietary practices of its occupants or visitors. Comparable patterns have been documented at other contemporary sites.

Worth noting in this regard, particularly with reference to the dog mandible recovered from one of the postholes associated with the large prehistoric building discussed above, are two contexts from the Late Bronze Age to Early Iron Age proto-urban settlement at Tribuna in Ljubljana (Vojaković 2023). In Building 8a (third construction phase, Ha B2/B3) and Building 12 = 13 (fourth construction phase, Ha B/Ha C), a quantitatively modest but taxonomically diverse assemblage of archaeozoological material was recovered, together with a distinctive range of associated archaeological finds. In Building 8a, these include a bronze socketed axe hammered into the floor, roe deer antlers beneath one of the foundation walls, and a dog mandible from the fill of a storage pit. In Building 12 = 13, metallurgical and spinning tools, kitchen and table ceramics, and a similarly small but taxonomically diverse faunal assemblage were documented. In the fill of one of the ridge-postholes, a human phalanx and a dog sesamoid bone were recovered among the faunal remains, together with a complete vessel and the bases of three additional vessels (Škvor Jernejčič, Toškan 2018, 256–259; Vojaković 2023, 572–574).

The aforementioned cases represent only a subset of the several Late Bronze Age and Early Iron Age (presumed) cult contexts of various types containing canine remains known from the south-eastern Alpine region and the broader Central European area (see, e.g., De Grossi Mazzorin, Tagliacozzo 1997; Gambari, Tecchiati 2004; Kmeťová 2006; Škvor Jernejčič, Toškan 2018). Cranial skeletal elements, particularly mandibles and isolated teeth, are especially common within these assemblages. Not coincidentally, such elements also predominate among the dog remains from several of the sites discussed here: Ormož, Tribuna in Ljubljana (Škvor Jernejčič, Toškan 2018, 260–261), Blato near Slovenske Konjice, and Gornja Radgona, where a fox mandible was also identified. Furthermore, two additional presumed clusters of canid jawbones were identified at Brinjeva gora in Sectors A–E and C/D of the 1959 trench (see sec. Horses and dogs, as well as other carnivores). This pattern suggests that at least some of these remains were not discarded as ordinary domestic refuse.

The same interpretation appears convincing for the near-exclusive presence of cranial and lower limb elements in horses (*Fig. 14*). Indeed, this pattern contrasts sharply with that observed in the main domesticates (cattle, caprines, and pigs), which are represented by all anatomical regions. The difference is evident in the raw counts of individual skeletal elements or their fragments (*Fig. 10*) and becomes even more pronounced when standardised adjusted values are considered (*Fig. 21*: observed *vs*. expected values; for methodology, see sec. Archaeozoological Analysis: Materials and Methods).

The results from all three sites partly reflect the limitations of hand collection and the modest quantity of archaeozoological remains recovered, particularly at Gornja Radgona. Moreover, some skeletal elements exhibit more pronounced morphological features, making them easier to identify even when fragmented. Finally, taphonomic loss, rather than the actions of the excavator or archaeozoologist, may have substantially contributed to the underrepresentation of less durable elements (e.g., the proximal ends of the humerus and tibia) (O'Connor 2000, p. 74).

Based on the data in *Figure 21*, almost all anatomical regions of the bovine carcass are well represented among the food remains from Brinjeva gora. Skeletal elements with the highest 'observed *vs*. expected' values include those from the most meaty parts (e.g. pelvis), as well as from moderately and less meaty regions (e.g. radius, tibia, or isolated third molar). In contrast, extremely low values for the phalanges are notable, a pattern observed at all three settlements discussed.

Skelet. element	Brinjeva gora		Ormož		Gornja Radgona	
	MC	OvE	MC	OvE	MC	OvE
Caput mandibulae	7.5	**1.89** (↑)	4	0.74	--	--
Dens (M^3)	2.5	0.63	4	0.74	0.5	0.60
Dens (M_3)	8	**2.02** (↑)	8	1.48	0.75	0.90
Axis	1	0.25	5	0.93	1	1.20
Scapula (facies articularis)	4	1.01	2.5	0.46	2.5	**3.01** (↑)
Humerus prox.	1	0.25	1	**0.19** (↓)	0	**0** (↓)
Humerus dist.	3.5	0.88	14	**2.60** (↑)	1.5	**1.81** (↑)
Radius proks.	8	**2.02** (↑)	9.5	**1.76** (↑)	1.5	**1.81** (↑)
Radius dist.	1.5	0.38	7.5	1.39	0.5	0.60
Ulna (facies articularis)	7	**1.77** (↑)	2.5	0.46	0.5	0.60
Metacarpalia proks.	8	**2.02** (↑)	7	1.30	2	**2.41** (↑)
Metacarpalia dist.	2.5	0.63	6	1.11	2	**2.41** (↑)
Ossa coxae (acetabulum)	8.5	**2.15** (↑)	--	--	0.75	0.90
Femur proks.	2.5	**0.63** (↓)	4	0.74	0	**0** (↓)
Femur dist.	2-	0.51	4.5	0.83	0	**0** (↓)
Tibia proks.	0.5	0.13	2.5	0.46	1	1.20
Tibia dist.	8	**2.02** (↑)	8	1.48	1	1.20
Astragalus	2.5	0.63	6	1.11	0	**0** (↓)
Calcaneus	4	1.01	9	**1.67** (↑)	2	**2.41** (↑)
Metatarsalia proks.	5	1.26	7.5	1.39	0.5	0.60
Metatarsalia dist.	4.5	1.14	8.5	1.58	0.75	0.90
Phalanges 1	2.5	0.63	1.75	**0.32** (↓)	1	1.20
Phalanges 2	0.375	**0.09** (↓)	0.25	**0.05** (↓)	0	**0** (↓)
Phalanges 3	0.25	**0.06** (↓)	0.875	**0.16** (↓)	0.125	**0.15** (↓)

Fig. 21: Brinjeva gora. Below-average (↓) and above-average (↑) representation of bovine skeletal elements in the assembage from Middle Bronze Age, Late Bronze Age, and Early Iron Age layers (excavations 1953–1960), expressed as 'modified counts' (MC) of remains of individual (parts of) skeletal elements and standardised 'observed *vs*. expected' values (OvE). For comparison, data for Late Bronze Age and Early Iron Age faunal material from Gornja Radgona (*Fig. 18*) and Ormož (Toškan, Dirjec 2010) are provided. Values deviating from the mean by at least one standard deviation are highlighted in bold. The value for skeletal elements with average representation is 1.
Sl. 21: Brinjeva gora. Podpovprečno (↓) in nadpovprečno (↑) zastopani skeletni elementi goveda v gradivu iz srednje- in poznobronastodobnih ter starejšeželeznodobnih plasti (izkopavanja iz let 1953–1960), podani kot prilagojene vrednosti surovih podatkov o številu ostankov posameznega (dela) skeletnega elementa (MC) in standardizirane prilagojene vrednosti surovih podatkov o številu ostankov posameznega (dela) skeletnega elementa (OvE). Podani so tudi primerjalni podatki za najdbe poznobronastodobne in starejšeželeznodobne starosti iz Gornje Radgone (*sl. 18*) in Ormoža (Toškan, Dirjec 2010). Vrednosti, ki od povprečja odstopajo za najmanj eno standardno deviacijo, so zapisane s krepko pisavo. Vrednost povprečno zastopanih skeletnih elementov je 1.

The modest number of phalanges may reflect a bias resulting from the preferential collection of larger bone fragments (Toškan 2015, 66–69). This aligns with the observation that, across all three settlements, first phalanges are more numerous than the slightly smaller second and third phalanges. However, in bovids, none of these is smaller than isolated teeth, which occur in above-average numbers (*Fig. 21*; see also *Fig. 10*). Notably, very few phalanges were recovered in the 2019 excavations at Brinjeva gora, whereas a relatively large number of teeth were documented (*Fig. 15*). This pattern could indicate that livestock culling took place outside the settlement[28] (cf. Toškan, Bartosiewicz 2018, 499–500), or that the areas used for slaughter and primary butchering – if conducted within the settlement – were not reached by the excavations. Alternatively, the low number of pha-

[28] It can be assumed that primary butchering occurred at the culling site, during which the less valuable culinary portions were removed.

langes, despite average representation of carpals, tarsals, metacarpals, and metatarsals, may reflect skinning techniques in which some of these elements remained attached to the hide.

CONCLUSION

The analysis of animal remains from prehistoric layers at the hilltop settlement of Brinjeva gora supports several hypotheses proposed in previous studies of Bronze Age fauna in Slovenia, which were generally limited by scarce and/or poorly dated material. The findings confirm that hunting played a quantitatively negligible role in the local Late Bronze Age economy, and that the main animals were cattle, sheep, goats, and domestic pigs. The latter were primarily raised for meat and fat, whereas cattle and caprines were kept primarily for secondary products. Horses became somewhat more common but remained the least numerous domestic species, with MNI[29] values even lower than those of dogs. The assemblage from Brinjeva gora also reveals marked interregional differences in the relative proportions of the main domestic taxa, suggesting the coexistence of diverse animal husbandry strategies.

Between the Middle Bronze Age and the Early Iron Age, the settlement under study was an important regional centre, maintaining connections across a wide area extending from the southern Balkans to the Italian Peninsula, and exhibiting a clearly stratified society (Koprivnik 2021; Koprivnik, Teržan 2021). Its more or less continuous occupation can be attributed, in part, to its strategic position, which enabled visual control over the surrounding landscape and key communication routes at an important gateway. Together with the nearby settlement at Ljubična above the Zbelovska gora Hill, it likely played a dominant role in the region, overseeing the northern and south-eastern parts of the Dravinja Valley and the northern slopes of Konjiška gora (Bricelj 2018, 199–200; 2024).

Additional economic potential was provided by the mineral-rich Pohorje (Teržan 1983; 1989). Evidence for local metallurgical activity includes the discovery of a partially preserved mould for a ring or a bracelet (Bricelj 2018, 186), as well as a multi-part mould for casting an axe or a spearhead, accompanied with pieces of slag recorded by Pahič in his diary entries from the 1954 campaign. In contrast to some contemporary settlements in north-eastern Slovenia (e.g., Ormož, Gornja Radgona), which were similarly strategically located, integrated into trade routes, and characterised by active metallurgy and developed agriculture (Dular 2013, 111–122), Brinjeva gora appears to have had comparatively limited agricultural potential in its immediate vicinity.

The community responded to these circumstances by developing livestock management strategies that took advantage of the diversity of local ecosystems. Brinjeva gora is situated at the junction of the Pohorje, the Dravinjske gorice, and the floodplains of the Dravinja and Oplotniščica rivers. Archaeozoological evidence indicates that cattle husbandry, which requires extensive pasture and substantial year-round labour, was relatively modest in scale. Some herds may have remained in the valley throughout the year to support agriculture – as draught animals and, presumably, for manure – while others were likely involved in a transhumance system, grazing in the high-altitude pastures and possibly forests of the Pohorje. To compensate for the smaller role of cattle, the local economy appears to have placed greater emphasis on sheep and goats, which were well suited to the small, scattered, and often steep pastures outside the floodplains. The wet lowlands and mixed forests on the gentler slopes of nearby hills provided favourable conditions for pig husbandry. Notably, pigs accounted for about a quarter of the assemblage. Such a high value in contexts characterised by a predominance of sheep and goats is unusual for prehistoric settlements in the south-eastern Alpine region (e.g., Bökönyi 1994; Bartosiewicz 1996; Toškan, Dirjec 2010; Toškan, Bartosiewicz 2018), given the differing ecological requirements of pigs on the one hand and caprines on the other (Toškan, Dirjec 2011, 362–364). This pattern can plausibly be explained by the habitat diversity of the study area. A clearer picture is expected to emerge from planned stable isotope analyses designed to address these questions directly[30].

[29] MNI = Minimum Number of Individuals.

[30] Stable isotope analyses of animal skeletal remains at the Vrije Universiteit Brussel (VUB, lead: C. Snoeck) were carried out in partnership with the University of Ljubljana (UL, lead: M. Črešnar) as part of the Prehistory Adventure (Interreg SI-HR) project, and continued as part of the bilateral ARRS-FWO CRIME project, developed and conducted by UL (lead: M. Črešnar), VUB (lead: S. Goderis and C. Snoeck), and the Jožef Štefan Institute (lead: N. Ogrinc).

The strategy of animal husbandry in the Bronze Age in the Pohorsko Podravje region and neighbouring areas was largely shaped by the need to adapt to local environmental conditions, as these had a crucial impact on food production and the provision of secondary products (see also Stopp 2015, 191–195, 198). In flat, flood-prone areas with a significant presence of fruit-bearing deciduous trees, greater emphasis was placed on pig farming, whereas in mountainous areas with limited grassland and pasture, sheep and goat husbandry predominated.

Environmental factors were less influential in decisions regarding the breeding of species that were not primarily of economic importance. The rapid expansion of domestic horse breeding across much of Europe and Asia during this period (Bartosiewicz 2013, 335–337; Librado et al. 2021) appears to have been driven more by the prestige associated with horse ownership and their use in warfare than by environmental suitability (Bartosiewicz 2017, 104; Klontza-Jaklová 2020; Tecchiati et al. 2020, 116). The horse remains found at Brinjeva gora consist almost exclusively of cranial elements and foot bones, which are low in meat value and therefore hardly represent food waste. Finally, this paper discusses several less common species identified at the site, discovered in the area of the largest prehistoric building within the settlement. The archaeozoological material recovered there may indicate a specialised function for this structure.

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CATALOGUE

In the catalogue, finds are arranged by year of excavation and then by trench and context, generally from the oldest to the youngest. The descriptions include basic field data, which were recorded on field slips belonging to the finds or reconstructed from S. Pahič's plans and diary entries. Where appropriate, descriptions of the excavated layers are added to the basic data on the location of the finds.

As the excavation and documentation systems were not identical throughout all the excavation campaigns, some further clarifications are needed.

In some cases, the depth ranges of individual layers (indicated by the sign "/", e.g. 280/340 cm) are due to the downward slope of the terrain. In certain years, S. Pahič excavated larger areas by dividing them into parallel strips, which he also referred to as trenches and labelled them with Roman numerals. The letter F in the descriptions of some excavation areas, stands for Falnoga, indicating their location near the Falnoga farmstead. He then divided these further into quadrants. Here, for easier understanding and to distinguish them from the test trenches, we have referred to them as sectors.

Individual paragraphs in Pahič's field diaries may be marked with handwritten numbers. The same numbers are written on the field notes for finds associated with those paragraphs. We refer to these numbers as 'diary numbers' (see below: d. num). They are given at the end of each relevant catalogue description. The number on the field note for a find in *Plate 1*: 10 does not match any in the field diaries. Its meaning remains unclear.

All ceramic finds are hand-made.

The finds and all archival material are kept by the Maribor Regional Museum.

Abbreviations:
frgm(s). – fragment(s)
diam. – diameter
r. diam. – rim diameter
b. diam. – base diameter
max. diam. – maximum diameter
h. – height
l. – length
w. – width
rec. – reconstructed
sec. – sector
quad. – quadrant
d. – depth
d. num. – diary number by S. Pahič

Plate 1

Year 1956, trench 9, oldest layers

1. Frgm. of a pot with a curved neck, an everted rim, and a carinated transition from the shoulder to the neck. Rec. r. diam. 18.6 cm; h. 6.8 cm.
2. Frgm. of a handle decorated with incisions and impressed dots. Size: 3.1 × 5.9 cm.

Year 1954, trench near the Falnoga farmstead, oldest layers

3. Frgm. of a vessel with an everted rim, decorated with applied ribs with finger impressions. Rec. r. diam. 46.8 cm; h. 8.8 cm. 6–7 m from the starting point of the trench, d. 2–2.1 m, in a depression.
4. Frgm. of a vessel with an everted rim and a strap handle. Rec. r. diam. 19.4 cm; h. 6.7 cm. 6–9 m from the starting point of the trench, in a depression down to sterile layer.

Year 1958, main excavation field, oldest layers

5. Frgm. of a bowl with an everted rim, decorated with an applied horizontal rib with finger and fingernail impressions. Size: 10.6 × 8.5 cm. Sec. E, sq. 4, d. 155–200 cm, d. num. 126.

6. Frgm. of a pot with a conical neck, a strongly everted rim, and a carinated transition from the shoulder to the neck. Size: 9 × 6.2 cm. Sec. E, sq. 1–3, d. 170–185 cm, d. num. 129.
7. Frgm. of a vessel with an everted rim and a strap handle. Size: 6.2 × 4.1 cm. Sec. A, sq. 1, layer above the bedrock.
8. Frgm. of a vessel with a carinated transition from the shoulder to the neck, decorated with a knob encircled with a shallow groove. Size 6.3 × 6.5 cm. Sec. E, sq. 1–3, d. 170–185 cm, d. num. 129.
9. Frgm. of a vessel, decorated with a knob encircled with a groove. Size: 6.4 × 7.9 cm. Sec. E, sq. 4, d. 200–300 cm, d. num. 127.
10. Frgm. of a vessel decorated with a knob encircled by one incised and two grooved concentric lines. Size: 5.7 × 4.7 cm. Sec. B, sq. 7–10, d. 90–105 cm, num. 516 (5/6?).
11. Frgm. of a vessel decorated with incised concentric lines. Size: 3.4 × 5.7 cm. Sec. E, sq. 2–1, d. 280–330 cm, d. num. 147.

Plate 2

Year 1960, main excavation field, presumed defensive embankment

1. Frgm. of a small pot with an everted rim and a gentle transition from the shoulder to the neck. Rec. r. diam. 7 cm; h. 6.1 cm. Sec. A, sq. –2, d. 280/340, gray loam between and beneath stones, d. num. 65.
2. Frgm. of a vessel with a slightly everted rim and a strap handle. Rec. r. diam. 9.9 cm; h. 9.3 cm. Sec. A, sq. –2, d. 280/340, grey loam between and beneath stones, d. num. 65.
3. Frgm. of a vessel with a strap handle with a round, flat appliqué at the top of the handle. Size: 5.4 × 5.3 cm. Sec. A, sq. –1, –2, d. 200–285 cm, d. num. 54 and 61.
4. Frgm. of a vessel decorated with a knob encircled with a groove. Size: 4.3 × 4.4 cm. Sec. A, sq. –1, –2, d. 200–285 cm, d. num. 54 and 61.
5. Frgm. of an oval pot with a slightly everted rim, decorated with an applied horizontal rib with finger impressions. Size: 5.3 × 5.8 cm. Sec. A, sq. –1, –2, d. 200–285 cm, d. num. 54 and 61.
6. Frgm. of an oval pot with an everted rim, decorated on the rim lip with finger and fingernail impressions. Rec. r. diam. 26.6 cm; h. 7.2 cm. Sec. A, sq. –2, d. 140–150/200–220 cm, fill near the carbonized planks in the embankment, d. num. 54.

Year 1959, main excavation field, beneath the earliest hearth C

7. Frgm. of a bowl with an inverted and obliquely grooved rim. Rec. r. diam. 35.5 cm; h. 4.1 cm. Sec. B, sq. 9–12, d. 110–125 cm, d. num. 47.
8. Frgm. of a vessel decorated with horizontal incisions at the transition from the shoulder to the neck and oblique incisions in stripes in a zigzag pattern on the shoulder. Size: 4.5 × 8.3 cm. Sec. B, sq. 9–12, d. 110–125 cm, d. num. 47.
9. Frgm. of a vessel with an everted rim and a broken handle. Rec. r. diam. 15.3 cm; h. 4.2 cm. Sec. A, B, sq. 4, 11, d. from 150 cm to bedrock, d. num. 53.

Year 1959, main excavation field, between the earliest hearth C and the younger hearth AB

10. Frgm. of a vessel with a gentle transition from the shoulder to the neck, decorated with two horizontal incised lines and two horizontal rows of impressed dots. Size: 3.9 × 3.7 cm. Sec. B, sq. 9–10, d. 80–90 cm, beneath the hearth (A)B, d. num. 44.
11. Frgm. of a vessel decorated with a stripe of horizontal grooves and a stripe of vertical grooves beneath them. Size: 6 × 4 cm. Sec. B, sq. 9–10, d. 80–90 cm, beneath the hearth (A)B, d. num. 44.

Year 1959, main excavation field, floor of the hearth AB

12. Frgms. of a vessel with a conical neck, an everted rim, and a gentle transition from the shoulder to the neck. Rec. r. diam. 15.8 cm; h. 7.9 cm. Sec. A, B, sq. 2, 4, 9, 11, d. 80 cm.
13. Frgms. of a bowl with an inverted rim. Rec. r. diam. 30.8 cm; h. 8.6 cm; rec. b. diam. 12.2 cm. Sec. A, B, sq. 2, 4, 9, 11, d. 80 cm.

Plate 3

Year 1960, main excavation field, fill from the ditches of a large structure

1. Frgm. of a bowl with an inverted rim, decorated with two horizontal incised lines and a horizontal row of impressed dots filled with incrustation between them. Rec. r. diam. 23.5 cm; h. 2.8 cm. Sec. D, sq. 4–5, d. 10–30 cm, ditch in sterile layer, d. num. 43.
2. Frgm. of a vessel decorated with horizontal incised lines, beneath which is a stripe of short oblique incisions and garlands. The incisions are filled with incrustation. Size: 5.7 × 7.4 cm. Sec. D, sq. 4–5, d. 10–30 cm, ditch in sterile soil, d. num. 43.
3. Frgm. of a vessel decorated with two horizontal incised lines, between which are stripes of vertical incisions. Size: 5.4 × 6.7 cm. Sec. D, sq. 4–5, d. 10–30 cm, ditch in sterile soil, di. c. 43.
4. Frgm. of a vessel decorated with a horizontal stripe of incised, hanging, hatched triangles. Size: 2.8 × 3.8 cm. S. D, sq. 4–5, d. 10–30 cm, ditch in sterile soil, d. num. 43.
5. Frgm. of a bowl with an inverted rim, decorated with a horizontal incised line, an incised zigzag line, and a row of impressed dots. The decoration is filled with incrustation. Rec. r. diam. 25.7 cm; h. 6.1 cm. Sec. A, sq. 3 (ditch), d. 45–115 cm, d. num. 50.
6. Frgm. of a vessel, decorated with a zigzag line of pseudo-corded decoration, filled with incrustation. Size: 5.7 × 6.2 cm. Sec. A, sq. 3, d. 45–115 cm, ditch, d. num. 50.
7. Frgm. of a pot with an everted rim, decorated with an applied plain horizontal rib and a garland below it. Rec. r. diam. 15.9 cm; h. 5.6 cm. Sec. A, sq. 3, d. 45–115 cm, ditch.
8. Frgm. of a vessel decorated with a plain horizontal rib and a double garland below it. Size: 5.4 × 7.3 cm. Sec. A, sq. 3, d. 45–115 cm, ditch.

Year 1955, main excavation field, pit beneath building 2

9. Frgms. of a jug with a slightly everted rim and a high handle. Rec. r. diam. 12 cm; h. 13.9 cm. Sec. F II, sq. 3, pit.
10. Frgm. of a bowl with an inverted rim, decorated with oblique grooves. Size: 2.4 × 3.7 cm. Sec. F II, sq. 3, upper part of the pit fill.

11. Frgm. of a vessel with a pronounced transition from the shoulder to the neck, decorated with two horizontal incised lines and two horizontal rows of impressed dots. Rec. max. diam. 27.5 cm; size of frag. 4.5 × 5.3 cm. Sec. F II, sq. 3, upper part of the pit fill.

Year 1955, main excavation field, building 1

12. Frgm. of a bowl with an inverted thickened rim decorated with oblique grooves. Rec. r. diam. 32.3 cm; h. 4.3 cm. Sec. F III, sq. 2, beneath charcoal.

Year 1955, main excavation field, building 2

13. Frgm. of a vessel decorated with a horizontal groove at the transition from the shoulder to the neck and with oblique grooves in stripes in a zigzag pattern below it. Size: 3.1 × 9.9 cm. Sec. F I, sq. 4, d. 40/50–60/70 cm, brown layer down to loam.

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Življenje na robu ravnice. Prilagodljivost poznobronastodobne živinoreje na Brinjevi gori

Prevod

Popis raziskav arheozoološkega gradiva bronastodobne starosti na Slovenskem je kratek. Objave so maloštevilne, predstavljeni zbiri živalskih ostankov pa bodisi izjemno skromni (glej npr. Bartosiewicz 1999, tab. 1; Toškan 2005; 2008; Hincak 2013; 2018; Kovač, Toškan 2017; Toškan, Bartosiewicz 2018, tab. 1; Črešnar et al. 2019a) bodisi pomešani z gradivom iz drugih obdobij (Riedel 1977; Jamnik et al. 2002; Toškan, Dirjec 2010). Posledično je zbrano védenje o vlogi živali v gospodarstvu tedanjih skupnosti razmeroma skopo. Na podlagi razpoložljivih podatkov je marsikdaj nemogoče ustrezno osvetliti celó najosnovnejša arheozoološka vprašanja, kot so vloga posameznih vrst domačih živali ali gospodarski pomen lova. Jugovzhodnoalpski prostor tako ostaja siva lisa na področju arheozooloških raziskav bronastodobnega gradiva v Srednji Evropi (prim. npr. Greenfield 2001, 127; Miracle, Forenbaher 2006; Stopp 2015; Bartosiewicz 2017; 2022; Gál 2017; Reitmaier et al. 2013; Zavodny et al. 2019; Marković, Bulatović (ur.) 2020; Tecchiati et al. 2020; Varalli, Moggi-Cecchi, Goude 2022; Davitashvili 2024; Reed et al. 2024).

Prazgodovinsko gradivo z višinske naselbine na Brinjevi gori nad Zrečami, arheološko raziskane v 50. in zgodnjih 60. letih prejšnjega stoletja, ponuja eno redkih priložnosti za pridobitev prvega podrobnejšega vpogleda v problematiko reje živali v pozni bronasti dobi na območju današnje Slovenije. Ker celovita objava arheološkega gradiva z naselbine še ni bila izvedena, razpoložljiv zbir živalskih ostankov pa izkazuje običajne pomanjkljivosti **roč**nega pobiranja najdb (tj. podcenjen delež manjših primerkov), je spekter obravnavanih tem nekoliko ožji. V ospredje je postavljeno vprašanje o načinih in učinkovitosti prilagajanja živinoreje naravnim danostim v zaledju naselbine.

V kronološkem smislu je študija osredíščena na čas pozne bronaste dobe (žarnogrobíščno obdobje oz. stopnji Ha A in Ha B; okvirno od konca 13. do konca 9. st. pr. n. št.). Manjši del analiziranega gradiva sodi še v srednjo in na začetek pozne bro-

naste dobe, tj. v čas t. i. horizonta Oloris-Podsmreka (Bd B2/C–Bd D; okvirno od začetka 15. do konca 13. st. pr. n. št.), ter v starejšo železno dobo (Ha C/D1; okvirno od konca 9. do sredine 6. st. pr. n. št.). Kostno gradivo iz zanesljivih kontekstov iz bodisi zgodnejših obdobij poselitve naselbine, tj. časa horizonta pramenaste keramike (Bd A2/B1; okvirno od konca 19. do začetka 16. st. pr. n. št.) in kulture bronastodobnih gomil (Bd B1; okvirno 16. st. pr. n. št.), bodisi iz mlajše železne dobe (Lt D; konec 2. in 1. st. pr. n. št.) ni bilo odkrito. Za celovitejše razumevanje pridobljenih rezultatov so v članku prvič predstavljeni preliminarni izsledki analize arheozooloških ostankov z dveh drugih, delno sočasnih najdišč iz severovzhodne Slovenije, tj. s poznobronastodobnega zaselka Blato pri Slovenskih Konjicah (Bricelj 2014) in poznobronastodobne do starejšeželeznodobne naselbine na Grajskem hribu v Gornji Radgoni (Dular 2013, 179–206) (*sl. 1*).

PREDSTAVITEV ARHEOLOŠKEGA NAJDIŠČA

Hrib Brinjeva gora (630 metrov n. v.) nad Zrečami se nahaja na jugovzhodnih obronkih Pohorja, nad zgornjo Dravinjsko dolino (*sl. 1* in *16*). Je najvišji vrh 3,5 km dolgega grebena, ki ga pri Brezju prekinja sedlo. Severna stran je strma, kar je verjetno posledica tektonskega preloma, vidnega na geološki karti. Brinjeva gora ima dva vrhova (vzhodni in zahodni), med njima pa je dokaj položno, proti jugu obrnjeno vrhnje pobočje (Pahič, S. 1981, 71; Hamrla 1987; glej tudi *sl. 3*).

Naselbino, ki se razteza preko obeh omenjenih vrhov, in okoliška grobišča je med letoma 1953 in 1963 odkril in sistematično raziskoval Stanko Pahič iz Pokrajinskega muzeja Maribor. Pri tem je bilo izkopanih okoli 200 večjih in manjših sond[1] (*sl. 2*), od katerih so bili doslej celostno objavljeni le izsledki izkopavanj iz let 1953 in 1954 (Pahič, S. 1980; 1981; 1985; Oman 1981). Preliminarni rezultati preostalih izkopavalnih sezon so poznani v obliki kratkih notic (gl. Pahič, S. 1981, tab. 1 in tam navedena literatura).

[1] Celotna dokumentacija je bila skenirana, pregledana in preučena v sklopu projekta Prehistory Adventure (Interreg SI-HR), ki ga je na Filozofski fakulteti UL vodil Matija Črešnar. Ker so nekateri Pahičevi pregledni načrti raziskav po letih pogrešani, natančne lokacije vseh sond ni mogoče ugotoviti.

Kronološka opredelitev reprezentativnih izbranih keramičnih najdb

Vrh hriba je bil poseljen že na prehodu zgodnje v srednjo bronasto dobo, kar kažejo najdbe posameznih kosov pramenaste keramike (Bd A2/B1)[2]. Sočasna ali le nekoliko poznejša je igla s preluknjanim odebeljenim vratom in bikonično glavico, sicer najdena v sekundarni legi, ki sodi v repertoar oblik srednjebronastodobne kulture gomil (Bd B1). V srednjo bronasto dobo lahko umestimo tudi nekatere kose keramičnih posod, med drugim tiste, okrašene z bradavicami, obdanimi s kaneluro. Te lahko povezujemo s horizontom Oloris-Podsmreka (Bd B2/C–Bd D), čeprav je na podlagi najdbe z Morja pri Framu njihov pojav v tem prostoru mogoče domnevati že v času kulture srednjebronastodobnih gomil. Odgovor na vprašanje o bodisi nepretrgani bodisi večkratni poselitvi Brinjeve gore v teh obdobjih bo lahko ponudila šele obdelava celotnega keramičnega gradiva in arhiva izkopavanj.

Vzpetina je bila nedvomno najmočneje poseljena v pozni bronasti dobi (Ha A in Ha B), življenje tukaj pa se je nadaljevalo še v starejšo železno dobo (Ha C–Ha C/D1). Do opustitve je najverjetneje prišlo sredi 6. st. pr. n. št. Glede na posamezne najdbe je naselbina za kratek čas ponovno oživela v poznem latenu, medtem ko je imela poselitev v rimskem obdobju težišče v 3. in 4. st. Iz tega časa so se ohranili temelji obrambnega obzidja in treh zidanih stavb; preostali objekti so bili verjetno leseni (Pahič, S. 1980, 104; 1981, 115–120; 1985, 15–16; Gabrovec 1983, 28, 42–45, 57, 61, t. 1: 7–15; 2: 14–17; Teržan 1990, 36–43; Črešnar, Teržan 2014, 679–681).

Celoviteje so objavljena okoliška grobišča (*sl. 3*). Severovzhodno od naselbine, v Brezju pod Brinjevo goro, je bila raziskana gomila iz srednje bronaste dobe (Bd B1), v njeni bližini pa še antično grobišče iz 3. in 4. st. ter zgodnjesrednjeveško grobišče. Na istem mestu so bili najdeni ostanki starejše poselitve iz zgodnjega eneolitika (Pahič, S. 1955; 1956; 1962–1963; 1969; Črešnar, Koprivnik 2014; Kramberger 2018). Jugovzhodno od Brinjeve gore, na pobočju nad vasjo Gračič, je bila odkrita nekropola iz žarnogrobiščnega obdobja. Deloma jo je predstavil že Vitko Pahič (Pahič, V. 1988–1989), celostno pa je bila objavljena šele pred kratkim

[2] Zanje S. Pahič navaja, da so ležale med najdbami najnižjih plasti (Pahič, S. 1981, 115).

(Črešnar et al. 2014; Koprivnik 2021a; 2021b; Koprivnik, Teržan 2021; Teržan 2021).

Čeprav pomemben del arhiva naselbine na Brinjevi gori še ni obdelan, pri čemer velik zalogaj ostaja predvsem izjemna količina keramičnega gradiva, je na podlagi že objavljenih najdb in pregleda terenske dokumentacije nekatere preliminarne zaključke o tedanjem dogajanju vendarle mogoče podati.

Ohranjenost arheoloških plasti je bila najboljša na južnem delu naselbine, zato je Pahič tam izvedel najobsežnejša izkopavanja (*sl. 4*). Živalski ostanki večinoma izvirajo iz teh večjih izkopnih polj. Preostali del naselbine je bil podvržen močni eroziji. Predstavitev posplošene stratigrafske slike, ki je podana v nadaljevanju, je osredišèena na arheozoološko najzanimivejše kontekste z južnega dela naselbine.

Izkopavanja so potekala po režnjih, kar je bil v tistem času ustaljen način terenskega raziskovanja, vendar je zaradi razgibanega pobočja Brinjeve gore takšna praksa močno otežila naknadno vzporejanje in razlaganje podatkov. Dodatno težavo povzroča okoliščina, da se je območje južnega dela naselbine zaradi erozijskih in akumulacijskih procesov znatno spreminjalo: kjer je bilo prvotno pobočje, je danes najti izravnan predel ob domačiji Falnoga. Posledično so Pahičeva izkopavanja sprva posegala v razmeroma raven teren, v nadaljevanju pa marsikdaj hkrati v plasti iz različnih časovnih obdobij. Povezovanje najdb in izkopavalnih podatkov je do neke mere olajšalo dosledno kopanje po kvadrantih in vestno risanje profilov. Temeljit pregled globin plasti po kvadrantih in njihovo vzporejanje v profilih namreč lajšata prepoznavanje najdb iz časovno različnih plasti.

Med najstarejše prepoznane arheološke ostaline sodijo območja ožganega hišnega ometa, oglja in tlakov iz prodnikov. Gre za ostanke stavb, čeprav njihovih tlorisov ni moč prepoznati. Tovrstna zaplata iz izkopnega polja leta 1953 (t. i. objekt A; Pahič, S. 1981, 79–82) je bila na podlagi keramičnih najdb opredeljena v čas Ha A (Oman 1981, 149). Po ponovnem pregledu terenske dokumentacije se zdi, da je navedeni tlak mlajši od preostalih tovrstnih tlakov, ki verjetno sodijo v horizont Oloris-Podsmreka. Najbolj izraziti so v izkopu iz leta 1958[3], v sosednji sondi iz leta 1954 in v sondi 9 iz leta 1956 na jugozahodu naselbine.

Med najdbami iz najstarejših plasti v sondi iz leta 1954, ki je bila leta 1958 razširjena, je odlomek velike sklede z rebri, razčlenjenimi s prstnimi odtisi (*t. 1:* 3). Primerjati jo je mogoče z nekaterimi posodami, ki so na naselbini na Podsmreki uvrščene med skodele tipa Sk7 (Murgelj 2013, sl. 29c, G667, G499; gl. tudi Murgelj 2022). Soroden je tip loncev L2 z istodobnega najdišča Svetje pri Medvodah (Leghissa 2011, sl. 63). Posoda z ročajem (*t. 1:* 4) ima dobre primerjave na Ptuju v času srednje in prehoda v pozno bronasto dobo, tako na Rabelčji vasi kot v grobu 2 s Potrčeve ceste (Strmčnik Gulič 1988–1989, t. 3: 3; 4: 8; Jevremov 1988–1989, sl. 3: 2). Med najdbami iz leta 1958 (*t. 1:* 5–11) se pojavljajo plastične bradavice, obdane s kaneluro (*t. 1:* 8,9). Le-te je navajal že S. Pahič in jih primerjal z enako okrašenimi vrči, odkritimi leta 1953. Čeprav izhajajo iz različnih kontekstov, je postavil domnevo, da sodijo prav kosi, ki so bili odkriti leta 1958, med najzgodnejše najdbe, pri čemer zanje našteva tudi precej srednjebronastodobnih paralel (Pahič, S. 1981, 115, op. 177–180; sl. 28). V tem kontekstu velja omeniti številne bradavice, obdane z vrezi oz. kanelurami, odkrite na Podsmreki in širše na najdiščih horizonta Oloris-Podsmreka. V Istri in na Krasu jih srečamo na najdiščih kaštelirske kulture (Turk, Svetličič, Pavlovič 2022, 53–54). Primerjave zanje se pojavljajo vse od Moravske, Madžarske in celinske Hrvaške do Istre in severne Italije (Murgelj 2013, 37–39; 2022, 72–75). Motiv koncentričnih krogov okoli bradavice (*t. 1:* 10) je razširjen od Madžarske do Like, Istre in Padske nižine v času od zgodnje in srednje bronaste dobe do zgodnjega Ha A (Murgelj 2022, 63). Odlomek skodele (*t. 1:* 5) z vodoravnim rebrom, razčlenjenim s prstnimi odtisi, lahko uvrstimo med sklede tipa S7 iz Olorisa (Dular, Šavel, Tecco Hvala 2002, 152, sl. 8, zlasti t. 57: 2). Odlomek lonca na *t. 1:* 6 lahko primerjamo z lonci tipa L5 z Olorisa (Dular, Šavel, Tecco Hvala 2002, 148, sl. 5). Med najdbami iz spodnjih plasti v sondi 9 (*t. 1:* 1,2) ima lonec na *t. 1:* 1 primerjave v nekaterih loncih tipa L5 z Olorisa, od njih pa se razlikuje po trikotno oblikovanem ustju (Dular, Šavel, Tecco Hvala 2002, sl. 5).

Z naslednjim poselitvenim nivojem (tj. Ha A) je povezana gradnja nasipa oz. okopa na južnem robu naselbine, ki je bil prepoznan v dveh vzporednih sondah iz leta 1954 in 1960 (*sl. 4*). Pahič v njem sicer ni videl obrambne strukture, pač pa nasip, ki je na spodnji strani ograjeval pobočje in bližnjo veliko "jamo za pridobivanje ilovice" (Pahič, S. 1962, 190–191). Ob ogledu terenske dokumentacije, predvsem risb profilov, in današnjega razgibanega površja Brinjeve gore se zdi verjetneje, da je padec terena na tem mestu naraven in ne izkopan. Da

[3] Kot srednjebronastodobne jih je opredelil že Pahič (Pahič, S. 1960, 296).

je imel nasip najbrž namen obrambe, je mogoče sklepati na podlagi ostankov ožganih lesenih brun, odkritih na njem. Ta namreč kažejo na obstoj leseno zemljene konstrukcije, morda takšne, kakršna je bila odkrita v Ormožu (Dular, Tomanič Jevremov 2010, 84–86). Zdi se, da je bil okop vsaj enkrat popravljen. Z njim oz. s časom njegove uporabe so najverjetneje povezane ostaline iz časa Ha A, najdene v izkopih iz let 1953, 1956 in 1958–1960.

Iz spodnjih delov okopa izvirata lonček z izvihanim ustjem in blagim prehodom ramena v vrat (*t. 2:* 1) in posoda s trakastim ročajem (*t. 2:* 2). Lončku so podobni odlomek vrčka z delno ohranjeno bradavico z žlebom iz srednje- in zgodnjepoznobronastodobnih plasti naselbine na Obrežju (Mason, Kramberger 2022, 46–47, G 100) in posodice z lokacije Tri lesnice – Pekov graben s trikotnim presegajočim ročajem, s primerjavami na Jelarjih v pozni srednji in mlajši bronasti dobi oz. Bd C/D (Gaspari 2012, t. 6: 51–53; Erjavec, Gaspari 2012, 274; Lonza 1981, t. 5; 7: 16). Podobna posoda iz tretje plasti z izkopavanj leta 1953 z Brinjeve gore nima poudarjenega prehoda ramen v vrat (Oman 1981, 29: 8). Posoda s trakastim ročajem ima primerjave na srednje- in zgodnjepoznobronastodobnih najdiščih Pod Grunti – Pince pri Pincah (Kerman 2018, 72, sl. 43, G 379) in Šiman pri Gotovljah (cilindrični lonci, varianta III; Tomažič, Olić 2009, 34, sl. 37, G 372). Mlajšo primerjavo najdemo v poznobronastodobnih loncih tipa L2 na Obrežju (Mason, Kramberger 2022, 55, sl. 23, G 286).

Med najdbami iz višjega dela okopa (*t. 2:* 3–5) je treba omeniti odlomek bikonične posodice s plitvo bradavico, obkroženo s kaneluro (*t. 2:* 4). Odlomki podobnih posod z bradavicami s kaneluro so na Brinjevi gori znani tudi v tretji in četrti plasti izkopnega polja iz leta 1953 (Oman 1981, t. 29: 2,3; 35: 20). Že Pahič jih opisuje kot tujke v mlajših plasteh in njihovo mesto vidi med najstarejšimi najdbami z Brinjeve gore, kjer so bile odkrite tudi v izkopu iz leta 1958. Datira jih v srednjo bronasto dobo (Pahič 1981, 115, sl. 28). Lonec na *t. 2:* 5 ima starejše primerjave v nekaterih loncih tipa L2 z Olorisa (Dular, Šavel, Tecco Hvala 2002, sl. 4, predvsem t. 39: 6), mlajše pa v loncih tipa L2 iz severovzhodne Slovenije, ki se pojavljajo od Ha A do Ha C0 (Dular 2013, 31, sl. 7). Z vrha nasipa, pri zoglenelem lesu, je odlomek lonca (*t. 2:* 6) z izvihanim ustjem, razčlenjenim s prstnimi odtisi. Primerjamo ga lahko z nekaterimi lonci tipa L3 iz Orehove vasi, ki so tam najštevilčnejše zastopani tip (Grahek 2015, 35, sl. 27; 2021, 36–39, sl. 5). Podoben lonec je poznan iz Rogoze (Črešnar 2022, G 477) in iz Ormoža (tj. tip L2; Dular, Tomanič Jevremov 2010, sl. 88).

Na prehodu iz Ha A v Ha B je bila erozija domnevno posebej izrazita. Znatno je preoblikovala območje južnega roba naselbine, saj se je prostor za nasipom zapolnil z erozijskimi nanosi, ki so se zaustavili ob njem. Keramične najdbe z območja stavb, ki so sledile, kažejo značilnosti Ha B (npr. stavba D, odkrita v letu 1953; Oman 1981, 150–151). Te stavbe se iz izkopnega polja iz leta 1953 nadaljujejo proti severu v izkopno polje iz leta 1955.

Izkopavanja v letih 1953 in 1955 so dala več sto najdb živalskih kosti in zob. Približno polovico jih je bilo na podlagi razpoložljive terenske dokumentacije mogoče neposredno navezati na posamezne objekte, jame ali poselitvene nivoje (*sl. 11*). Strukture in plasti z območja izkopnega polja leta 1953 so objavljene (Pahič, S. 1981), tiste, ki so bile izkopane v letu 1955, pa še ne. Izbor slednjih je preliminarno predstavljen v naslednjih nekaj odstavkih.

Pahič je v sondi iz leta 1955 odkril dva poselitvena nivoja: s starejšim je povezal dve veliki jami, morda polzemljanki, z mlajšim pa ostanke dveh stavb (*sl. 5*). Prvi od obeh (stavba 1) je pripisal velik vogalni podporni kamen, ob njem v zemljo zabit zoglenel kol in dve zogleneli vodoravni temeljni bruni. V enem od kotov stavbe je bila s kamni obzidana peč. Hodna površina je bila opisana kot sivorjava ilovica, pri čemer je bila južno od peči še črna kulturna plast z oglenino. Pod enim izmed zoglenelih tramov je bil odkrit kos plitve sklede z uvihanim odebeljenim ustjem, okrašenim s poševnimi kanelurami (*t. 3:* 12). Primerjati ga je mogoče z okrašenimi skledami Sz3b z Rogoze. Takšen tip je značilen predvsem za obdobji Ha A in Ha B, v uporabi pa ostane tudi v starejši železni dobi (Dular 2013, 43–47, 56–57; Črešnar 2022, 73–75, sl. 66).

Stavbi 2 je pripadal velik kamen, od katerega je v smeri proti severu potekala vrsta nekoliko manjših, v jarek postavljenih kamnov. Kot hodna površina je domnevno služila siva kulturna plast. Iz rjave plasti, na katero je bil objekt postavljen, izvira odlomek posode z vodoravnim žlebom na prehodu iz ramena v vrat in poševnimi žlebovi, ki v snopih potekajo v motivu cikcaka pod njim (*t. 3:* 13). Odlomek takšne posode je bil na Brinjevi gori že odkrit v plasti 3 z izkopavanj leta 1953, ki je datirana v čas Ha B (Oman 1981, 150, t. 27: 17). Okras kaneliranih trikotnikov na ramenu v kombinaciji s klekastim prehodom vratu v rame se pojavlja na

posodah s stožčastim vratom v drugem horizontu Poštele (Ha C), trikotniki pa niso postavljeni tako blizu drug drugega (Teržan 1990, 32, 35–36, zlasti t. 11: 4; 39: 1; 40: 3).

Sledi starejšega poselitvenega nivoja so bile ugotovljene v dveh večjih jamah, morda polzemljankah, ki sta bili odkriti pod stavbama iz mlajše faze. Med izborom najdb iz jame pod stavbo 2 (*t. 3:* 9–11) je treba poleg sklede s poševno kaneliranim ustjem (*t. 3:* 10), primerljive s tipom Sz4b s pojavnostjo od starejšega žarnogrobiščnega obdobja do starejše železne dobe (Črešnar 2022, 75, sl. 66), omeniti zlasti vrč oz. skodelo (*t. 3:* 9). Podobna posoda je bila odkrita v naselbini na Pobrežju, s primerjavami v grobovih iz časa Ha B na grobiščih na Pobrežju in v Rušah (Kramberger, Črešnar 2021, t. 4: 4), ter na naselbini v Dragomlju iz horizonta Rogoza-Orehova vas (Turk, Svetličič, Pavlovič 2022, 111, G 648). Vrezan okras s pikami, kakršen se pojavi na odlomku posode iz te jame (*t. 3:* 11), sodi med okrase, značilne za grobišča ruške skupine. Začetek njihovega pojavljanja je mogoče uvrstiti na prehod iz starejšega v mlajše žarnogrobiščno obdobje (Črešnar 2022, 97 in tam navedena literatura).

V stopnjo Ha B med drugim sodi velika, verjetno dvofazna stavba na vzhodnem delu naselbine, ki je bila izkopana leta 1960 (*sl. 6*), pri čemer pa njenih faz zaradi enotnosti gradiva ni mogoče kronološko ločiti. Raziskana je bila v obsegu približno 8 × 7 m, vendar se nadaljuje izven izkopnega polja in je bila njena velikost najbrž še večja. Arheozoološko je zanimiva predvsem zavoljo nadpovprečno izražene vrstne pestrosti zbranega gradiva (*sl. 11*). Najdbe sicer še niso v celoti pregledane, izrisane in analizirane, zato na tem mestu prinašamo le manjši izbor reprezentativnega keramičnega gradiva (*t. 3:* 1–8). Njeno prvo fazo predstavljajo trije jarki, ki se stikajo pod pravim kotom. Najverjetneje orisujejo usmeritev dveh zunanjih sten objekta v smeri SZ–JV in razmejitev med dvema prostoroma, ki jo nakazuje prečni jarek. Ostaja vprašanje, ali bi lahko že v to fazo umestili tudi nekatere od jam za sohe, predvsem tiste, ki so bile vkopane na območju jarkov, na primer v najsevernejšem jarku, vendar smo jih v našem poskusu interpretacije povezali v domnevno drugo fazo objekta. Slednjo tako predstavljajo ravne vrste jam za nosilne sohe in stene, vse usmerjene v predhodno zastavljeni smeri SZ–JV, ki so se delno naslonile oz. izrabile starejšo stavbno konstrukcijo. Najdaljšo in najgostejšo vrsto sestavljajo jame, vkopane v severni jarek. Sledijo tri z njo vzporedne vrste v povprečju nekoliko večjih jam, ki so med seboj oddaljene samo okoli en meter. Precej nejasna je situacija na povsem južnem delu objekta, kjer bi lahko po vzoru prve faze pričakovali njegovo južno zunanjo steno. Tukaj je bila v jarku oz. njegovem zasutju prepoznana le ena jama za soho. To kaže na delno drugačno gradnjo tega dela stavbe ali pa jame niso dosegle nižjih plasti, kjer bi bili njihovi vkopi vidni, in so bile vkopane le v razmeroma heterogeno polnilo jarka, kjer pa niso bile prepoznane. Čeprav v tlorisu izkopnega polja južni jarek ni bil v celoti izrisan, je takšno razlago mogoče podati na podlagi Pahičevih neobjavljenih profilov in navezave na preostale jarke (*sl. 6*). Glavnina arheozooloških najdb s tega območja naj bi izvirala prav iz zapolnitve jarka južne stranice te stavbe na območju kvadranta A3.

Skleda z uvihanim ustjem z okrasom vrezanih linij in vtisnjenih pik, zapolnjenim z inkrustacijo (*t. 3:* 1), ima primerjave tako z grobišča (grobova 38 in 134; Pahič, S. 1972, t. 9: 7; 26: 10) kot z naselbine na Pobrežju iz mlajše kulture žarnih grobišč (Ha B) (Kramberger, Črešnar 2021, 78, sl. 10, tip S4/4 in 4/5 in tam navedena literatura). Sorodna je skleda s cikcak linijo (*t. 3:* 5). Odlomki takšnih skled so bili na Brinjevi gori najdeni že med izkopavanji leta 1953 in sicer v četrti in peti plasti (Ha B; Oman 1981, 34: 3; 46: 1,7). Podobnosti je najti tudi v skledi iz groba 52 s prvega ruškega grobišča (Müller-Karpe 1959, t. 109: F1). V grobovih 38, 49 in 100 na Pobrežju lahko najdemo primerjave za inkrustiran okras vrezanih linij, kratkih poševnih vrezov in girland (*t. 3:* 2; Pahič, S. 1972, t. 9: 11; 11: 1; 19: 6). Odlomek posode z dvema vodoravnima vrezoma in snopi navpičnih vrezov (*t. 3:* 3) ima primerjave v keramiki iz groba 41 na Gračiču pod Brinjevo goro (Koprivnik 2021a, t. 15: 7–9), v vrčku iz groba 5 iz Miklavža na Dravskem polju, datiranem v mlajši del Ha B (Črešnar, Murko 2014, 210–213, sl. 10.7: 1; 10.9; Črešnar, Teržan 2014, 697), in na posodah iz prve faze naselbine v Ormožu (Ha B1, B2; Lamut 1988–89, t. 3: 2; 11: 18). Okras vrezanih šrafiranih trikotnikov (*t. 3:* 4) predstavlja mlajši element v okviru Ha B, v podonavsko-balkanskih skupinah in v okviru basarabskega sloga pa so značilni za zgodnjo železno dobo in zgodnjo halštatsko keramiko (Teržan 1990, 42; Vojaković 2014, 394, 401–402). Psevdovrvičast okras (*t. 3:* 6) je značilen za ruško skupino in s tem za mlajši del kulture žarnih grobišč, redki primeri so poznani še na začetku železne dobe (Horvat 1983, 150, npr. t. 7: 4–12; Müller Karpe 1959, 118, npr. t. 108: C, M2; 110: E4; F/Gr. 64,Gr. 71; 111: A1). Pojavi se tudi okras nalepljenih reber v obliki

enojne in dvojne girlande (*t. 3:* 7,8). Odlomki obeh vrst okrasa so že poznani z izkopavanj na Brinjevi gori iz leta 1953, iz plasti 5 in 6 (Oman 1981, t. 45: 11; 52: 19). Lonček z enojnimi girlandami (*t. 3:* 7) ima dobre primerjave v Ormožu (Dular, Tomanič Jevremov 2010, t. 40: 3; 158: 6, 8), na naselbini na Obrežju (tip L3, s primerjavami opredeljen v čas zlasti mlajšega dela Ha B in v Ha C0; Mason, Kramberger 2022, 56, sl. 23, G 1473) in na najdišču Mastni hrib pri Škocjanu na Dolenjskem (Ha B; Dular et al. 2000, 132–134, t. 9: 7).

V desetletju arheoloških izkopavanj na Brinjevi gori je bilo največje število živalskih skeletnih ostankov prazgodovinske starosti odkritih leta 1959 (*sl. 11*). Izkopavanja so na skrajnem zahodnem delu izkopnega polja na površini sivorjave humozne ilovice (*sl. 12*: plast vii), neposredno eno nad drugim razkrila ostanke dveh ognjišč iz stopnje Ha B (*sl. 13:* ognjišči A in B). Starejše (ognjišče B) je bilo presekano z vsaj eno jamo za navpično bruno. Na tlaku ognjišč A in B so bili najdeni odlomki posode s stožčastim vratom in sklede z uvihanim ustjem (*t. 2:* 12,13). Posodo s stožčastim vratom je mogoče primerjati s skledami tipa Sv3b z Rogoze (ki so večinoma sicer okrašene) in s skodelami tipa C4/1. Oba tipa sta s primerjavami uvrščena v Ha A in B, tip z Rogoze se lahko pojavlja tudi še v starejši železni dobi (Črešnar 2022, 72, sl. 65; Mason, Kramberger 2022, 84, sl. 35). Sorodna sta vrčka s Pobrežja (grob 85; Pahič, S. 1972, t. 15: 18) in iz Ruš (grob 5/1993; Črešnar 2006, t. 2: A1).

Pod sivorjavo humozno ilovico je bila odkrita sivorjava plast z zdrobljeno prežgano glino (*sl. 12:* plast iv), na njej pa še tretje, najstarejše ognjišče (*sl. 13:* ognjišče C). Med najdbami iz plasti med ognjiščema A in B ter ognjiščem C (*t. 2:* 10,11) je treba poudariti pojav posod z okrasom vodoravnih vrezanih linij in vtisnjenih pik (*t. 2:* 10). Iz plasti pod ognjiščem C (*t. 2:* 7–9) izvira še en odlomek sklede z uvihanim, poševno kaneliranim ustjem (*t. 2:* 7). Okras vodoravnih vrezov na prehodu ramen v vrat in poševnimi vrezi v snopih v motivu cikcaka na ramenih (*t. 2:* 8) ima primerjave na grobiščih na Pobrežju, v Rušah, Mariboru in na Obrežju (Pahič 1972, t. 5: 1; 16: 9; 17: 1; 18: 2; 31: 5; Koprivnik 2021b, t. 14: 1; Müller-Karpe 1959, t. 110: D4; 112: D6; 112: H2; 114: N; 115: D6; 120: 11; Mason, Kramberger 2022, G641). Starejši je morda odlomek posode z izvihanim ustjem in ostanki ročaja (*t. 2:* 9), ki ga je mogoče primerjati z nekaterimi skledami tipa Sk 1 iz Orehove vasi (Ha A; Grahek 2015, 39, sl. 31, G 622, 623; Grahek 2014, 258, 272, sl. 14.1.11: 15,16; 14.1.22). Tudi ognjišče C torej najverjetneje sodi v stopnjo Ha B.

Poudariti je treba, da je bila vsaj v stopnji Ha B na nekaterih delih naselbina terasirana. Pahič je namreč odkril nekaj suhozidanih ostalin, ki lahko predstavljajo robove teras, drenažne zidove ali temelje stavb (cf. objekt D iz leta 1953; Pahič, S. 1981, 86–89). Ostanki stavb iz tega časa so bili odkriti v vseh večjih izkopih na južni strani naselbine in pripadajo več stratigrafskim nivojem.

Arheoloških ostalin in plasti iz časa Ha C ali latenskega obdobja na južni strani naselbine ni bilo. Tam je bila ugotovljena šele rimskodobna poselitev z obzidjem, več plastmi, morebitnimi ostanki požgane lesene stavbe, nekaj ognjišči in veliko, 5 m globoko jamo neznane namembnosti[4]. Kot edini zanesljiv kontekst iz stopnje Ha C velja tako omeniti jamo (del stavbe?), ki je bila odkrita leta 1954 med izkopavanji t. i. police C na severovzhodnem delu najdišča (Pahič, S. 1985, 11–12).

Poleg običajnih keramičnih in kovinskih najdb je Pahič na Brinjevi gori pobiral in shranil tudi živalske kosti in zobe. Medtem ko so keramiko med izkopavanji dosledno zbirali po kvadrantih in režnjih ter jo tako tudi shranjevali, to za arheozoološko gradivo ne velja. Pogosto so namreč v isti vrečki/škatli združeni živalski ostanki iz več različnih kvadrantov ali celó režnjev, kar otežuje navezavo odkritih živalskih kosti na določen stratigrafski nivo oziroma reženj in posledično časovno stopnjo. Gradivo iz zadnjih treh let arheoloških izkopavanj (tj. 1961–1963), ko so bile v primerjavi s prejšnjimi leti večinoma izkopane sonde manjšega obsega, ni ohranjeno. V okviru pričujoče študije so bili živalski ostanki, ki jih ni bilo mogoče z zadostno verjetnostjo opredeliti v določeno časovno obdobje, iz nadaljnje analize izločeni.

ARHEOZOOLOŠKA ANALIZA: METODE IN GRADIVO

Med Pahičevimi izkopavanji na Brinjevi gori so bile najdbe živalskih kosti pobirane ročno. To pomeni, da je v zbranem gradivu delež manjših kostnih ostankov vsaj do neke mere podcenjen (cf. O'Connor 2000, 28–35). Zaradi evalvacije obsega nastale napake je v okviru pričujoče študije ločeno predstavljen skromen zbir najdb

[4] Pahič jo sicer povezuje s kopanjem ilovice (Pahič, S. 1962, 190).

živalskih kosti in zob, ki je bil na istem najdišču pridobljen v letu 2019 (Omahen, Črešnar, Mušič 2020; Črešnar, Omahen, Mušič 2020, 8). Gradivo je bilo v tem primeru pridobljeno na način, da je bila vsa izkopana zemljina presejana na situ z mrežo velikosti 1 × 1 cm. S takšnim pristopom sicer ni bilo mogoče zadovoljivo zajeti ostankov malih vretenčarjev, spregledan pa je utegnil biti tudi del najmanjših skeletnih elementov velikih sesalcev (npr. prstnice, posamični zobje), je pa zbrano gradivo nedvomno ponudilo verodostojen vpogled v delež zastopanosti preostalih skeletnih elementov velikih sesalcev. Ob tem je upravičeno domnevati, da je bilo zaradi sejanja vsaj do neke mere vendarle učinkovitejše tudi zajemanje njihovih najmanjših skeletnih elementov (Toškan, Dirjec 2004, 157–161).

Taksonomska analiza gradiva je zajela ostanke vseh skeletnih elementov z izjemo reber. Pri slednjih je bila zaradi izrazite fragmentiranosti uspešnost taksonomske opredelitve do ravni vrste zelo skromna. Posledično so bili ostanki reber le razvrščeni v eno od dveh *ad hoc* oblikovanih velikostnih kategorij, tj. živali velikostnega razreda "veliki rastlinojedi" (npr. govedo, jelen, divji prašič) in tiste velikostnega razreda "majhni rastlinojedi" (npr. ovca, koza, srna, domači prašič). Takšen pristop sicer ne omogoča verodostojne ocene razmerja v številu ostankov reber med podobno velikimi živalskimi vrstami, je pa zaradi večjega vzorca, kot ga tvori peščica do vrste opredeljeni odlomkov teh kosti, takšno primerjavo mogoče toliko učinkoviteje izvesti na ravni živali iz različnih velikostnih razredov.

Opredeljevanje je potekalo v Študijski osteološki zbirki Inštituta za arheologijo ZRC SAZU, pri čemer so bili upoštevani v stroki splošno uveljavljeni določevalni ključi (npr. Boessneck, Müller, Teichert 1964; Schmid 1972; Brown, Gustafson 1979; Fernandez 2001; Zeder, Lapham 2010; Zeder, Pilaar 2010). Razmerje v količini ostankov domačega in divjega prašiča ter psa in volka je bilo ocenjeno na podlagi velikosti celoviteje ohranjenih primerkov (cf. Morey 2010 in tam navedena literatura; Payne, Bull 1988; glej tudi Bökönyi 1995). Podatki o velikosti kosti in zob so bili zbrani v skladu s smernicami, ki jih je objavila von den Driesch (1976).

Ocena starosti živali ob zakolu/poginu je v arheozoologiji tradicionalno podana na podlagi stopnje obrabe žvekalne površine zob in/ali deleža kosti s še nezraščenima epi- in diafizo. Drugi od navedenih pristopov je manj poveden. Omogoča namreč le opredelitev glede tega, ali je žival poginila pred zaključkom osifikacije proučevanega dela izbrane kosti ali pozneje (Toškan 2016, 113). Navedenemu navkljub je v tem članku smrtnostni profil za gospodarsko najpomembnejše živali podan le na podlagi deleža kosti z nezraščenima epi- in diafizo, saj je bilo med izkopavanji zajemanje posameznih zob zaradi ročnega pobiranja najdb pomanjkljivo. Podatki o časovnem poteku zraščanja epifiz so v tem članku povzeti po Silver (1972) za govedo, Zeder (2006) za drobnico ter Zeder, Lemoine in Payne (2015) za prašiča.

Poleg navajanja skupne količine vseh ostankov v posameznem zbiru kosti in zob (tj. N) je v prispevku rutinsko uporabljen tudi podatek o "številu določenih primerkov" (*Number of Identified Specimens*, NISP; Grayson 1984). Pri slednjem so bili odlomki, ki nedvoumno pripadajo istemu zobu/kosti, obravnavani kot en primerek (tj. NISP = 1). V okviru analize zastopanosti ostankov iz različnih anatomskih regij živalskega telesa so bili skeletni elementi na podlagi ocen o kakovosti in količini pripadajočega mesa razvrščeni v tri kategorije (cf. Uerpmann, 1973): kategorija A (vključuje ostanke nosačev, okretačev ter drugih vratnih, prsnih in križnih vretenc, lopatic, nadlahtnic, medenic in stegnenic), kategorija B (obsega ostanke lobanj, spodnjih čeljustnic, koželjnic, golenic in piščali) in kategorija C (vključuje ostanke zgornjih čeljustnic, zob, dlančnic, stopalnic, zapestnih kosti, skočnic, petnic in ostalih nartnih kosti ter prstnic).

Pri govedu, ki je na okvirno sočasnih središčnih naselbinah v regiji praviloma razumljeno kot gospodarsko najpomembnejša domača žival (*sl. 17* in *18*; Toškan, Dirjec 2010), je bil vzorec zastopanosti skeletnih elementov proučen podrobneje. Postopek (gl. O'Connor 2000, 71–75) omogoča izločitev tistega dela razlik v številu odkritih primerkov posameznih skeletnih elementov, ki mu botruje njihova neenakomerna zastopanost v okostju goveda (npr. vsako od vretenc se pojavlja posamič, dolge kosti okončin dvakrat (levi in desni primerek), prstnice skupaj 24 krat (po par prvih, drugih in tretjih prstnic na posamezno nogo)). Namesto dejanskih podatkov o številu odkritih ostankov izbranih kosti in zob so bile uporabljene prilagojene vrednosti tega parametra (MC oziroma 'modified count' *sensu* O'Connor 2000, 71). Te so bile izračunane kot količnik med ugotovljenim številom najdb izbranega skeletnega elementa in številom primerkov tega elementa v okostju goveda. Za prepoznavo tistih elementov, ki so v analiziranem zbiru ostankov zastopani podpovprečno oziroma nadpovprečno pogosto, so bile izračunane še standardizirane prilagojene

vrednosti (OvE oziroma 'observed *vs*. expected value' *sensu* O'Connor 2000, 72). Gre za količnik med dejansko prilagojeno vrednostjo (MC) za izbran skeletni element in povprečno prilagojeno vrednostjo vseh v analizo vključenih skeletnih elementov. Pri tem velja, da so kosti in zobje z OvE < 1 zastopani podpovprečno, tisti z OvE > 1 pa nadpovprečno. Odstopanja od OvE = 1, ki presegajo vrednost ene standardne deviacije, so v tej študiji obravnavana kot relevantna.

IZSLEDKI

Študija je izhodiščno obsegala približno 5500 kosti in zob, za katere je kazalo, da jih bo mogoče vsaj deloma kronološko opredeliti. Za več sto najdb iz tako nastalega ožjega izbora je ostal zastavljen cilj nedosegljiv, dobra petina ostankov (N = 1264; NISP = 580) izvira iz rimskodobnih plasti (Omahen et al. 2019a; Toškan 2019a), skoraj 3500 kosti in zob pa je prazgodovinske (tj. PZG) starosti. Prevladujejo najdbe iz pozne bronaste dobe (NISP = 1815 oz. 94,2 % $NISP_{\Sigma PZG}$), ostankov iz srednje bronaste dobe (NISP = 38 oziroma 1,2 % $NISP_{\Sigma PZG}$) in starejše železne dobe (NISP = 74 oziroma 3,8 % $NISP_{\Sigma PZG}$) pa je le za vzorec. Ta članek je osredotočen na predstavitev prazgodovinskega gradiva, glede na razpoložljive podatke torej zlasti tistega iz pozne bronaste dobe. Izsledki preliminarne analize arheozooloških najdb, pridobljenih s sondiranji v letu 2019 (Omahen, Črešnar, Mušič 2020), so podani ločeno (glej pogl. Brinjeva gora: sondiranja leta 2019). Enako velja za gradivo iz zaselka Blato pri Slovenskih Konjicah (glej pogl. Blato pri Slovenskih Konjicah; Bricelj 2014; 2018) in z naselbine na južnem pobočju Grajskega hriba v Gornji Radgoni (glej pogl. Grajski hrib v Gornji Radgoni; Dular 2013, 179–206).

Brinjeva gora: izkopavanja iz let 1953–1960

Analizirano gradivo prazgodovinske starosti vključuje 3471 kosti in zob sesalcev ter odlomek (najbrž) trdoživnjaške korale[5]. Do ravni rodu[6] je bilo mogoče opredeliti 1999 ostankov, ki pripadajo dvanajstim vrstam (*sl. 7*). Med taksonomsko neopredeljenimi najdbami, ki jih je bilo mogoče pripisati določenemu skeletnemu elementu, prevladujejo drobci reber (N = 127). Dobro tretjino oz. 1262 kostnih odlomkov ni bilo mogoče opredeliti niti anatomsko.

Vrstna pestrost analiziranega gradiva je razmeroma visoka in bistveno ne zaostaja za sicer bogatejšimi zbiri živalskih ostankov z drugih arheozoološko raziskanih večjih naselij iz pozne bronaste in/ali starejše železne dobe v jugovzhodnoalpskem prostoru (Bökönyi 1994, tab. 2; Toškan, Dirjec 2010, tab. 1; Toškan, Bartosiewicz 2018, tab. 1). Pri tem 95 % taksonomsko opredeljenih ostankov pripada štirim gospodarsko tradicionalno najpomembnejšim vrstam domačih živali: govedu, ovci, kozi in domačemu prašiču. Med 744 najdbami drobnice je takšnih, ki jih je bilo mogoče na podlagi morfoloških svojstev opredeliti do ravni vrste, 81; večina jih pripada ovci (N = 51). Pes in konj sta zastopana z dobrim ducatom kosti in zob, med katerimi prevladujejo ostanki glave in spodnjega dela nog.

Med lovnimi vrstami največ najdb pripada jelenu (N = 41). S približno četrtinskim deležem prevladujejo odlomki rogovja, navadno z očitnimi sledmi človekove obdelave. Bazalni del z rožo je ohranjen pri enem primerku, sicer fragmentu naravno odpadlega rogovja. Vzorec zastopanosti skeletnih elementov pri obeh v gradivu prisotnih vrstah divjih zveri je zelo podoben tistemu, odkritemu pri psu (glej zgoraj). Med štirimi ostanki rjavega medveda je najti izoliran zob ter po en odlomek zgornje in spodnje čeljustnice, edina volčja najdba pa je dobro ohranjen primerek spodnje čeljustnice. Da ta ne pripada psu, dokazuje njena velikost (M_1: dolžina × širina = 27,5 × 11,5 mm), do neke mere pa tudi razmeroma široke vrzeli med zobnimi jamicami zaporednih ličnikov. Divjemu prašiču je bilo na podlagi velikosti z gotovostjo pripisanih pet najdb, še dve pa pogojno (*sl. 8*). Ker je izmed skupaj 521 prepoznanih prašičjih kosti in zob analiza velikosti zajela le 196 bolje ohranjenih primerkov, bi v celotnem gradivu načeloma utegnil biti zastopan še kak posamezen ostanek divjega prašiča, zagotovo pa teh najdb ni veliko.

Edina ocena višine ob vihru je bila pridobljena za govedo in sicer na podlagi dolžine v celoti ohranjenega primerka stopalnice, izkopane leta 1960 (odsek A, kv. 3, globina: 40–115 cm, časovna opredelitev: Ha B). Kost je pripadala živali, najverjetneje samici, ki naj bi ob vihru merila približno

[5] Opredelitev je opravil prof. Petar Kružić z Biološkega oddelka Naravoslovno-matematične fakultete Univerze v Zagrebu.

[6] V primeru drobnice je bila taksonomska opredelitev praviloma mogoča samo do nivoja poddružine (tj. Caprinae), odlomek trdoživnjaške korale pa je bil uvrščen le v pripadajoči razred (tj. Hydrozoa).

111 cm (cf. Matolcsi 1970). Podobne vrednosti so bile ugotovljene za poznobronastodobno in starejšeželeznodobno gradivo z Ormoža (mediana: 111,5 cm, razpon vrednosti: 110,5–116,4 cm, N = 6; Toškan, Dirjec 2010, tab. 2), medtem ko so ocene za starejšeželeznodobne primerke iz Stične v povprečju nekoliko nižje (mediana: 106,3 cm, razpon vrednosti: 98,88–115,96 cm, N = 7; Bökönyi 1994, tab. 6). Velikost goveda in drobnice je tudi sicer, tj. tudi ob upoštevanju velikosti vseh drugih bolje ohranjenih kosti in zob, v splošnem primerljiva z velikostjo istovrstnih živali iz Ormoža in Stične (Bökönyi 1994, 205–213 in lastni neobjavljeni podatki[7]) (*sl. S1*[8] in *S2*[9]).

Izmed maloštevilnih ostankov konja je bilo mogoče katero od standardnih dimenzij *sensu* von den Driesch (1976) izmeriti pri treh (*sl. S3*). Vsi trije primerki so bili odkriti v poznobronastodobnih plasteh, vendar velikostno ne zaostajajo za najdbami iste vrste s starejšeželeznodobnih naselbin in grobišč v regiji (Bökönyi 1968, 56, 63; 1994, 210; Toškan, Bartosiewicz 2018, tab. 2). Ostanki jelenjadi in srnjadi so pričakovanih velikosti (*sl. S4*; *cf.* Wustinger, Galli, Rozpedek 2005; Aniceti, Rizzetto, Giacalone 2026).

Ocena starosti ob zakolu/poginu za gospodarsko najpomembnejše živali je podana na *sliki 9*. Pri govedu in drobnici je mogoče ugotoviti večinski zakol odraslih do starih živali, kar je razložljivo s težnjo po čim daljšem izkoriščanju drugotnih proizvodov reje. Pri prašiču, ki je v prvi vrsti služil kot vir mesa in maščob, je bila starost ob zakolu praviloma znatno nižja, predvsem v primerjavi z govedom.

Analiza zastopanosti posameznih skeletnih elementov je pokazala na soliden delež ostankov glave, predvsem spodnjih čeljustnic in izoliranih zob (*sl. 10*). Med poznobronastodobnim gradivom (Ha A, Ha B) je pri govedu delež teh ostankov tretjinski, pri drobnici in prašiču pa še precej višji (tj. 44 oziroma 63 %). Povsem drugače je s prstnicami, ki so pri gospodarsko najpomembnejših domačih živalih zastopane s komaj kakšnim primerkom, pri drugih vrstah pa praviloma v celoti manjkajo. K takšni sliki je utegnila v določeni meri prispevati plast svetle, na svetlobi lesketajoče se sklenine na površini zobnih kron, zaradi česar so utegnili biti zobje med izkopavanji lažje opaženi in torej učinkoviteje pobirani od rjavkastih (odlomkov) kosti, sploh najmanjših primerkov, kot so prstnice. Navkljub temu skromnega števila slednjih najbrž ni utemeljeno pripisovati (predvsem) napaki zaradi ročnega pobiranja ostankov, saj bi moral biti sicer skromnejši tudi ugotovljeni delež zob. Velikost prstnic pri govedu, drobnici in prašiču namreč ne zaostaja za velikostjo posameznih ličnikov in kočnikov.

Najbolje zastopana skeletna elementa iz mesnatejših delov telesa sta praviloma lopatica in golenica, predvsem pri drobnici pa tudi koželjnica. Razmeroma pogosti so odlomki dlančnic oziroma stopalnic ter reber. Delež ostankov iz najbolj mesnatih delov telesa (tj. kategorija A *sensu* Uerpmann 1973) je najvišji pri prašiču (pribl. 35 % vseh tej živali pripisanih najdb), za spoznanje nižji pri govedu (pribl. 30 % zbranih govejih kosti in zob) in najnižji pri drobnici (dobrih 20 % vseh ovci in kozi pripisanih najdb).

Povsem drugačen je vzorec zastopanosti posameznih skeletnih elementov med sicer redkimi ostanki divjadi (*sl. 10*). Med najdbami jelena so najštevilčnejši odlomki rogovja (N = 10), čeprav gradivo sicer vključuje kosti iz skoraj vseh anatomskih regij. Do rogovja je bilo mogoče priti s pobiranjem naravno odpadlih primerkov (Bartosiewicz 2013, 340–341), zaradi znatne zastopanosti ostankov postkranialnega skeleta pa je bil v primeru prazgodovinske naselbine z Brinjeve gore primarni vir te cenjene surovine najbrž vendarle lov. Skladni s tem so podatki za srnjad, ki ji je bilo pripisanih devet najdb, med katerimi odlomki rogovja niso zastopani.

Razpršenost najdb v prostoru

Za najdbe živalskih ostankov s Pahičevih izkopavanj na Brinjevi gori je praviloma mogoče ugotoviti sondo, kjer so bile te kosti odkrite, ne pa tudi matičnih kvadrantov znotraj njih. Izjema je gradivo iz leta 1953, ki je bilo edino izčrpno objavljeno tako z vidika izkopanih ostalin (Pahič, S. 1981) kot tudi keramičnih najdb (Oman 1981).

Vpogled v vzorec prostorske razpršenosti živalskih kosti in zob je podan na *sliki 11*. Skupno število ostankov, ki so bili odkriti v posamezni sondi, je zelo različno (razpon: 31–1259); enako velja za število taksonomsko opredeljenih najdb (razpon: 17–696). Delež goveda, ovce, koze in domačega

[7] Za objavo najdišča gl. Dular, Tomanič Jevremov (2010).

[8] Slike S1 do S6 so razpoložljive kot dopolnilno gradivo na *http://iza.zrc-sazu.si/pdf/razno/Toskan_OmahenGruskovnjak_Cresnar_Suppl_AV77_2026.pdf*

[9] *Slika S2* vključuje izbor razpoložljivih podatkov o velikosti kosti in zob drobnice in sicer le izmerke najmanjše širine diafize koželjnice in golenice. Gre za dimenziji, za kateri je na voljo največje število podatkov, pri čemer se ti nanašajo na različno celovito ohranjene primerke.

prašiča je v vsaki od sond najmanj dvotretjinski, večinoma pa presega 90 odstotkov taksonomsko opredeljenih ostankov (mediana: 96,4 %; razpon: 64–100 %). Zanimivo je, da je bilo vseh 28 najdb psa in konja izkopanih na območju sedla na južnem robu naselbine (tj. sonde iz let 1953, 1958, 1959 in 1960). Gre za arheološko najbolj intenzivno raziskan prostor, iz katerega izvira največje število živalskih kosti in zob nasploh. Kljub temu ni izključeno, da ugotovljen vzorec razpršenosti konjskih in pasjih najdb odraža (tudi) nekdanjo rabo prostora znotraj naselbine.

Prav to možnost nakazujejo podatki o najdiščni legi ostankov jelena in srne. Vrstama je bil najvišji, tj. 9,3-odstotni delež vseh taksonomsko opredeljenih najdb pripisan v količinsko razmeroma skromnem (NISP = 120) gradivu iz plasti 1 v okviru sonde iz leta 1953. Pahič je to plast interpretiral kot nivo stavb A in B, ki sodita v stopnjo Ha A (Pahič, S. 1981, 79–84, 99, sl. 22). V petkrat bogatejšem zbiru živalskih ostankov iz leta 1959 (NISP = 696) skupen delež jelena in srne ne dosega niti dveh odstotkov vseh opredeljenih najdb (*sl. 11*). Pomenljiv pa je predvsem podatek, da leta 1953 izkopano arheozoološko gradivo – znotraj tega pa še posebej skupek kosti iz plasti 1 oziroma z nivoja stavb A in B – izstopa tudi po najvišjem dejanskem, tj. absolutno izraženem številu odkritih ostankov jelena (N = 26) in srne (N =15). V gradivu iz katerekoli druge sezone izkopavanj je bilo namreč navedenima vrstama pripisanih največ deset najdb (mediana: 4), čeprav je bilo skupno število v istih sondah zbranih taksonomsko opredeljenih živalskih ostankov lahko tudi nekajkrat večje od podatka za plast 1 iz leta 1953 (*sl. 11*).

Govedo, drobnica in domači prašič so kot skupina večinsko zastopani v gradivu iz prav vsake od sezon arheoloških izkopavanj, vendar se njihovi deleži od sonde do sonde močno razlikujejo. Pri govedu se vrednosti gibljejo med 13,7 in 39,7 %, pri drobnici med 21,1 in 43,5 %, pri domačem prašiču pa med 21,3 in 42,2 % (*sl. 11*). Podatki za vsakega od navedenih taksonov znotraj posamezne sonde so med seboj v določeni meri soodvisni, kar je razumljivo. V ponazoritev: v sondi iz leta 1960 je bil zabeležen najvišji ugotovljeni delež goveda in domačega prašiča, zato ne preseneča, da je vrednost za drobnico tu najnižja. Po drugi strani je bil najvišji delež ostankov ovce in koze ugotovljen v sondi iz leta 1959, pri čemer je bila vrednost za domačega prašiča najnižja. Razlike v deležih zastopanosti goveda, drobnice in prašiča med posameznimi sondami so visoko statistično značilne (χ^2 test: χ^2 = 63,5778; stop. prostosti: 8; $p < 0{,}0001$).

Diahrone spremembe

V podatkih s *slike 11* so diahrone spremembe kvečjemu nakazane. Diahronim nihanjem v zastopanosti posameznih taksonov je mogoče še najbolje slediti pri podatkih za posamezne kontekste v izkopnem polju iz leta 1953. Stavbi A in B sta namreč datirani v stopnjo Ha A, gradivo iz stavbe D in ob njej odkrite rjave ilovice v stopnjo Ha B, preostala dva obravnavana konteksta (tj. "stavba D in E" ter "del stavbe E"; glej *sl. 11*) pa vključujeta najdbe iz obeh[10] navedenih stopenj, kakor tudi gradivo iz starejše železne dobe (Pahič, S. 1981; Oman 1981[11]). Omeniti kaže tudi območje sonde iz leta 1955, kjer je v kronološko sosledje mogoče postaviti živalske ostanke z območja ene izmed domnevnih polzemljank iz stopnje Ha B in tiste z območja dveh nekoliko mlajših stavb (t. i. stavb 1 in 2), prav tako iz stopnje Ha B (*sl. 5* in *11*).

Razpoložljivi arheozoološki podatki za območje izkopnega polja iz leta 1953 nakazujejo postopen dvig deleža zastopanosti drobnice in prašiča napram govedu, medtem ko je trend pri najdbah iz sonde 1955 obraten. Koliko so ti rezultati verodostojni, je zaradi majhnega števila upoštevanih ostankov težko oceniti. Vpogled v podatke o zastopanosti gospodarsko najpomembnejših domačih živali v arheozoološko najbogatejših (tj. NISP > 100) kontekstih prazgodovinske starosti na najdišču je namreč pokazal, da je najbolje zastopan takson vedno drobnica, na drugem oziroma tretjem mestu pa sledita govedo oziroma domači prašič. Očiten odklon od takšnega redosleda izkazuje le gradivo iz horizonta Oloris-Podsmreka (Bd B2/C–Bd D), kjer

[10] Stavbi D in E sta datirani v stopnjo Ha B, vendar pa režnji, ki so tukaj pripisani kontekstoma "stavbi D in E" ter "del stavbe E", segajo tudi v nižje plasti iz stopnje Ha A.

[11] S poskusom časovne opredelitve stavbe E sta se ukvarjala tako S. Pahič kot D. Oman. Prvi je režnje po kvadrantih v izkopnem polju iz leta 1953 združil v šest plasti (Pahič, S. 1981). Oman (1981) je to rešitev v svoji podrobni študiji keramičnega gradiva sicer povzel, vendar je nekatere stavbe razvrstil v druge plasti kot Pahič. To je razvidno iz preglednih tabel plasti in globin v obeh člankih (Pahič, S. 1981, 100, sl. 22; Oman 1981, 148, sl. 1). Pahič stavbo E umešča v plast 4 (tj. sivorjava ilovica, opredeljena kot bivalna stavba E), Oman pa jo uvršča v plast 5 (tj. gruščnata črnica oz. črn gruščnat humus), čeprav Pahič v svojem članku jasno zapiše, da je bila stavba E s to plastjo pravzaprav prekrita (Pahič, S. 1981, 98). Omanovo umestitev stavbe E v plast 5 nato povzema Teržan (1990, 36–37).

je bil med pičlimi 38 taksonomsko opredeljenimi najdbami ugotovljen kar 39-odstotni delež domačega prašiča. A vendar: razlike v dejanski, tj. absolutno izraženi količini govejih, ovčjih/kozjih in prašičjih najdb v navedenem kontekstu so zanemarljive in meje statistične značilnosti ne dosegajo (*sl. 10*).

Konj in pes ter druge zveri

Med izkopavanji v letih 1953–1960 je bilo odkritih 16 konjskih kosti in zob prazgodovinske starosti, več kot polovica samo v letu 1959 (*sl. S5*). Za spoznanje več je ostankov zveri. Seznam vključuje 14 pasjih in štiri medvedje najdbe ter razmeroma dobro ohranjen primerek spodnje čeljustnice volka (*sl. S6*).

Med konjskimi ostanki s kar 93-odstotnim deležem prevladujejo skeletni elementi glave in skrajno spodnjega dela nog. Edina kost iz mesnatejšega dela telesa je odlomek diafize stegnenice, odkrit leta 1960. Ugotovljena izrazita prevlada posameznih izpadlih zob, odlomkov čeljustnic in kosti spodnjega dela nog bistveno odstopa od vzorca zastopanosti skeletnih elementov goveda, drobnice in domačega prašiča (*sl. 14*), čeprav razlika – verjetno predvsem zaradi majhnega skupnega števila konjskih kosti in zob – meje statistične značilnosti ne presega (χ^2 test: χ^2 = 1,8054; stop. prostosti: 1; p = 0,1791). Skopa terenska dokumentacija praviloma ne omogoča natančne prostorske umestitve (skupkov) konjskih kosti in zob, vendar se zdi, da jih je bila večina odkrita na območju stavb. S tem v zvezi je treba izpostaviti predvsem ostanke iz leta 1960, ki so ležali na območju največje doslej odkrite prazgodovinske stavbe na najdišču (*sl. 6*; Omahen et al. 2019b, 71, sl. 2: 3). Pahič v svojem terenskem dnevniku iz leta 1960 (zapis z dne 3. 9.) postavitev in uporabo stavbe datira v stopnjo Ha B, na kar kaže tudi izbor najdb (*t. 3:* 1–8).

Na območju te stavbe sta bila odkrita dva konjska ostanka: posamičen spodnji drugi ličnik in odlomek stegnenice. Ležala sta na globini med 40 in 115 cm v kvadrantu A3 sektorja A (*sl. 6* in *S5*). Kvadrant A3 je meril 4 × 4 m, vendar je na podlagi Pahičevega zapisa v terenski dnevnik z dne 7. 9. 1960 razumeti, da so izkopavalci na obe konjski najdbi naleteli med izkopavanjem in čiščenjem obodnega jarka te stavbe. Isti najdiščni podatki so pripisani še 106 drugim taksonomsko opredeljenim živalskim ostankom, ki pripadajo govedu (N = 35), drobnici (N = 23[12]), domačemu prašiču (N = 45), jelenu (N = 1), divjemu prašiču (N = 1) in medvedu (N = 1). Ob tem je bila razmeroma blizu, tj. v zasutju jame za soho 10 (*sl. 6*), odkrita skoraj v celoti ohranjena spodnja čeljustnica psa (*sl. S6*).

Med konjskimi ostanki, ki so bili izkopani v letu 1959, so posebej zanimivi odlomek spodnje čeljustnice in pet izoliranih ličnikov/kočnikov, pobranih na globini do 1,5 m pod sodobno hodno površino na območju sektorja B (*sl. 4* in *S5*). Ležali so v sivorjavi plasti, ki je domnevno služila kot hodna površina (*sl. 12:* plasti iv in v) za najstarejše od treh tam odkritih ognjišč (*sl. 13:* ognjišče C). Spremljevalno arheološko gradivo (*t. 2:* 7–11) je mogoče uvrstiti v stopnjo Ha B. Ker noben izmed štirih velikostno medsebojno skladnih izoliranih spodnjih ličnikov/kočnikov ni podvojen, na odkritem odlomku spodnje čeljustnice pa je ohranjenih le vseh šest sekalcev in oba podočnika, bi obravnavane konjske najdbe lahko pripadale isti živali (cf. Toškan, Kovač, Tolar 2022, 290–293, 295–297).

Med 14 pasjimi in eno volčjo najdbo je kar 12 ostankov glave, predvsem razmeroma dobro ohranjenih spodnjih čeljustnic (*sl. S6*). Velikost spodnje čeljustnice ovc, koz in lokalnih prazgodovinskih psov je v grobem podobna in vendar je ostankov tega skeletnega elementa med vsemi razpoložljivimi ostanki drobnice komaj 15,4 % (N_{mdb} = 129; $N_{\Sigma Caprinae}$ = 839). Odstopanje te vrednosti od tiste, ugotovljene pri kanidih (tj. psi in volkovi), je visoko statistično značilno (χ^2 test: χ^2 = 20,9126; stop. prostosti: 1; p < 0,00001). Večina pasjih spodnjih čeljustnic je razmeroma dobro ohranjenih, zato je verjetnost, da bi bil kateri od primerkov zastopan z več kot enim odlomkom, skromna.

Največ (N = 9) ostankov zveri je bilo, podobno kot to velja za konja, pridobljenih v letu 1959. Nekateri so bili odkriti blizu skupaj v istih poselitvenih nivojih, ki jih na podlagi zgoraj navedenih najdb datiramo v Ha B (*t. 2:* 7–11). V rjavkasti gruščnati plasti, ki je ležala nad zgoraj opisanimi ognjišči, na globini med 0,5 in 0,8 m oziroma več kot 0,6 m pod sodobno hodno površino v sektorjih A–E (*sl. 4*; ustreza plastema viii in x na profilu sektorja B; glej *sl. 12*), so ležali leva spodnja čeljustnica psa, desni primerek istega skeletnega elementa volka in odlomek komolčnice medveda (*sl. S5* in *S6*).

V sektorju C in/ali D znotraj iste sonde (*sl. 4*) so bili od pasjih kosti najdeni še delno ohranjena zgornja čeljustnica in trije odlomki najmanj dveh različnih desnih spodnjih čeljustnic. Ležali so v najglobljih plasti, interpretirani kot nivo najstarejših obsežnejših poselitvenih ostankov v teh dveh sektorjih (npr. proge žganine, ožgana zemlja; nivo

[12] Do ravni vrste je bilo mogoče določiti dve najdbi koze in eno ovce.

ustreza plastema ii in iii na profilu sektorja B; glej *sl. 12*) in/ali v sivi humozni ilovici nad njo (ustreza plasti vii na profilu sektorja B[13]; glej *sl. 12*). Obravnavane pasje najdbe torej najverjetneje sodijo v stopnjo Ha A, morda pa so celó nekoliko starejše.

Najdbe medveda (N = 4) se pojavljajo posamič.

Brinjeva gora: sondiranja leta 2019

Štiri sonde skupne površine 14 m^2 so bile izkopane na zahodnem delu naselbine (*sl. 2*). Večina zbranega arheozoološkega gradiva, ki vključuje 99 taksonomsko opredeljenih ostankov kosti in zob, sodi v čas pozne bronaste in starejše železne dobe (NISP = 55; okvirno Ha A–Ha D). Preostale arheozoološke najdbe so rimskodobne (tj. 3. oziroma 4. st.) ali pa izvirajo iz premešanih plasti. Vsi živalski ostanki pripadajo sesalcem.

V celotnem zbiru izkopanih najdb je najbolje zastopan takson drobnica, z izjemo dveh najdb divjega prašiča pa zbir vključuje le ostanke goveda, drobnice in domačega prašiča (*sl. 15*). Poudariti je treba visok, kar 70-odstotni delež posamičnih, tj. od čeljustnic ločenih zob, medtem ko je bilo drugih primerljivo majhnih skeletnih elementov, kot so zapestne in nartne kosti ter prstnice, odkritih le osem. Odlomki kosti iz najbolj (kategorija A) in srednje mesnatih (kategorija B) delov telesa so pri vseh štirih živalskih vrstah, zastopanih v analiziranem gradivu, redki. Pri govedu njihov delež znaša 14 %, pri drobnici 4 %, pri prašiču pa solidnih 20 %. Podobne ugotovitve so bile pridobljene ob analizi le tistega dela ostankov, ki sodi v čas pozne bronaste in starejše železne dobe.

Blato pri Slovenskih Konjicah

Prazgodovinska naselbina Blato se nahaja vzhodno od Slovenskih Konjic, na rečni terasi Dravinje, tik pod Konjiško goro (*sl. 1* in *16*). Odsotnost sledi popravil stavb nakazuje kratkotrajno poselitev, ki jo maloštevilne najdbe posodja, keramičnih predilskih vretenc, prežganega stenskega ometa in živalskih kosti karakterizirajo kot manjše kmečko gospodarstvo. Severozahodno od raziskanega dela naselbine je bila odkrita večja jama (SE 2012; pribl. 7,4 × 9,5–10,0 m, gl. 2,5 m), z jasno vidnimi plastmi temno sivo-rjavih peščenih glin, v katerih so ležali izjemna količina odlomkov prazgodovinskih keramičnih posod, veliko delcev oglja, manjša količina živalskih kosti (*sl. 17*) in posamezni prodniki alohtonega izvora. Kakšna je bila namembnosti jame, ni bilo nedvoumno ugotovljeno. Možno je, da je služila kot kal/vodni zbiralnik, morda kot shrambna ali odpadna jama, ponujena pa je bila tudi teza, da je šlo za kultno jamo, nekakšno mesto obrednih daritev, povezanih z bližnjo naselbino (Bricelj 2014; 2018; 2024).

Keramika z obeh navedenih lokacij (tj. iz naselja in jame) sodi v obdobje kulture žarnih grobišč. Primerjava tipološko značilnih posod, odkritih na območju Blata, z gradivom bližnjih najdišč priča o poselitvi v času stopenj Ha A in Ha B, posamezni kosi pa bi lahko bili tudi starejši. Skladni s tem so rezultati radiokarbonskih datacij (Bricelj 2014; 2018).

Živalski ostanki z naselbine (N = 36; NISP = 13) so deloma ležali v prazgodovinski jami za soho (SE 77), deloma v zapolnitvah jam in jarkov iz mlajših obdobij. V kulturni plasti (SE 3) so bili odkriti štirje odlomki kosti. Taksonomsko sta bila opredeljena dva, pri čemer sta bila oba pripisana domačemu prašiču. V zasutju že omenjene jame za soho SE 77, sicer edinem nedvoumno prazgodovinskem kontekstu z živalskimi ostanki na najdišču, je bil najden desni zgornji prvi ali drugi kočnik goveda.

Zbir živalskih ostankov iz jame v bližini naselbine (SE 2012) vključuje najdbe najmanj petih vrst sesalcev, z odlomkom nadlahtnice oziroma lopatice, a bi utegnila biti v tem gradivu zastopana tudi srna (odlomek nadlahtnice; alternativna opredelitev: drobnica) in pragovedo (odlomek lopatice; alternativna opredelitev: domače govedo) (*sl. 17*). Prevladujejo kosti in zobje gospodarsko najpomembnejših domačih živali, pri čemer so med njimi zastopani skeletni elementi iz različno mesnatih anatomskih regij. Edini ostanek psa je skoraj v celoti ohranjeno telo spodnje čeljustnice. Če odlomka lopatice in nadlahtnice pripadata pragovedu oziroma srni, je divjad zastopana s skoraj polovičnim deležem vrst, ker je veliko. Ugotovitev bi lahko podpirala tezo o uporabi obravnavane kotanje kot mesta obrednih daritev (cf. Riedel 1977, 133–134; Malez 1979–80, 14–16; Jamnik et al. 2002, 35, 38, 40–41).

Grajski hrib v Gornji Radgoni

Grajski hrib (267 metrov n. v.) v Gornji Radgoni je obronek Slovenskih goric (*sl. 1*) z vrhom v obliki razpotegnjenega platoja. Najstarejši odkriti ostanki

[13] V sektorjih C in D plasti iv in v nista bili odkriti.

naselja na tem mestu sodijo v čas pozne bronaste dobe in njenega prehoda v starejšo železno dobo (okvirno Ha B2/3–Ha C0[14]), pri čemer pa morebitne poselitve iz nekoliko starejših faz žarnogrobiščnega obdobja ni mogoče povsem izključiti. Naselbina je bila razmeroma obsežna (pribl. 8 ha) in se je prek vrha hriba raztezala po njegovem zložnejšem južnem pobočju. Velikost naselja, njegova utrjenost, odkrite sledi metalurške dejavnosti in ugotovljena kontinuiteta poselitve na prehodu iz pozne bronaste v starejšo železno dobo dokazujejo, da je imel Grajski hrib – podobno kot Brinjeva gora in Ormož (*sl. 1*) – v tedanji poselitveni mreži pomembno vlogo. Opustitve naselbine za sedaj ni mogoče povsem natančno datirati, najverjetneje pa se je to zgodilo ob koncu starejšega oziroma na začetku mlajšega halštatskega obdobja (tj. Ha C2 / Ha D1) (Teržan 1990, 46–49, 341–343; Dular 2013, 75–76; Kerman 2019, 382).

Arheološka terenska raziskovanja na Grajskem griču so bila predvsem zaščitne narave. Prazgodovinske plasti na vrhnjem platoju so bile odstranjene že med gradnjo grajske stavbe in izravnavo njene okolice, medtem ko so ostaline na južnem pobočju bolje ohranjene (Šavel 1994, 86–95; Dular 2013, 182–183). Na več mestih so bili odkriti ostanki ognjišč in posamezni stavbni elementi, za razumevanje notranje zasnove naselja pa so izkopane površine premajhne. Največ arheozooloških gradiva (NISP = 214; *sl. 18*) je bilo pridobljenega leta 1989, ko je bilo raziskano 13 m dolgo in 6,5 m široko stavbno zemljišče za prizidek ob hiši na Ilirski ulici 3[15] (Dular 2013, sl. 62: 4). Kosti so bile pobrane na globini med 0,70 in 2,0 m; na podlagi spremljajočega arheološkega gradiva jih kaže opredeliti v čas pozne bronaste in starejše železne dobe (Tušek 1990). Enako velja za najdbe, ki so bile leto pred tem zbrane med raziskovanjem manjšega prostora ob hiši na Vaupotičevi ulici 2[16] (Dular 2013, sl. 62: 5). Živalske kosti so v tem primeru ležale nekoliko bližje površju, tj. na globini med 0,40 in 0,80 m. Arheološki izsledki so bili predstavljeni v krajšem poročilu (Tušek 1989). Še desetletje prej, tj. leta 1978, je na območju velike naravne kotanje tik pod vrhom hriba sondirala Irena Šavel iz Pokrajinskega muzeja Murska Sobota (velikost sonde[17]: 4 × 8 m; Horvat-Šavel 1981, pril. 1; 1994, 87; Dular 2013, sl. 62: 1). Živalski ostanki, datirani v čas pozne bronaste in starejše železne dobe (Horvat-Šavel 1981, 291–298; Teržan 1990, 45–49; Dular 2013, 184–188), so bili pobrani 0,60 do 0,90 m pod površjem. V letu 1979[18] je bila izkopana druga sonda (Horvat-Šavel 1981, 298–302; 1994, 88; Teržan 1990, 45–49; Dular 2013, 188–190, sl. 62: 2), kjer izkop sicer ni dosegel sterilnih tal, leta 1986[19] pa je bil po uničenju ob gradbenih delih dokumentiran profil (Šavel 1987; 1994, 88–89; Dular 2013, 190–194, sl. 62: 3). Podatkov o tem, na kateri globini so bili odkriti tedaj zbrani živalski ostanki, ni. Med zbranimi arheološkimi najdbami prevladuje poznobronastodobna in/ali starejšeželeznodobna keramika (Dular 2013, 188–194), zato verjetno v isti čas sodi tudi glavnina zbranega arheozoološkega gradiva.

Najštevilčnejše zastopan takson je s skoraj polovičnim deležem vseh opredeljenih ostankov govedo (*sl. 18*). Prevladujejo odlomki skeletnih elementov iz najbolj (kategorija A *sensu* Uerpmann 1973; 19 % NISP) in srednje mesnatih (kategorija B *sensu* Uerpmann 1973; 38 % NISP) delov telesa. Skoraj popolna odsotnost kosti z nezraščenima epi- in diafizo priča o večinskem zakolu odraslih oziroma starih živali. Razmeroma številne so najdbe prašičev, med katerimi sta zastopana tako domači prašič kot njegov divji zarodnik. Slednjemu je bila pripisana peščica največjih kosti in zob. Delež prašičjih ostankov iz najbolj in srednje mesnatih delov telesa je izstopajoče visok, kar 80-odstotni. Podobno sliko kažejo najdbe drobnice[20], pri kateri delež ostankov iz najbolj in srednje mesnatih delov telesa dosega 70 %.

Konj je v gradivu zastopan s slabimi petimi odstotki taksonomsko opredeljenih ostankov, med katerimi prevladujejo posamezni zobje (N = 10). Psu sta bili pripisani dve razmeroma dobro ohranjeni spodnji čeljustnici, lisici ena. Najbolje zastopana lovna vrsta je jelen, pri čemer je med 14 najdbami en sam odlomek rogovja. Delež kosti iz najbolj mesnatih delov telesa je 40-odstoten, skupaj s

[14] V gradivu se pojavljajo tudi nekatere keramične oblike in okras, ki bi lahko sodile v Ha A (Šavel 1994, 90).

[15] Gre za parc. št. 448 k. o. Gornja Radgona. Izkopavanja je vodil Ivan Tušek z Zavoda za varstvo naravne in kulturne dediščine Maribor.

[16] Gre za parc. št. 453 k. o. Gornja Radgona.

[17] Dular (2013, 184–188) v svoji reviziji tedaj izkopanega gradiva sondo označuje kot sonda 1.

[18] Dular (2013, 188–190) v svoji reviziji tedaj izkopanega gradiva sondo označuje kot sonda 2.

[19] Dular (2013, 190–194) v svoji reviziji tedaj izkopanega gradiva sondo označuje kot sonda 3.

[20] Do ravni vrste je bilo mogoče opredeliti dva primerka ovce in en primerek koze.

primerki skeletnih elementov iz srednje mesnatih anatomskih regij pa skoraj dvakrat tolikšen.

RAZPRAVA

V zgodnji bronasti dobi so se v srednjeevropskem prostoru zgodile pomembne spremembe v načinu oskrbe s hrano živalskega izvora in z drugotnimi proizvodi živinoreje (vlečna moč, volna, mleko, gnoj ipd.). Zametke teh sprememb je mogoče prepoznati že v bakreni dobi, poln razmah pa je proces dobil med sredinama 3. in 2. tisočletja pr. n. št. Lov je postopoma zadovoljeval vse skromnejši delež potreb po mesu in maščobah, čemur naj bi v pomembni meri botrovalo krčenje gozdov, naraščanje prebivalstva in vse bolj načrtno naslanjanje na živinorejo. Načini izkoriščanja domačih živali so postajali kompleksnejši. Med gospodarsko najpomembnejše vrste so še vedno sodili govedo, drobnica (predvsem ovca) in domači prašič, so pa bile pri teh vpeljane živali z izboljšanimi lastnostmi (npr. ovce z daljšo in gostejšo volno). Zaznati je težnjo po izkoriščanju celotne palete razpoložljivih vrst zemljišč, vključno z višinskimi pašniki. Posledično je na pomenu pridobivala transhumanca, v določeni meri pa tudi nomadsko pastirstvo. Mnoge zgodnjebronastodobne skupnosti so prav zaradi tega uspele pomembno povečati črede svojih domačih živali in uspešneje posegati po drugotnih proizvodih reje (Bökönyi 1974; Greenfield 2001, 127; Bartosiewicz 2013; Migliavacca, Boscarol, Montagnari Kokelj 2015; Gál 2017; Horvat 2020; Tecchiati et al. 2020; Granado et al. 2021; Ogrin 2023).

V jugovzhodnoalpskem prostoru je temu dogajanju mogoče slediti kvečjemu v obrisih, saj so arheozoološke študije zgodnje- in srednjebronastodobnega gradiva izjemno redke. Podatki za ta čas dokazujejo le upad pomena lova, pri čemer se je ta proces ponekod odvil z znatnim zamikom (npr. Ljubljansko barje in morda Prekmurje; Velušček 2005; Toškan 2005; 2008; 2011; 2022, 88 in tam navedena literatura; Hincak 2018).

V srednji in še posebej v pozni bronasti dobi, ki se je ta članek najbolj neposredno dotika, je postalo Pohorsko Podravje gosteje poseljeno. Razmeroma številni gručasti zaselki so bili praviloma postavljeni v nižinah, ob potokih in na bregovih rek, kar je prebivalstvu zagotovilo zanesljivo preskrbo s pitno vodo in bližino povezovalnih poti. Pomemben dejavnik pri izbiri lokacij je bilo agrarno zaledje (Dular 2013, 111; Teržan, Črešnar 2021a, 562–571). Postopoma so nekatera od utrjenih naselij prerasla v središča, ki so opravljala večje število funkcij (tj. nadzor, zaščita, obrt, trgovina, kult) izven svojega ožjega okrožja. V primeru naselbine na Brinjevi gori o takšnem razvoju pričajo njena velikost, utrjenost in domnevna kontinuiteta v poselitvi vsaj od pozne, morda celo srednje bronaste dobe do starejše železne dobe, nenazadnje pa tudi odkritje ostankov metalurške dejavnosti (Teržan 1983; Gabrovec 1983; Dular 2013, 113–115, 122).

Zbir živalskih ostankov iz srednje in predvsem poznobronastodobnih plasti Brinjeve gore, ob ugotovljeni prevladi domačih živali in prevladujočem deležu jelenjadi/srnjadi[21] med lovnimi vrstami, pomembno označuje zastopanost konja. Ta kopitar je bil namreč doslej s sočasnih najdišč na prostoru med Savinjsko dolino in Prekmurjem poznan le iz Ormoža[22], medtem ko je poročil o odkritjih iz sosednjih regij razmeroma veliko (glej npr. Rakovec 1973, 259; Bökönyi 1974; Bartosiewicz 2013, 335–337; Schibler 2017, 789; Tecchiati et al. 2020, 116, sl. 8 in 9; Toškan, Achino, Becker 2020, 464, sl. 5; Krmpotić, Trbojević Vukičević, Essert 2022). Enako velja za psa in rjavega medveda, s tem, da sta bili ti vrsti lokalno prisotni tudi že v starejših obdobjih (glej npr. Modl et al. 2019, 48). Odkritje odlomka (najbrž) trdoživnjaške korale (*sl. 20*), ki je domnevno ležal v plasti z arheološkim gradivom iz stopnje Ha B, je na območju severovzhodne Slovenije za ta čas izjemno.

Če taksonomska pestrost poznobronastodobne favne z jugovzhodnoalpskega območja v splošnem ne odstopa od stanja v širšem srednjeevropskem prostoru, je z deleži zastopanosti posameznih vrst drugače (Bartosiewicz 2013, 339–341; Stopp 2015, 181). Podatki za območje severovzhodne Slovenije so navedeni v *slikah 7* in *17* do *19*. Po količini analiziranih ostankov prednjači Ormož, nedvomno eno pomembnejših središč pozne bronaste in starejše železne dobe v regiji (Dular, Tomanič-Jevremov 2010). Žal razlikovanje med bronastodobnim in starejšeželeznodobnim favnističnim gradivom zaradi kompleksne stratigrafske situacije na terenu ni bilo mogoče, zato je bilo v okviru arheozoološke študije vseh 2664 zbranih kosti in zob obravnavanih kot

[21] Najdb divjega prašiča (N = 8; *sl. 7*) na podlagi razpoložljive terenske dokumentacije ni mogoče zanesljivo postaviti v čas, verjetno pa tudi te sodijo v pozno bronasto dobo.

[22] Zanesljiva časovna opredelitev konjskih najdb iz Ormoža v bodisi bronasto bodisi železno dobo ni mogoča (Toškan, Dirjec 2010).

kronološko enoten vzorec (Toškan, Dirjec 2010, 99). Največji, kar dvotretjinski delež taksonomsko opredeljenih najdb pripada govedu, na drugo mesto se s četrtinskim deležem uvršča prašič, na tretje pa s skromnimi petimi odstotki drobnica. Količina ostankov lovnih vrst je zanemarljiva. Zelo podobno sliko kaže še eno okvirno sočasno večje naselje v regiji, tj. naselbina na Grajskem hribu v Gornji Radgoni (Dular 2013, 179–206). Delež goveda je v tem primeru nekoliko nižji (tj. pribl. 50 %), drobnica pa se s približno desetino vseh taksonomsko opredeljenih najdb uvršča daleč za drugouvrščenim prašičem. Lovnim vrstam pripada 5 % vseh ostankov, pri čemer glavnino tvorijo odlomki dolgih kosti jelena (*sl. 18*).

Še eno bronastodobno najdišče v severovzhodni Sloveniji, od koder je znanih vsaj nekaj deset taksonomsko opredeljenih živalskih ostankov, je nižinska naselbina na lokaciji Pod Grunti – Pince pri Pincah v Prekmurju, s prevladujočimi ostalinami iz časa horizonta Oloris-Podsmreka (okvirno od konca 16. do 12. st. pr. n. št.; Kerman 2018). Avtorica arheozoološke študije je večinski delež najdb pripisala lovnim vrstam (jelenu) oziroma potencialno lovnim vrstam (kategorije: drobnica oziroma srna, divji oziroma domači prašič, divje oziroma domače govedo), kar za ta čas in prostor ni običajno (Hincak 2018). Pri tem na več mestih poudarja, da je stopnja ohranjenosti analiziranih odlomkov zelo slaba, saj da velikost več kot 80 % primerkov ne presega 4 mm. Pomenljiva je tudi navedba, da med opredeljenimi najdbami prevladujejo odlomki zobne krone in drobci sklenine (Hincak 2018, 100–101). Ker je razlikovanje med kostnimi ostanki goveda in jelena težavno tudi pri celoviteje ohranjenih primerkih (glej npr. Brown, Gustafson 1979), pripis tako velikega deleža zobnih in kostnih drobcev jelenu morda ni povsem ustrezen. Nenazadnje je bila avtorica pri razlikovanju med podobno drobnimi ostanki ovce, koze in srne, katerih skeletni elementi so morfološko med seboj prav tako težko razločljivi (cf. Fernandez 2001), veliko bolj zadržana. Če je dvom v pravilnost taksonomske opredelitve gradiva upravičen, bi utegnilo biti govedo najbolje zastopana žival tudi med najdbami s Pinc. Dokončen odgovor lahko ponudi revizija zbranih ostankov.

Bronastodobno gradivo z Brinjeve gore se od ugotovitev o naselbinskem gradivu iz Ormoža, Gornje Radgone in morda Pinc pomembno razlikuje, saj govedu pripada manj kot tretjina taksonomsko opredeljenih najdb. Ob tem visok, kar 60-odstotni delež opredeljivih kosti in zob nakazuje, da bi bil ob uspešnejšem zajemanju manjših najdb (in torej tudi najdb manjših živali) delež goveda še nižji. Skladni s tem so izsledki analize živalskih ostankov z istega najdišča, ki so bili pridobljeni med modernimi izkopavanji v letu 2019. Govedu namreč pripada le četrtina tedaj pridobljenih taksonomsko opredeljenih najdb (*sl. 15*). Omenjeni arheozoološki zbir je izjemno skromen (NISP = 63) in zato manj reprezentativen (cf. Davis 1987, 46). Je pa po drugi strani tudi res, da enako nizek ali celó še nižji delež govejih najdb ni bil ugotovljen pri nobeni od Pahičevih sond (razpon vrednosti NISP: 96–696) in v samo enem, po številu najdb prav najskromnejšem od kontekstov znotraj posamezne sonde (razpon vrednosti NISP: 17–222; *sl. 11*). Delež posameznih zob, ki sodijo med najmanjše skeletne elemente v okostju sesalcev (glej npr. Toškan 2015, 66–69), je v gradivu s Pahičevih izkopavanj skoraj štirikrat nižji kot v zbiru najdb, pridobljenih s sondiranji v letu 2019 (tj. 19 % nasproti 73 %; *sl. 10* in *15*).

Razlike med Brinjevo goro, Ormožem in Gornjo Radgono v zastopanosti prašiča so zanemarljive. Na vseh treh najdiščih je bila namreč tej domači živali pripisana skoraj natanko četrtina taksonomsko opredeljenih najdb. Drugače je z drobnico, katere delež med živalskimi ostanki z Brinjeve gore sedemkrat presega tistega iz Ormoža ali Gornje Radgone (*sl. 7*, *15*, *18* in *19*). V primeru Pinc razlikovanje med najdbami ovce, koze in srne ni bilo mogoče, saj je bila stopnja ohranjenosti gradiva za kaj takega preslaba (Hincak 2018, 100–101). Iz objavljenih podatkov je sicer razvidno, da je kategorija "drobnica ali srna" (glej *sl. 19*: Caprinae s. *Capreolus*) veliko bolje zastopana od goveda in prašiča, kakor tudi od vseh ostalih prepoznanih taksonov na tem najdišču. Prašiču je bila na Pincah pripisana komaj desetina taksonomsko opredeljenih najdb, govedu (*Bos* sp.) še slaba polovica manj. Velja dodati, da je k slednjemu najbrž treba prišteti pomemben del ostankov, opredeljenih le kot "veliki prežvekovalec" (delež: 15 % NISP), morda pa tudi (marsi)katero od jelenu pripisanih najdb (delež: 27 % NISP; *sl. 19*).

Poglavitni razlog za razmeroma skromno zastopanost goveda v gradivu z Brinjeve gore je treba iskati v razpoložljivih naravnih danostih območja. Naselbina zaseda prisojni, 630 metrov visoki vrh osamelca na južnih obronkih Pohorja in razmeroma položno južno pobočje tik pod njim. Nekoliko nižje postane strmina zopet izrazitejša, dokler na višini 500 m ne preide v prečne odrastke nekdanjega ravnika (Koprivnik 2002, 4). Proti jugozahodu se pobočje slednjič izteče v zgornjo Dravinjsko

dolino (pribl. 400 m n. v.), proti severovzhodu pa v še nekaj deset metrov nižje ležeče Oplotniško polje (*sl. 16*).

Položnejše prisojno vrhnje pobočje, ki se razprostira na skromnih 4 ha površine (Koprivnik 2002, 4), je bilo v času obstoja prazgodovinske naselbine zelo verjetno izkrčeno in v pretežni meri zasedeno s stavbami. Kmetijske površine so bile tu najbrž zelo omejene. To še posebej velja za (goveje) pašnike, med drugim zato, ker se izviri vode pojavljajo šele nižje na pobočjih. Kot je zapisal Pahič (1981, 72), zmorejo celó v sodobnem času tamkajšnje "borne obdelovalne površine za silo preživeti dve družini, ki sedaj živita na Brinjevi gori, a si pomagata z dodatnimi zaslužki".

Najbližje njive in polja so bila verjetno urejena na jugovzhodni strani, kjer osamelec preide v rahlo valovite in razmeroma nizke Dravinjske gorice.[23] Blaga pobočja tega gričevja iz pliocenskih in pleistocenskih nanosov so prekrita s kvalitetno evtrično rjavo prstjo. V mokrotnih in občasno poplavljenih rečnih dolinah (Dravinja, Oplotniščica idr.) najdemo slabše plitve prsti, ki jim hitrejši razvoj onemogočajo dejavna akumulacija in vpliv podtalne ter površinske vode (Perko, Orožen Adamič (ur.) 2001, 608–612). Ta zemljišča so primernejša za travnike in pašnike, pri čemer je ob zgornjem toku Dravinje ter ob Oplotniščici[24] (tj. v neposredni soseščini Brinjeve gore) talna struktura zaradi pretežno silikatnih naplavin slabša kot nižje vzdolž Dravinje. Posledično je slabša tudi travna ruša, kar se odraža v počasnejši rasti trave in njeni nižji hranilni vrednosti (Šifrer 1978, 80, 84, 87).

Za pravilno razumevanje kmetijskega potenciala zemljišč v okolici Brinjeve gore je treba – ob kvaliteti prsti – upoštevati tudi njihovo razprostranjenost. Najnižje dolinsko dno v debrski dolini Dravinje nad Zrečami in naprej proti Slovenskim Konjicam je zelo ozko; njegova širina namreč le izjemoma presega 30 m. Gledano v povprečju je dno za spoznanje širše vzdolž zgornjega in srednjega toka Oplotniščice, pri čemer se dolina najbolj (tj. na pribl. 100 m) razprostre ravno ob vznožju severnega pobočja Brinjeve gore (Šifrer 1978, 16–17). K temu je treba dodati, da so za doline Dravinje in njenih pritokov na Pohorju značilna zelo strma pobočja (Šifrer 1978, 15), kar dodatno omejuje predvsem pašo goveda (glej npr. Ganskopp, Vavra 1984). In slednjič: ne le travniki in pašniki – na obravnavanem prostoru so skromne tudi poljedelstvu naklonjene površine z evtrično rjavo prstjo. V sodobnem času se njive zaradi tega raztezajo do sicer manj ugodnih pobočnih psevdoglejev (Perko, Orožen Adamič (ur.) 2001, 611); nekaj podobnega je domnevati tudi za pretekla obdobja.

Prazgodovinskim skupnostim je bila govedoreja bistveno zahtevnejši izziv od reje prašičev in drobnice. Razlogi vključujejo primerjalno visoko starost krav ob prvi kotitvi, majhno število mladičev na leglo (historični in etnografski viri poročajo o povprečnih vrednostih med 0,65 in 0,75 teleta na samico na leto) in bistveno večja količina zaužite paše oziroma krme. Po nekaterih ocenah iz 18. st. n. št. je sleherno govedo skupne mase med 225 in 330 kg dnevno zaužilo 50 do 70 kg trave (poletna paša) oziroma 7 kg sena in do 3,5 kg slame (zimska krma). V primerljivih okoliščinah so bile potrebe posamezne ovce, ki so tedaj sicer tehtale manj kot petino mase goveda, osemkrat manjše (Ebersbach 2002, 213–214). Govedoreja, ki bi bila usmerjena predvsem v prirejo mesa, torej za prazgodovinske skupnosti v srednjeevropskem prostoru domnevno ni bila gospodarsko smiselna. S komaj petodstotnim naravnim letnim prirastom čred, ki ga za čas pred pojavom naprednih novoveških pasem navajajo srednjeveški in zgodnjenovoveški viri, je bil vzdržen obseg zakola za kaj takega preprosto preskromen. Pomenljiv primerjalni podatek: črede ovac izkazujejo do 26 % letnega prirasta, pri kozah pa je ta vrednost lahko celó višja od 40 % (Ebersbach 2002, 213).

Da je bila za gospodarstvo prazgodovinske Brinjeve gore govedoreja primarno zanimiva zaradi možnosti izkoriščanja vlečne sile ter pridobivanja gnoja in mleka, je mogoče razbrati tudi neposredno iz arheozooloških najdb. V zbranem gradivu so namreč večinsko zastopane odrasle do stare živali, ki sta jim moč in – v primeru krav – mlečnost že pešali (*sl. 9*). Bistveno težje je na podlagi razpoložljivih podatkov oceniti, kakšna je bila vrednost posameznih drugotnih proizvodov reje, saj je bilo to v pomembni meri odvisno od mobilnosti govejih čred. Če so jih med letom zadrževali v bližini njiv, je to olajšalo izkoristek moči živali in uporabo njihovega gnoja, če pa so jih (konec?) pomladi prignali na višinske pašnike, je to omogočalo intenzivnejšo prirejo mleka in njegovo nadaljnjo predelavo. Glede tega so na voljo le skopi posredni indici.

[23] Prevladujejo nadmorske višine med 200 in 300 m; nad 400 m je le desetina površja. Povprečen naklon je 6,7° (Perko, Orožen Adamič (ur.) 2001, 606).

[24] Oplotniška dolina je bila v sodobnem času melioirana, zato je danes tu najti njive, posejane s pšenico, koruzo in sladkorno peso (Perko, Orožen Adamič (ur.) 2001, 611).

Problematiko (pre)velikih potreb po kakovostni paši/krmi je bilo zaradi omejenih pašniških površin v neposredni okolici Brinjeve gore mogoče nasloviti s planinskim pašništvom na Pohorju (cf. Ebersbach 2002, 214–215). Slednje ne izključuje možnosti, da je bil del živine (celo leto?) zadržan v nižini, npr. na območju Konjiškega in Oplotniškega polja. Prav takšno razlago nenazadnje podkrepljuje odkritje ostankov nekaterih naselbin na obdelovalno primernih višjih terasah rečnih dolin. Te so bile razmeroma varne pred poplavami (Šifrer 1978, 88), poleg tega pa so se naslanjale na rodovitna pobočja Dravinjskega gričevja in drugih tovrstnih vzpetin v okolici (glej npr. Bricelj 2018, 201). Med utrjeno prazgodovinsko naselbino na Brinjevi gori in zaselki v njeni soseščini je tudi sicer domnevati obstoj nekakšnega sistema izmenjave dobrin. Primer takšnega zaselka bi utegnilo biti Blato pri Slovenskih Konjicah (Bricelj 2014, 287–288; 2018; 2024), kjer med peščico tam odkritih živalskih ostankov prevladujejo prav kosti goveda (*sl. 17*).

O potencialu Pohorja za transhumanco poročajo historični viri (Melik 1956, 284–286). Ker so bili načini izvajanja sezonske višinske paše pri srednjeevropskih bronastodobnih skupnostih raznoliki (glej npr. Reitmaier et al. 2017), je bolj ali manj intenzivno izkoriščanje tega potenciala s strani prazgodovinskih prebivalcev Brinjeve gore verjetno. Nenazadnje so bile obdelovalne in travniško-pašniške površine na območju naselbine in v njenem neposrednem nižinskem zaledju skopo odmerjene. V primeru odsotnosti omembe vrednih njivskih površin v bližini planinskih pašnikov (cf. Kapfer 2010, 134; Paušič, Kaligarič 2015, 265) so pastirji večjo pozornost lahko namenili prireji mleka in njegovi predelavi v mlečne izdelke. Kot je pokazalo modeliranje historičnih in etnografskih virov o vlogi govedoreje v gospodarstvu manjših, kmetijsko usmerjenih predindustrijskih skupnosti, je lahko bilo v takšnih razmerah, kjer so bile pašniške površine znatno obsežnejše od njivskih, število glav goveda na človeka-oskrbnika razmeroma visoko (Ebersbach 2002, 2013, 215; Reitmaier et al. 2017, 28–29). Če so tedanje klimatske razmere to omogočale (Perko, Orožen Adamič (ur.) 2001, 147–149, 608–610), so morda na nekaterih območjih Pohorja obstajale tudi kmetije docela živinorejskega značaja. Zgodovinski viri takšno možnost dopuščajo (Melik 1956, 285).

Vertikalno transhumanco, v katero je bil domnevno vključen (znaten?) del govejih čred, je verjetno ključno dopolnjevala paša preostalih živali te vrste na pogosto poplavnih nižinskih pašnikih. Ne nazadnje ta zemljišča za drugačno rabo – z izjemo morebitne pridelave sena – niso bila primerna. Če je do zadrževanja dela velike živine v bližini obdelovalnih površin na rečnih terasah in položnih pobočjih Dravinjskih goric, Konjiške gore in drugi tamkajšnjih vzpetin res prihajalo, je obenem omogočalo učinkovitejše izkoriščanje njihove vlečne sile in olajšalo gnojenje njiv in polj. Oboje ima zelo pozitiven učinek na produktivnost kmetijskih površin (Ebersbach 2002, 215). Ker je takšen način reje podrejen delu na poljih, število goved zaostaja za skupnim številom ovac, koz in prašičev. Teza o kombinirani reji velike živine v nižinah in na Pohorju se zdi torej skladna s pridobljenimi podatki o deležu zastopanosti gospodarsko najpomembnejših vrst domačih živali, saj je bilo drobnici in prašiču pripisanih več kot dve tretjini vseh taksonomsko opredeljenih najdb (*sl. 7*).

Prazgodovinski prebivalci Brinjeve gore so govedorejo v prvi vrsti dopolnjevali z rejo drobnice, ki je z izjemo vlečne sile ponujala podobne drugotne proizvode reje ob znatno manjšem vložku dela (Bartosiewicz 1985, 117–119; 1986, 291–295). Razmeroma hitra letna rast ovčjih oziroma kozjih čred je dovoljevala zadosten obseg zakola in s tem prirejo pomembnih količin mesa. Ob tem so bile (najbrž) predvsem koze zanimive tudi kot vir mleka, ovčereja pa zaradi volne.[25] Prav tako je bil zelo verjetno pomemben gnoj (Dreslerová et al. 2021). Posamezno govedo ga je lahko zagotovilo približno toliko kot osem ovac, pri čemer so bile slednje prehransko manj zahtevne. Po nekaterih ocenah je bilo namreč na območju Alp v prazgodovini za pripravo zadostne količine zimske krme za eno govedo ob predpostavki vsaj dveh košenj letno potrebnih približno 0,4 ha travnikov. S prištevkom površine poletnih pašnikov je ta številka narasla na do 1,5 ha[26] (Ebersbach 2002, 213–214). Maloštevilni, raztreseni in marsikdaj strmi pašniki v zaledju Brinjeve gore so bili nedvomno ustreznejši za rejo ovc in koz.

Drugače kot pri govedu in drobnici je bila reja prašičev v prvi vrsti usmerjena v zagotavljanje

[25] To je mogoče razbrati iz visoke povprečne starosti živali ob zakolu (*sl. 9*), kakor tudi iz najdb glinenih vretenc in piramidalnih uteži za statve, ki pričajo o tkalski dejavnosti (Pahič, S. 1981, 114; cf. Šavel 1994, 94). Naraščajoč pomen volne v času od srednje bronaste dobe dalje potrjujejo arheozoološke študije (Benecke et al. 2017; Grömer, Saliari 2018).

[26] Po nekaterih drugih ocenah so bile tovrstne potrebe do desetkrat večje (glej npr. Gerling et al. 2017, 12/20).

mesa in maščob. To dokazuje večinski zakol mladih živali (*sl. 9*), katerih meso je okusnejše, prirast telesne mase na enoto vloženega dela pa večji kot pri odraslih primerkih iste vrste. Poleg domnevno predvsem z bukovo-jelovim gozdom poraslega Pohorja (Culiberg, Šercelj 1986, 188) so bili za to prašičerejo najbrž izkoriščani mešani gozdovi s plodonosnimi listavci, ki jih kaže domnevati na pobočjih Dravinjskih goric in v (lahko tudi poplavnih) ravnicah ob njih (cf. Perko, Orožen Adamič (ur.) 2001, 610). Šercelj (1987, 20) namreč izrazitejše antropogene spremembe v gozdni vegetaciji jugovzhodnoalpskega prostora ugotavlja šele za čas železne dobe.

Prazgodovinski prebivalci Brinjeve gore so se s prašičerejo ukvarjali (tudi) sami in se z njo niso preprosto oskrbovali s strani prebivalstva kmetijsko usmerjenih nižinskih satelitskih zaselkov. To je mogoče razbrati iz vzorca zastopanosti posameznih skeletnih elementov, ki ne izkazuje prevlade kosti iz le določenih (npr. bolj mesnatih) delov telesa (*sl. 10*). Poleg tega je ocena razmerja med ostanki obeh spolov, sicer pridobljena na podlagi skromnega vzorca 21 podočnikov, pokazala na izenačen delež samcev in samic. Če bi bila Brinjeva gora s svinjino predvsem oskrbovana, bi bil delež skoraj odraslih in mladih odraslih samcev najbrž znatno višji. Pri vzdrževanju velikosti krdela so namreč ti osebki najlažje pogrešljivi (cf. Stopp 2015, 198)

Na območju Ormoža in Gornje Radgone so naravne danosti drugačne kot na Brinjevi gori in v njenem neposrednem okolišu: veliko več je ravninskega, za njive primernega sveta s kvalitetnimi prstmi (Ormož: Središko polje; Gornja Radgona: ravninsko ozemlje ob Muri, osojna pobočja Radgonsko-Kapelskih goric), zadostne pa so tudi paši naklonjene površine (npr. ormoška Dobrava, vlažnejša zemljišča ob rekah) (Perko, Orožen Adamič (ur.) 2001, 570, 575, 587–589, 595–596, 603; Mele 2014, 168–169). Govedo je bilo v takšnih okoliščinah vsestransko koristno, spričo domnevno intenzivne izrabe kvalitetne obdelovalne zemlje v okolici obeh naselbin (cf. Teržan 1999, 103; Mele 2014, 168–169) pa je v prvi vrsti vendarle služilo kot delovna živina in verjetno vir gnoja (glej npr. Toškan, Dirjec 2010, 107–109; glej tudi tu, razdelek 4.4). Zaradi velike mase posamezne živali je zakol odsluženih primerkov ključno prispeval tudi k zagotavljanju mesa in maščob. Število prašičjih ostankov presega število kosti in zob drobnice, kar je treba prav tako pripisati naravnim danostim v okolici obeh obravnavanih naselbin. Razkorak v deležu zastopanosti gospodarsko najpomembnejših domačih živali med Ormožem in Gornjo Radgono na eni strani ter Brinjevo goro na drugi naj bi torej v odločilni meri odseval različne načine prilagajanja tam živečih prazgodovinskih skupnosti na razpoložljive okoljske danosti.

Navidezno nasprotujočo sliko kažejo živalske najdbe s poznobronastodobnega in starejšeželeznodobnega središčnega naselja na Burgstallkoglu pri Großkleinu oz. pri Kleinkleinu na avstrijskem Štajerskem (Mele 2019, 354–358 in tam navedena literatura). Naselbina je bila postavljena na enem od vrhov (458 m n. v.) nizkega pasu gričev med dolinama rek Solbe (Sulm) in Saggau. Poskus ocene kmetijskega potenciala obravnavanega območja je pokazal razmeroma skromne pogoje za poljedelstvo in le za spoznanje boljši potencial za pašništvo (Hellmuth Kramberger, Mele, Modl, 2019, 36–38). Upoštevajoč še razmeroma ozko dno obeh dolin in njuno poplavnost bi kazalo v tedanjih čredah domnevati skromen delež goveda, vendar postavljajo arheozoološki podatki takšno tezo pod vprašaj. Med 2334 analiziranimi živalskimi ostanki (NISP = 1301) je namreč govejih najdb s 46 % vseh taksonomsko opredeljenih primerkov celó največ (Peters, Smolnik 1994, tab. 1).

Nepričakovana je tudi ocena, da med najdbami vsake (!) od osrednjih štirih vrst domačih živali – in ne le pri tradicionalno v prirejo mesa usmerjenem prašiču – prevladujejo kosti in zobje mladih primerkov (Peters, Smolnik 1994, sl. 2). Avtorici študije sta obe navedeni ugotovitvi nadgradili v razlago, po kateri naj bi prazgodovinski prebivalci tega pomembnega regionalnega središča potrebam po mesni hrani v veliki meri zadoščali z namensko uvoženimi teleti, jagenjčki, kozlički in mladimi prašiči. Ti so bili domnevno vzrejeni na območjih z ustreznejšimi naravnimi danostmi, najbrž predvsem v 10 km oddaljeni dolini Mure. V primeru Burgstallkogla naj bi prišel pri načinu oskrbe z mesno hrano torej izjemoma do izraza predvsem privilegiran status tamkajšnje naselbine in njenih prebivalcev (Peters, Smolnik 1994, 157–158).

Tesna navezava med načinom živinoreje in okoljem je izpričana tudi na najdiščih iz starejše železne dobe, kot sta središčni naselji Cvinger nad Virom pri Stični (Gabrovec 1994; 2006; Gabrovec, Teržan 2008; Grahek 2016) in Most na Soči (Dular, Svoljšak 2016; Dular, Tecco Hvala (ur.) 2018) (*sl. 1*). Prva je bila umeščena v Dolenjsko podolje, kjer se gričevnat svet stika s Stiškim kotom, Šentviško kotlinico in Grosupeljsko kotlino z rodovitnimi prstmi in površinsko vodo (Perko, Orožen Adamič (ur.) 2001, 464–470). Tu je bilo izmed 3926

taksonomsko opredeljenimi živalskimi ostanki starejšeželeznodobne starosti govedu pripisanih 1950 (oz. 49,7 %) primerkov, 968 odlomkov kosti in zob pripada drobnici, 560 pa domačemu prašiču (Bökönyi 1994, tab. 2).

Most na Soči leži na jugu Tolminske kotline v sovodnji Soče, Idrijce in Bače (Dular, Tecco Hvala 2018) (*sl. 1*). Zaradi vzporedniške smeri grebenov Julijskih Alp je osončenosti za njive malo, dolinsko dno pa je posledično primernejše za živinorejo (Perko, Orožen Adamič (ur.) 2001, 68). Domnevno zaradi zahtevnosti zagotavljanja zadostnih količin krme v dolgem zimskem času je bil na obravnavanem najdišču delež goveda med skupaj 5545 taksonomsko opredeljenimi živalskimi ostanki iz časa starejše železne dobe le 37 % (N = 2049). Najbolje zastopan takson je drobnica (N = 2831 oz. 51,1 % $NISP_{\Sigma}$), ki so ji mali in raztreseni pašniki bolj ustrezali kot govedu. Razgibano površje, hladno podnebje in skromna prisotnost plodonosnih listavcev so botrovali pičli zastopanosti prašiča (N = 557 oz. 10,4 % $NISP_{\Sigma}$) (Toškan, Bartosiewicz 2018, tab. 1; glej tudi Bartosiewicz 1985).

Doslejšnja razprava je bila osredišèena na najdbe goveda, drobnice in domačega prašiča, ki jih je pri naselbinskem gradivu praviloma upravičeno razumeti kot ostanek človekove prehrane. Pri živalih kot so konj, pes in divje zveri, takšna razlaga ni samoumevna. To velja tudi za gradivo z Brinjeve gore, sploh ker pri naštetih vrstah količinsko prevladujejo ostanki nemesnatega spodnjega dela nog in/ali glave. Takšna slika očitno odstopa od podatkov za govedo, drobnico in prašiča iz odpadnih jam in drugih skupkov kuhinjskih ali klavniških ter mesniških organskih odpadkov (*sl. 10*).

Izmed konjskih najdb je ob že omenjenih šestih ostankih domnevno iste lobanje z območja sektorja B v sondi iz leta 1959 (glej pogl. Konj in pes ter druge zveri) vredno izpostaviti še primerek prstnice in odlomek verjetno trdoživnjaške korale (*sl. 20*), ki sta bila odkrita nekaj deset centimetrov nad omenjeno lobanjo na sicer okvirno istem odseku sonde iz leta 1959 (tj. sektorja A in B; *sl. 12*: plast vii). Sodeč po skopih podatkih o najdiščni legi sta se primerka nahajala v plasti sive ilovice s prežganim stenskim ometom, ki verjetno datira v stopnjo Ha B.[27] V srednjeevropskem prostoru naj bi prednamci korale kot predmete s poudarjenim simbolnim pomenom uporabljali že v mlajši kameni in bakreni dobi, ko se pojavijo prvič (Skeates 1993). Na Slovenskem je bilo nekaj ploščic in obeskov iz rdečih koral med drugim odkritih ob izkopavanjih domnevnega kultnega mesta na območju hiše 6 v starejšeželeznodobni naselbini z Mosta na Soči (Dular, Tecco-Hvala 2018, 79–80).

Morda pomenljiva primerjava za konjsko prstnico je primerek istega skeletnega elementa, ki je bil s peščico drugih živalskih ostankov pridan v enega od grobov na Brinjevi gori pripadajoči žarnogrobiščni nekropoli na Gračiču (B. Škvor Jernejčič, B. Toškan, neobjavljen podatek; za objavo grobišča glej Koprivnik 2021a; 2021b; Koprivnik, Teržan 2021; Teržan 2021). Konjske kosti spodnjega dela nog so bile odkrite tudi v nekaterih starejšehalštatskih grobovih v Avstriji in na Slovaškem (Kmeťová 2014, 74–122) ter morda v centralnem grobu Malenškove gomile v Novem mestu (okvirna datacija: 680/670 – sredina 6. st. pr. n. št.). Iz redkih drugih sočasnih grobov s konjskimi ostanki na Slovenskem so poznane predvsem bolj ali manj celovito ohranjene lobanje, čeljustnice in zobje (Kmeťová, Stegmann-Rajtár 2014; Toškan 2017, tab. 2 in 3 in tam navedena literatura).

Zanimiv je zbir arheozooloških najdb z območja največje odkrite prazgodovinske stavbe na najdišču, izkopane leta 1960 (Omahen et al. 2019b, 71, sl. 2: 3). Na seznamu taksonomsko opredeljenih najdb je namreč med drugim najti posamezne kosti medveda, divjega prašiča (obema je bila pripisana spodnja čeljustnica), konja in jelena, ki so v gradivu z Brinjeve gore vsi izjemno pičlo zastopani. V zasutju bližnje jame za soho je bila odkrita skoraj v celoti ohranjena spodnja čeljustnica psa (*sl. S6*). Pri govedu, drobnici in domačem prašiču je delež ostankov iz bolj mesnatih delov telesa skladen s splošno sliko na najdišču. Med najdbami drobnice je bil kozi pripisan tudi primerek na bazi odžagane rožnice.

Predstavljen zbir najdb izstopa po izjemni taksonomski pestrosti. Če so bili namreč med skoraj 2000 opredeljenimi živalskimi ostanki s celotnega najdišča prepoznani odlomki kosti in zob enajstih različnih vrst sesalcev, jih ta zbir s komaj 108 arheozooloških najdbami vključuje devet. Manjkata le volk, ki mu je bil med vsem izkopanim gradivom prazgodovinske starosti pripisan en sam ostanek, in srna, kateri jih pripada devet (*sl. 7*). Takšen zbir najdb morda priča o posebni namembnosti objekta, predvsem zaradi kosti in zob divjačine pa nemara (tudi) o svojstveni prehrani njenih stanovalcev/obiskovalcev.

[27] Gre za plast, ki je najbrž enaka/sočasna sivi plasti nad objektom B, odkritim v sondi iz leta 1953. Prekrival jo je poselitveni nivo z dvojnim ognjiščem, ki je sočasen objektu D iz leta 1953 (vir: Pahičevi terenski dnevniki).

Pomenljivo primerjavo za pasjo čeljustnico iz jame za soho ponujata dve stavbi iz poznobronastodobne in starejšeželeznodobne protourbane naselbine na Tribuni v Ljubljani (Vojaković 2023). Tako na območju stavbe 8a iz tretje gradbene faze (Ha B2/B3) kot na območju stavbe 12 = 13 iz četrte gradbene faze (Ha B/Ha C) je bilo namreč odkrito količinsko skromno, vendar vrstno izjemno pestro arheozoološko gradivo ob svojstveni kombinaciji arheoloških najdb. Med gradivom, povezanim s stavbo 8a, v tem smislu izstopajo v tlak zabita bronasta tulasta sekira, rogovje srnjaka pod enim od temeljnih zidov in pasja spodnja čeljustnica v zasutju jame za soho. Na območju stavbe 12 = 13 so bili odkriti metalurški in predilni pripomočki, kuhinjska in namizna keramika ter skromen, vendar taksonomsko izredno raznolik zbir živalskih ostankov. V zasutju ene od jam za slemensko stojko sta bili od kostnih ostankov najdeni človeška prstnica in sezamoidna kost psa, ob tem pa še ena v celoti ohranjena posoda in trije primerki, od katerih je bilo ohranjeno dno (Škvor Jernejčič, Toškan 2018, 256–259; Vojaković 2023, 546–547).

Prisotnost pasjih najdb v zasutju jam za stojko in izrazita vrstna pestrost arheozoološkega gradiva sta skupni točki obeh stavb s Tribune in tiste z Brinjeve gore. Z jugovzhodnoalpskega, kakor tudi širšega srednjeevropskega prostora je poznanih več domnevnih kultnih kontekstov poznobronastodobne in starejšeželeznodobne starosti s pasjimi ostanki (glej npr. De Grossi Mazzorin, Tagliacozzo 1997; Gambari, Tecchiati 2004; Kmeťová 2006; Škvor Jernejčič, Toškan 2018). Posebej pogosto se pojavljajo skeletni elementi glave, predvsem posamezni zobje in spodnje čeljustnice. Zanimivo je, da prav te prevladujejo tudi med pasjimi ostanki iz Ormoža, Tribune v Ljubljani (Škvor Jernejčič, Toškan 2018, 260–261), Gornje Radgone in Blata pri Slovenskih Konjicah, pri čemer je bila v Gornji Radgoni najdena tudi spodnja čeljustnica lisice. Ker sta bila na Brinjevi gori v sektorjih A–E in C/D izkopnega polja iz leta 1959 odkrita še dva domnevna skupka kanidnih čeljustnic (glej pogl. Konj in pes ter druge zveri), se v razmislek ponuja teza, da vsaj nekateri od teh ostankov niso bili zavrženi kot običajen organski odpadek.

Podobna argumentacija je bila zgoraj že podana v zvezi s skoraj izključno prisotnostjo skeletnih elementov glave in spodnjega dela nog pri konju (*sl. 14*). Gre za vzorec, ki bistveno odstopa od podatkov za prehransko ključne domače živali, pri katerih je bila ugotovljena zastopanost odlomkov kosti iz vseh anatomskih regij telesa. To kažejo že surovi podatki o številu najdb izbranih skeletnih elementov oziroma njihovih delov (*sl. 10*), slika pa postane še nazornejša ob upoštevanju standardiziranih prilagojenih vrednosti teh izhodiščnih podatkov (*sl. 21*; za obrazložitev metodologije glej pogl. Arheozoološka analiza: metode in gradivo).

V predstavljenih rezultatih z vseh treh najdišč se do neke mere zagotovo odražajo pomanjkljivosti ročnega pobiranja najdb, skromno število zbranih arheozooloških ostankov (predvsem) iz Gornje Radgone in dejstvo, da je med opredeljevanjem gradiva odlomke nekaterih skeletnih elementov zaradi bolj izraženih morfoloških svojstev lažje prepoznati od drugih. Poleg tega lahko k podpovprečni zastopanosti nekaterih manj obstojnih delov skeletnih elementov (npr. proksimalni del nadlahtnice in golenice) odločilno prispevajo že tafonomske izgube in ne nujno le izkopavalec/arheozoolog (O'Connor 2000, 74).

Na podlagi podatkov iz *slike 21* je treba med prehranskimi ostanki z Brinjeve gore ugotoviti dobro zastopanost skoraj vseh anatomskih regij govejega telesa. Med skeletnimi elementi z najvišjimi standardiziranimi prilagojenimi vrednostmi je najti tako tiste iz najbolj mesnatih delov (npr. medenica) kakor tudi tiste iz srednje in najmanj mesnatih anatomskih regij (npr. koželjnica, golenica oziroma izolirani tretji meljak). V drugo smer zares izstopajo le vrednosti za prstnice, ki so izjemno nizke, kar je skupno vsem trem v primerjavo zajetim naselbinam.

Načeloma bi bilo skromno število odkritih prstnic mogoče pripisati napaki zaradi pobiranja predvsem večjih (odlomkov) kosti (Toškan 2015, 66–69). Skladna s tem bi utegnila biti ugotovitev, da v gradivu z vseh treh naselbin število odkritih prvih prstnic presega skupno količino nekoliko manjših drugih in tretjih prstnic. Po drugi strani pa goveje prstnice niso manjše od posameznih zob, pri čemer so ti nadpovprečno dobro zastopani (*sl. 21*; glej tudi *sl. 10*). Prav tako je pomenljivo pičlo število prstnic med najdbami, pridobljenimi z modernimi izkopavanji na Brinjevi gori v letu 2019, medtem ko je bilo tedaj odkritih zob razmeroma veliko (*sl. 15*). Ugotovljeno sliko bi bilo mogoče razložiti na način, da se je zakol živine[28] odvijal izven naselbine (cf. Toškan, Bartosiewicz 2018, 499–500) ali pa da mesta zakola in primar-

[28] Domnevati je, da se je na mestu zakola odvilo tudi primarno razkosavanje živali, v okviru katerega so bile med drugim odstranjene kulinarično razmeroma nezanimive prstnice.

nega razkosavanja živali – če so se te dejavnosti odvijale znotraj naselja – arheološka izkopavanja niso zajela. Maloštevilnosti prstnic ob sicer povprečni zastopanosti zapestnic, nartnic, dlančnic in stopalnic bi utegnil botrovati tudi način odiranja živali, pri katerem bi skeletni elementi skrajnega spodnjega dela nog ostali pritrjeni na kožo.

SKLEP

Izsledke analize živalskih ostankov iz prazgodovinskih plasti z višinske naselbine na Brinjevi gori so podprle nekatere domneve iz predhodnih raziskav bronastodobne favne na Slovenskem, pri katerih je bilo analizirano gradivo praviloma količinsko skromno in/ali ožje kronološko neopredeljeno. Potrjeno je bilo, da je bil pomen lova v pozni bronasti dobi količinsko zanemarljiv, da so bile gospodarsko najpomembnejše živali tedanjega časa govedo, drobnica in/ali domači prašič, da je bila reja slednjega primarno usmerjena v proizvodnjo mesa in maščob, pri govedu in drobnici pa v izkoriščanje drugotnih proizvodov, in da je postal konj nekoliko bolj razširjen, čeprav od vseh domačih živali še vedno daleč najmanj številčen. Študija gradiva z Brinjeve gore je pokazala na obstoj znatnih medregionalnih razlik v deležu zastopanosti osrednjih vrst domačih živali, kar priča o soobstoju različnih načinov reje.

Naselbina na Brinjevi gori je bila v obdobju med srednjo bronasto in starejšo železno dobo pomembno središče z razvejanimi povezavami v širokem prostoru od južnega Balkana do italskega sveta in s prepoznano razslojenostjo družbe (Koprivnik 2021a; 2021b; Koprivnik, Teržan 2021). Njeno bolj ali manj kontinuirano poselitev kaže v določeni meri pripisati strateški lokaciji z vizualnim pregledom nad širšo okolico in nadzoru nad pomembnimi potmi. Skupaj z bližnjo naselbino na Ljubični nad Zbelovsko goro je imela v tedanjem času verjetno dominantno vlogo v prostoru, z dobrim pregledom predvsem na severo- in jugovzhodni del Dravinjske doline ter na severna pobočja Konjiške gore (Bricelj 2018, 199–200; 2024). Dodatni gospodarski potencial ji je zagotavljalo rudonosno Pohorje (Teržan 1983; 1989). O metalurški dejavnosti v naselbini priča odkritje delno ohranjenega kalupa za obroč ali zapestnico (Bricelj 2018, 186), med gradivom iz leta 1954 najden del večdelnega kalupa za vlivanje bodisi sekire bodisi sulične osti, pa tudi kosi žlindre, ki jih v svojih dnevniških zapiskih omenja Pahič. Za razliko od nekaterih drugih, delno sočasnih naselij z območja severovzhodne Slovenije (npr. Ormož, Gornja Radgona), ki so jih prav tako označevale pomembna strateška lega, vpetost v trgovske poti, živahna metalurška dejavnost in razvito kmetijstvo (Dular 2013, 111–122), je bil poljedelski potencial Brinjeve gore razmeroma skromen.

Njeni tedanji prebivalci so se na takšne okoliščine odzvali z vzpostavitvijo svojstvenih načinov reje živine, ki so skušali izkoristiti raznolikost tamkajšnjih ekosistemov. Brinjeva gora se namreč nahaja na stičišču hribovitega Pohorja, gričevnatih Dravinjskih goric ter obrečnih poplavnih ravnic Dravinje in Oplotniščice. Če je slediti izsledkom pričujoče arheozoološke študije, je bila govedoreja, ki terja obsežne travniško-pašniške površine in velik vložek dela skozi celo leto, po obsegu nekoliko skromnejša. Pri tem naj bi del čred zaradi podpore poljedelstvu (tj. vlečna sila, domnevno tudi gnoj) ostajal skozi celo leto v dolini, drugi del pa je bil domnevno vključen v sistem transhumance s planinsko (travniško in gozdno?) pašo na Pohorju. Zdi se, da je skušala lokalna skupnost manjšo vlogo govedoreje nadomestiti s povečanim poudarkom na reji drobnice; slednji so maloštevilni, raztreseni in pogosto razmeroma strmi pašniki izven območja poplavnih ravnic tudi bolj ustrezali. Mokroten nižinski svet in mešan gozd na blagih pobočjih bližnjega hribovja so ponujali ustrezne pogoje za zelo solidno razvito prašičerejo. Znaten, tj. kar četrtinski delež prašičjih najdb ob večinski zastopanosti ovce in koze je sicer za prazgodovinske naselbine jugovzhodnoalpskega prostora neobičajna kombinacija (glej npr. Bökönyi 1994; Bartosiewicz 1996; Toškan, Dirjec 2010; Toškan, Bartosiewicz 2018), saj imata drobnica in prašič zelo različne ekosistemske zahteve (glej npr. Toškan, Dirjec 2011, 362–364). Je pa z nekaj špekulativnosti tudi to ugotovitev mogoče smiselno razložiti z raznolikostjo habitatov na proučevanem območju. Jasnejšo sliko navedene problematike si kaže obetati od načrtovanih analiz stabilnih izotopov, ki so ciljno usmerjene k odgovarjanju na tovrstna vprašanja[29].

[29] Analize stabilnih izotopov na živalskih skeletnih ostankih na Svobodni univerzi v Bruslju (VUB) so se pod vodstvom C. Snoecka začele v sklopu projekta Prehistory Adventure (Interreg SI-HR), nadaljujejo pa se v okviru bilateralnega ARRS-FWO projekta CRIME, pri katerem sodelujeta Oddelek za arheologijo Filozofske fakultete Univerze v Ljubljani pod vodstvom M. Črešnarja in Svobodna univerza v Bruslju (VUB) pod vodstvom S. Goderisa in C. Snoecka.

Način reje živali v bronasti dobi Pohorskega Podravja in sosednjih pokrajin je v pomembni meri določala težnja po prilagajanju na razpoložljive naravne danosti, saj je imelo takšno ravnanje ključen vpliv na količino pridelane hrane in zadovoljevanje drugih potreb (glej tudi Stopp 2015, 191–195, 198). Na ravninskih, lahko tudi poplavnih območjih z znatno prisotnostjo plodonosnih listavcev je bila večja pozornost namenjena prašičereji, v goratem svetu s pičlimi travniško-pašniškimi površinami pa se je bolj uveljavila reja drobnice. Vpliv okolja je bil manj izrazit pri sprejemanju odločitev o reji tistih vrst, ki niso bile zanimive predvsem zaradi gospodarskega izkoriščanja. Tedanje pospešeno širjenje območja vzreje domačega konja na velikem delu Evrope in Azije (Bartosiewicz 2013, 335–337; Librado et al. 2021) je bolj od ustreznosti okolja poganjal prestiž, ki ga je prinašalo lastništvo teh živali, in njihova uporaba pri vojskovanju (Bartosiewicz 2017, 104; Klontza-Jaklová 2020; Tecchiati et al. 2020, 116). Najdbe konja z Brinjeve gore vključujejo skoraj le ostanke glave in nemesnatih skrajno spodnjih delov nog, zato jih ne kaže razlagati kot prehranski odpadek. V članku so posebej omenjeni tudi ostanki nekaterih na najdišču redkeje zastopanih živalskih vrst, ki so bili odkriti na območju doslej največje stavbe v naselbini. Tam odkrito arheozoološko gradivo bi utegnilo nakazovati posebno namembnost te stavbe.

Zahvala

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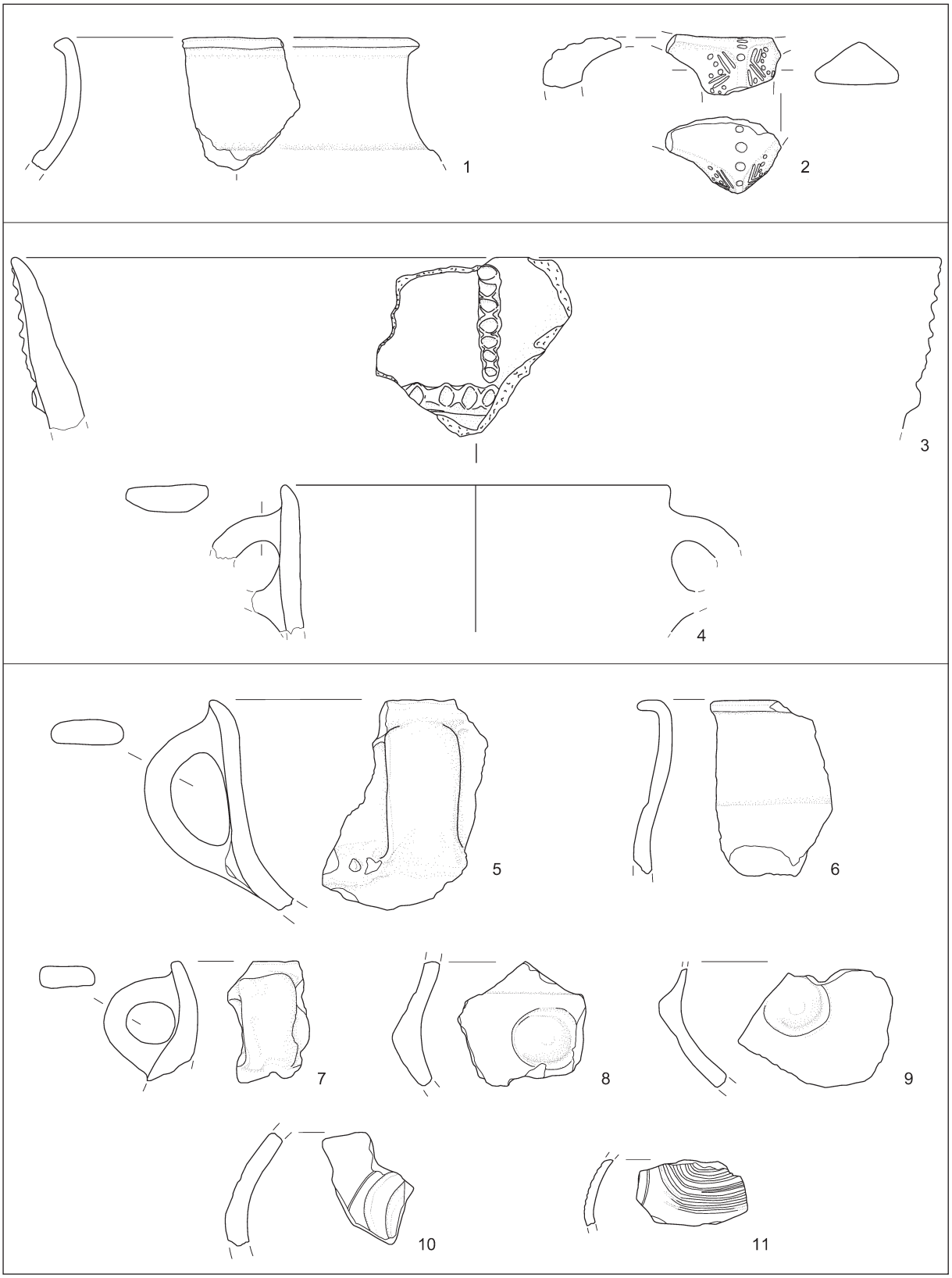
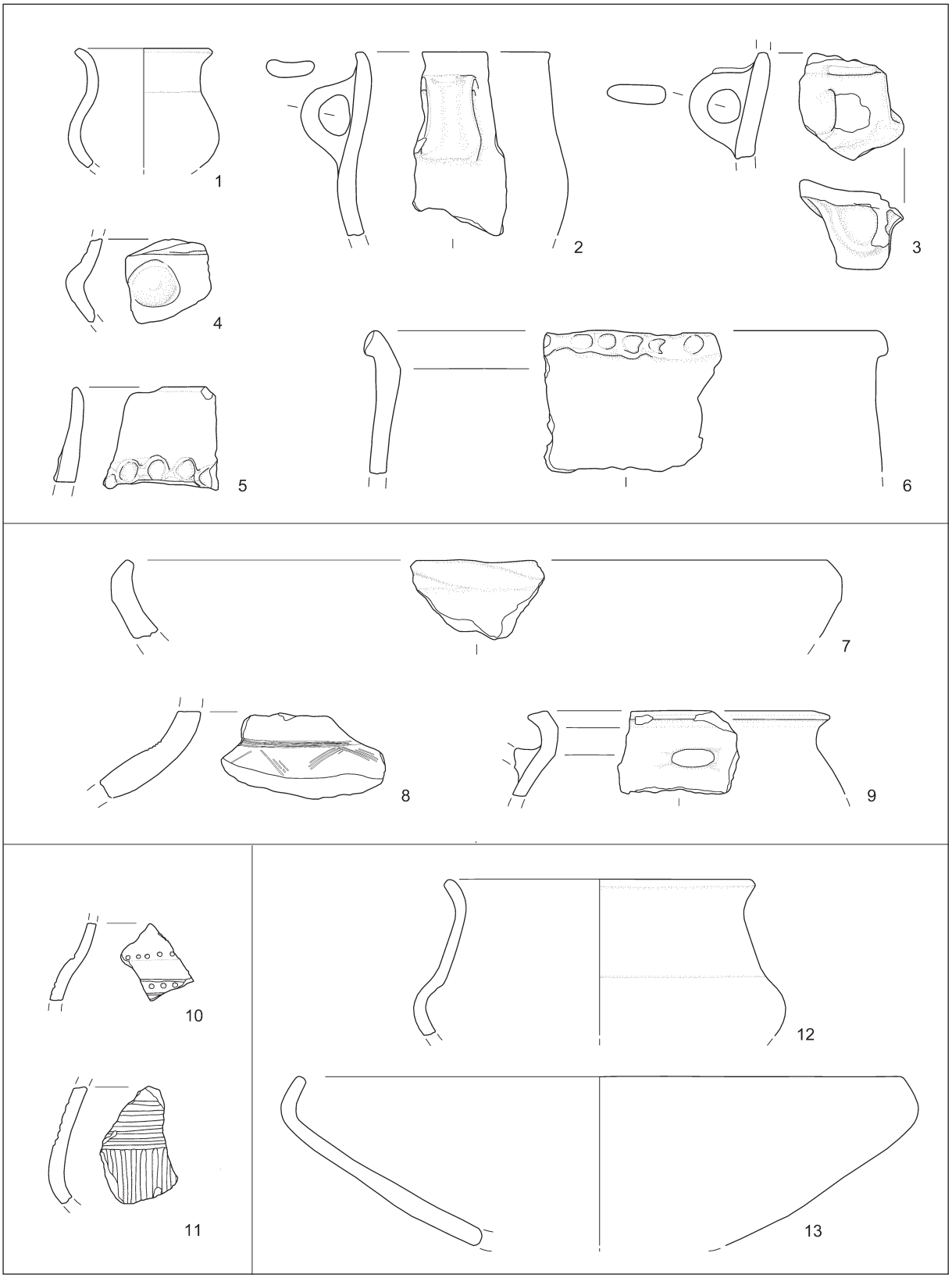
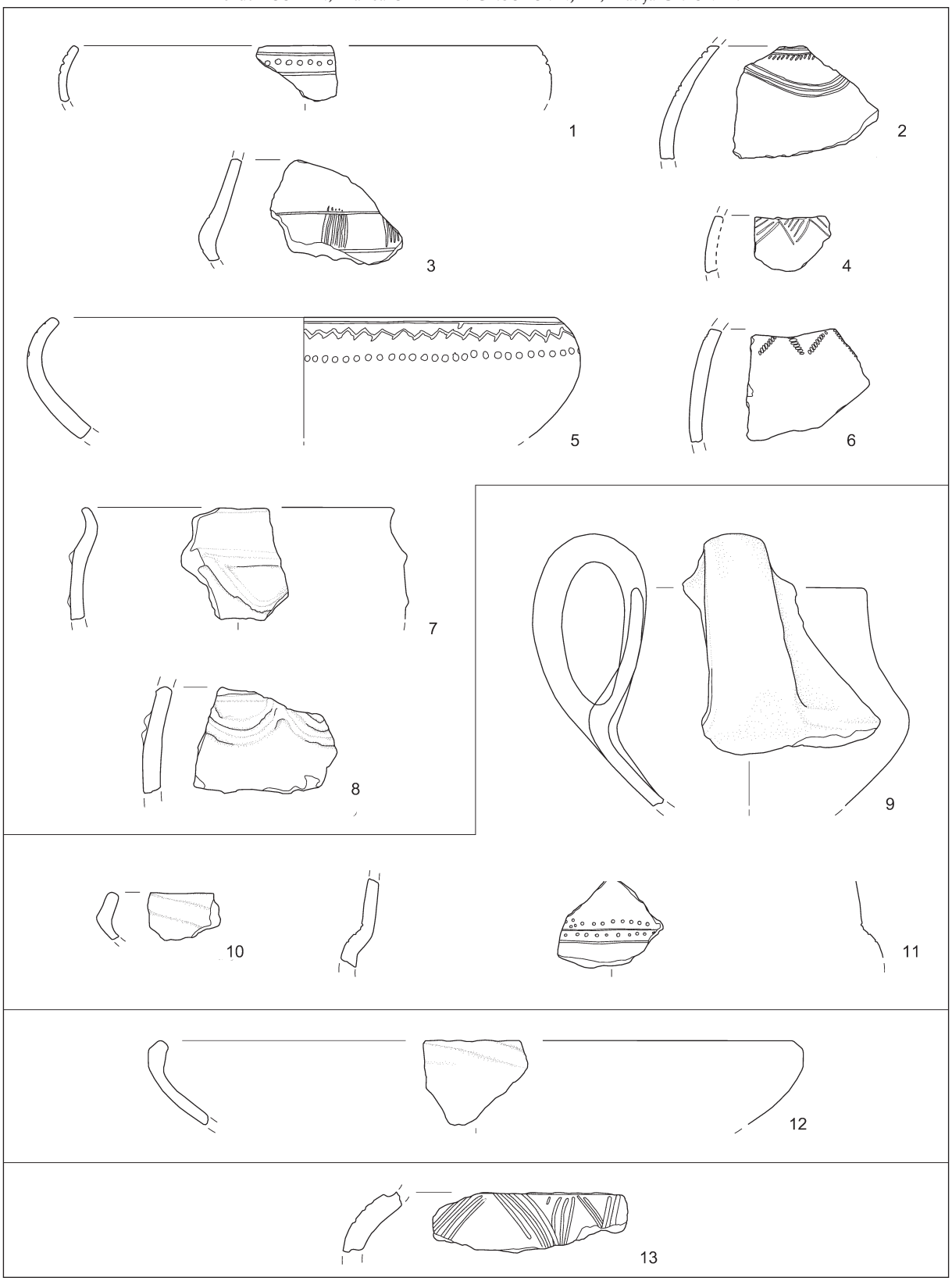


Pl. 1: Brinjeva gora. **1**–**2** campaign 1956, Trench 9, earliest layers; **3**–**4** campaign 1954, trench near the Falnoga farmstead, earliest layers; **5**–**11** campaign 1958, main excavation field, oldest layers. All pottery. Scale = 1:3.
T. 1: Brinjeva gora. **1**–**2** leto 1956, sonda 9, najstarejše plasti; **3**–**4** leto 1954, testni jarek pri kmetiji Falnoga, najstarejše plasti; **5**–**11** leto 1958, glavni izkop, najstarejše plasti. Vse keramika. M. = 1 : 3.



Pl. 2: Brinjeva gora. **1**–**6** campaign 1960, main excavation field, presumed defensive embankment; **7**–**9** campaign 1959, main excavation field, beneath the earliest Hearth C; **10**–**11** campaign 1959, main excavation field, between the earliest Hearth C and the latter Hearth AB; **12**–**13** campaign 1959, main excavation field, floor of the Hearth AB. All pottery. Scale = 1:3.
T. 2: Brinjeva gora. **1**–**6** leto 1960, glavni izkop, domneven obrambni nasip; **7**–**9** leto 1959, glavni izkop, pod najstarejšim ognjiščem C; **10**–**11** leto 1959, glavni izkop, med najstarejšim ognjiščem C in mlajšim ognjiščem AB; **12**–**13** leto 1959, glavni izkop, talk ognjišča AB. Vse keramika. M. = 1 : 3.



Pl. 3: Brinjeva gora. **1**–**8** campaign 1960, main excavation field, fill from the ditches of the large building; **9**–**11** campaign 1955, main excavation field, pit beneath Building 2; **12** campaign 1955, main excavation field, Building 1; **13** campaign 1955, main excavation field, Building 2. All pottery. Scale = 1:3.

T. 3: Brinjeva gora. **1**–**8** leto 1960, glavni izkop, polnila jarkov velikega objekta; **9**–**11** leto 1955, glavni izkop, jama pod objektom 2; **12** leto 1955, glavni izkop, objekt 1; **13** leto 1955, glavni izkop, objekt 2. Vse keramika. M. = 1 : 3.

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llustrations: Fig. 1 (map: Mateja Belak, ZRC SAZU). – *Fig. 20* (photo: Drago Valoh, ZRC SAZU). – *Pl. 1:* 1,2,5–11; *2; 3* (drawing: Nina Bratušek, UL FF). – *Pl. 1:* 3,4 (Manca Omahen Gruškovnjak, Gorenjska Museum).
Slikovno gradivo: Sl. 1 (karta: Mateja Belak, ZRC SAZU). – *Sl. 20* (foto: Drago Valoh, ZRC SAZU). – *T. 1:* 1,2,5–11; *2; 3* (risba: Nina Bratušek, UL FF). – *T. 1:* 3,4 (Manca Omahen Gruškovnjak, Gorenjski muzej).

The data underlying this article will be shared on reasonable request to interested parties. / Podatki, na katerih temelji ta članek, bodo na razumno zahtevo posredovani interesentu.

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