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A BARROW OF THE WIELBARK CULTURE AT LEŚNICTWO WILCZY JAR SITE 2 IN THE BIAŁOWIEŻA FOREST – NEW DATA ON ROMAN PERIOD SETTLEMENT IN THE UPPER NAREW AND MIDDLE BUG INTERFLUVE

ABSTRACT

Dariusz Krasnodębski, Hanna Olczak, Jagoda Mizerka, Kamil Niedziółka. 2024. A barrow of the Wielbark culture at Leśnictwo Wilczy Jar Site 2 in the Białowieża Forest – new data on Roman Period settlement in the Upper Narew and Middle Bug interfluve. *Sprawozdania Archeologiczne* 76/2, 293-340.

For many years, the Białowieża Forest has been one of the archaeologically least known areas of present-day Poland. Although the first excavations there were carried out as early as 1917-1918, until recently, knowledge of the prehistoric and Early Medieval settlement in the region has been negligible. Thanks to surface surveys and excavations undertaken at the beginning of the 21st century, it has so far been possible to record more than 600 archaeological sites in the Białowieża Forest. The great potential of this best-preserved lowland natural forest in Central Europe is evidenced, among other things, by the results of excavations carried out at Leśnictwo Wilczy Jar, Site 2. A barrow of the Wielbark culture, which is the first grave of its kind located so far to the east, was investigated there. Despite the limited scope of excavation of the mound, it is a significant contribution to the knowledge of the Roman Period in the Upper Narew and Middle Bug interfluve.

Keywords: Białowieża Forest, Upper Narew and Middle Bug interfluve, Younger and Late Roman Period, Wielbark culture, barrows

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INTRODUCTION

The Upper Narew and Middle Bug interfluve is one of the least destroyed and human-transformed areas of the borderland between the Central European Lowlands and the Eastern European Lowlands. A large portion of it is covered by forests and wetlands, some of which are now part of the Białowieża Forest (Fig. 1). It is the only remaining large-scale relict of the forests of the boreo-nemoral zone, which covered most of the European continent in the past. Compared to modern forests, the area is distinguished by a significant share of tree stands of natural origin that are over a century old, with a diversified species, age, and layer structure (Faliński 1986, 17-23; Jaroszewicz 2010, 216; Jaroszewicz *et al.* 2019). The Białowieża Forest is not only a unique region on the European scale in terms of its natural resources (listed as a UNESCO World Natural Heritage site), but also, as recent archaeological research has shown, is characterised by an exceptionally good state of cultural heritage preservation. Due to the fact that this forest complex was protected as early as the turn of the 14th and 15th centuries, traces of human activity have survived here in very

Fig. 1. Location of the site Leśnictwo Wilczy Jar on a topographic map (source of the map: Open Street Map). Compiled by K. Niedziółka

good condition, creating a unique cultural landscape that was largely destroyed in the deforested areas as a result of Late Medieval and Modern Period settlement and agricultural exploitation. Despite the insufficient state of reconnaissance in the past by the method of the Polish Archaeological Record (Archeologiczne Zdjęcie Polski or AZP in Polish), which has been carried out in about half of the area of the Polish part of the Białowieża Forest (Krasnodębski and Olczak 2018, 11), more than 600 archaeological sites are currently known there (Krasnodębski 2022, table III.27). Most of them have been recorded only in the last twenty years (Krasnodębski and Olczak 2018, 6-17; Olczak and Krasnodębski 2022, 35-69). The state of archaeological research in the Belarusian part of the Białowieża Forest is much less advanced than in the Polish part (*e.g.*, Beliavets *et al.* 2009, 20-53; Tkachou 2015, fig. 2; Tkachou and Vashanau 2017, fig. 1; Tkachou *et al.* 2018).

Although the first excavations in the Białowieża Forest were carried out as early as in 1917-1918 (Götze 1929), for many decades after that, the area received little interest from archaeologists (Walicka 1958; Dzierżykray-Rogalski and Jaskanis 1961; Żurowski 1963; Górska 1976). It was not until 2003 that systematic excavation and surface surveys began here, carried out by the Institute of Archaeology and Ethnology of the Polish Academy of Sciences in Warsaw (hereafter: IAE PAS) and the Mammal Research Institute of the Polish Academy of Sciences in Białowieża. As part of this cooperation, more than a dozen archaeological sites from different periods were excavated, the selection of which was led by the desire to understand the history of the area, with particular emphasis on the last two millennia (*e.g.*, Krasnodębski *et al.* 2005; 2008; Krasnodębski and Olczak 2006a; 2006b; 2012; Samojlik *et al.* 2014; Olczak *et al.* 2018). In 2014, the scope of this research was broadened with the implementation of the grant 'The Beginnings of Christianity on the Mazovian-Rus' Borderland', led by Prof. Andrzej Buko and financed by the Ministry of Science and Higher Education (National Programme for the Development of the Humanities, Grant No. 11H 12 0330 81). Its aims included, among other things, DNA studies of human bones from Slavic cemeteries (Molak *et al.* 2019; Krasnodębski and Olczak 2019; Olczak and Krasnodębski 2019; Buko *et al.* 2020). In 2016-2019, a project called *Cultural Heritage Inventory* was carried out, first by the IAE PAS in Warsaw and then by the Hereditas Foundation. It was conducted on behalf of the General Directorate of the State Forests as part of the 'Evaluation of the state of biodiversity in the Białowieża Forest on the basis of selected natural and cultural elements' programme. In the first year of its implementation, surface surveys covering almost two thirds of the area of the Polish part of the Białowieża Forest were carried out (Krasnodębski *et al.* 2016; Krasnodębski and Olczak 2018, 11-17; Olczak and Krasnodębski 2022, 59-63). In addition to the excavations, the project included large-scale non-intrusive research, which consisted of identifying any earthworks by airborne laser scanning data, as well as geophysical survey and exploratory boreholes for botanical sampling. An important part of this project was also gathering all available information on previously known archaeological sites as well as sorting out their nomenclature and numbering. Between 2017 and 2020, another similar grant, called *Cul-*

tural and Natural Heritage of the Białowieża Forest, which was led by Prof. Przemysław Urbańczyk and funded by the National Science Centre (Project No. 11H 12 0330 81), was carried out (Urbańczyk and Wawrzeniuk 2021, 10-12). It was coordinated by the Institute of Archaeology of the Cardinal Stefan Wyszyński University (hereafter: UKSW) and conducted jointly with IAE PAS.

The vast majority of archaeological sites currently known from the Białowieża Forest consists of earthwork sites. They are mostly earthen or, much less frequently, stone mounds, the number of which in the Polish part of this forest complex can be estimated at about 1,400 (Urbańczyk and Wawrzeniuk 2021, 12; Krasnodębski 2022, tables III.1-III.26). The function and chronology of most of the mounds remains unknown, and only a few groups of them can be interpreted as prehistoric or Early Medieval barrows. The reason for this is both the insufficient degree of excavation research and the lack of distinctive features of the mounds that would allow their classification based on non-invasive research. It is also not without significance that the function and age of some of them could not be determined even after excavations (Olczak and Krasnodębski 2022, 373-408; further literature there). The second group of archaeological earthworks consists of the remains of Modern-Period timber production (Samojlik *et al.* 2022, 335-370; older literature there). These are mainly regularly circular earthen banks (tar kilns) and mounds of varying size and shape with a large number of charcoal fragments on the surface (charcoal piles). The archaeological landscape of the Białowieża Forest is completed by low earthen banks discovered in recent years thanks to the analysis of ALS data, which are interpreted as relics of former field systems (*e.g.*, Krasnodębski and Olczak 2016; 2018, 29 f., 48-50; Zapłata and Stereńczak 2016, 247; Stereńczak *et al.* 2020; Krupski *et al.* 2022; Olczak and Krasnodębski 2022, 408-430; Niedziółka *et al.* 2023), of the type known so far mainly from Northern and Western Europe under the name of 'Celtic fields' or 'fossil fields' (*e.g.*, Gerritsen 2003, 167-180; Lang 2007, 103-105; Arnberg 2009; Arnoldussen 2018; further literature there). Unfortunately, the specific nature of the area (*i.e.*, dense forest) and the concentration of surface surveys on the earthworks have resulted in the fact that very few settlements are known from the Białowieża Forest so far, and the number of excavated sites of this type does not exceed a few. Despite this, a still very incomplete but increasingly clear picture of the settlement of this region in prehistory and the Early Middle Ages is gradually emerging.

Among the sites that were discovered in recent years is that at Leśnictwo Wilczy Jar 2. It was identified thanks to the analysis of data from the 'IT Country Protection System' (Informatyczny System Osłony Kraju or ISOK in Polish) and later verified in November 2016 during surface surveys conducted by IAE PAS (Krasnodębski and Olczak 2018, 22). Its unusual (as it seemed at the time) shape prompted us to carry out excavations here. These took place in August and September of 2017 as part of the aforementioned *Cultural and Natural Heritage of the Białowieża Forest* project and were led by Dariusz Krasnodębski.

LOCATION AND STRATIGRAPHY

The site Leśnictwo Wilczy Jar 2 is located in the western part of the Białowieża Forest, in the Hajnówka Forest District (forest plot 306C; Fig. 1). It is situated in the valley of a small stream named Dubitka (Dubinka), about 1 km south of its confluence with the Łutownia River, a left tributary of the Narewka River (Fig. 2). It is a difficult place to access, surrounded on three sides by vast depressions that are periodically flooded by water. Approximately 100-150 m to the east, on elevated ground, lies the settlement Leśnictwo Wilczy Jar, Site 8.

Geographically, this is the eastern part of the Bielsk Plain mesoregion, which in turn belongs to the North Podlasie Lowland macroregion (Kondracki 2009, fig. 33; Solon *et al.* 2018, map). The topographical relief of this region was formed as a result of transgression and recession of the ice sheet of the middle stage of the Warta Glaciation and subsequent denudation and erosion processes (Kwiatkowski *et al.* 2011, 9-12, 29-32; Kwiatkowski *et al.* 2012; Stepaniuk 2017). It is an undulating moraine plain, composed of boulder clay underlain by thin covers of sands, gravels, and erratic boulders. In the immediate vicinity of the site, in the poorly developed valley of the Dubitka River, humus sands and alluvia

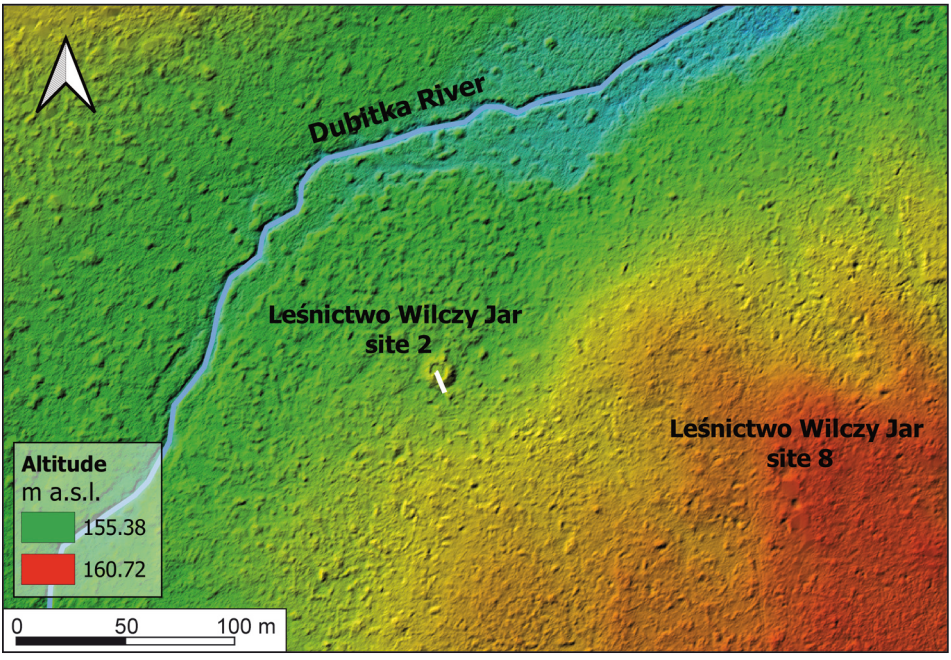

Fig. 2. Białowieża Forest, Leśnictwo Wilczy Jar, Site 2. Digital Elevation Model with the location of the archaeological trench (source of ALS LiDAR data: Head Office of Geodesy and Cartography). Compiled by K. Niedziółka

Fig. 3. Białowieża Forest, Leśnictwo Wilczy Jar, Site 2. View of the site from the south (December 2016). Photo by H. Olczak

are found, developed on boulder clay. A large aggregation of small-sized erratic boulders was found in the area. In terms of the nature of the vegetation cover, it is a transitional area between deciduous forest with a predominance of hornbeam and ash-alder flood plain forest (Murawska 2022).

The site has the shape of a circular mound with a diameter of about 17 m and a height of up to about 0.7 m (Figs 3 and 4). Its outer part is a low embankment with a width of about 3 m, which surrounds a centrally located depression that is about 7-8 m in diameter. The height difference between the embankment and the depression does not exceed 0.3 m. Individual stones are visible on the surface of the mound, mainly on the outer side.

A 10 × 2 m archaeological trench (later extended on the north side by 0.5 m, over a width of 1 m) was marked out in the southern and central part of the mound (Fig. 4: 1). The location and shape of the trench were imposed by trees overgrowing the area. Under the plant litter and modern humus (Layer 1) at the top and outer slope of the mound, there was a stone mantle (Layer 10) approximately 4 m wide, consisting of two layers of stones between 0.2 and 0.5 m in diameter (Figs 5-7). The arrangement of the mantle suggested that the stones had been selected at random or that they had been partly displaced secondarily. The mound beneath the mantle was made up of light fuscous sand with yellow patches (Layer 4), reaching a thickness of 0.40-0.45 m (Figs 5; 7; 8). It contained fine charcoal fragments, mainly of Scots pine (*Pinus sylvestris*), but also of European ash (*Fraxinus excelsior*) and oak (*Quercus* sp.) (Skrzyński 2021). One fragment of burnt pine wood

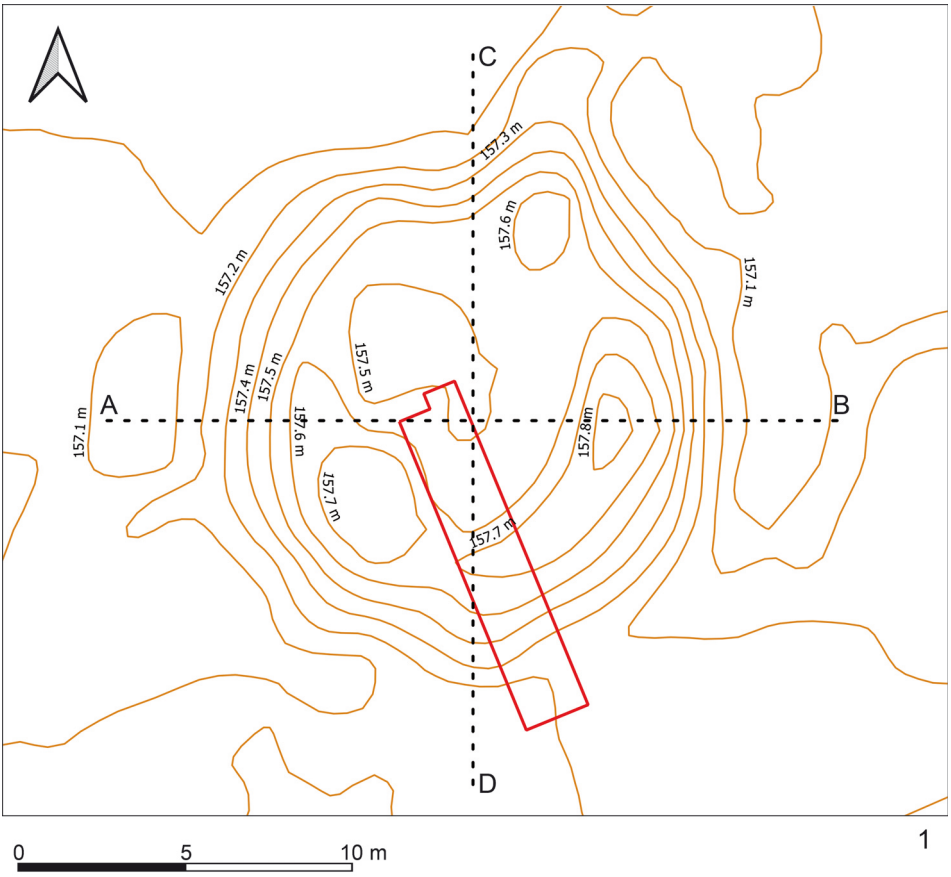

Fig. 4. Białowieża Forest, Leśnictwo Wilczy Jar, Site 2.
Contour plan with the location of the archaeological trench (1) and sections through the mound created on the base of ALS LiDAR data (2). Compiled by K. Niedziółka

Fig. 5. Białowieża Forest, Leśnictwo Wilczy Jar, Site 2.
Stone mantle (Layer 10) at the top and on the exterior slope of the mound.
Photo by D. Krasnodębski

Fig. 6. Białowieża Forest, Leśnictwo Wilczy Jar, Site 2.
The southern part of the trench with the stone mantle (Layer 10). Photo by D. Krasnodębski

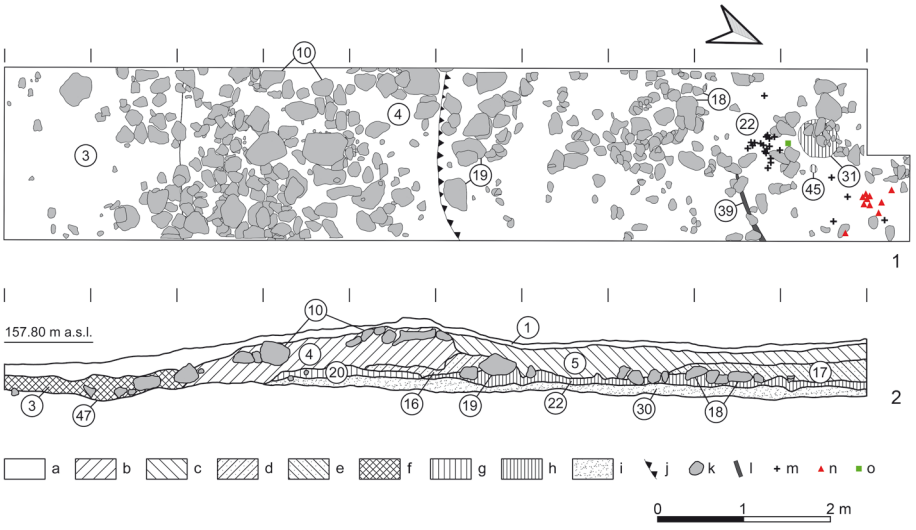

Fig. 7. Białowieża Forest, Leśnictwo Wilczy Jar, Site 2. Plan (1) and the east-facing profile of the trench (2): a – plant litter and modern humus; b – light fuscous sand with yellow patches; c – brown, humus-rich sand; d – beige-yellow sand with brown patches and streaks; e – yellow-grey sand with brown and fuscous patches; f – dark fuscous sand; g – fuscous-grey sand; h – dark fuscous-grey and black sand with fragments of burnt bones; i – clayey yellow sand with fuscous and grey patches; j – boundary of the disturbed area; k – stones; l – remains of a wooden beam or plank; m – burnt bones; n – pottery; o – fragments of bone or antler comb.
Drawn by K. Niedziółka and Z. Tragarz

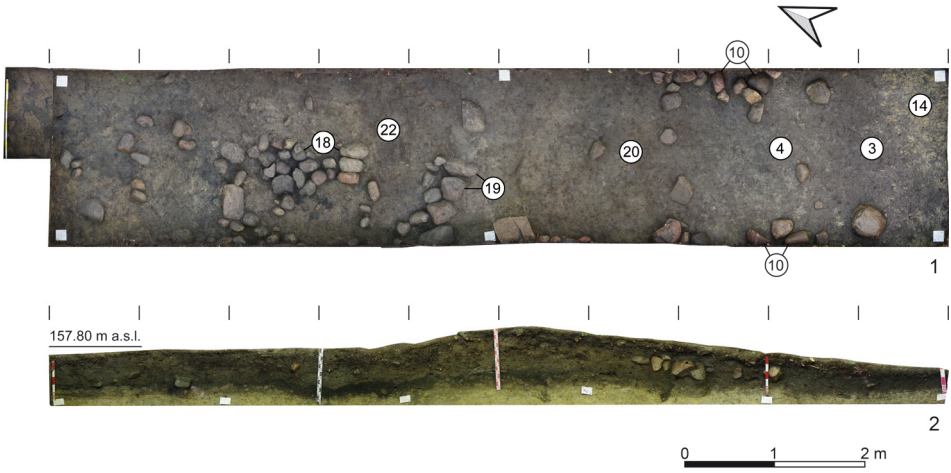

Fig. 8. Białowieża Forest, Leśnictwo Wilczy Jar, Site 2. Photogrammetric documentation of the trench: 1 – remains of the stone core (Layers 18 and 19) revealed at the base of the mound; 2 – west-facing profile of the trench. Compiled by K. Niedziółka

showed traces of a green patina, presumably resulting from the corrosion of an unspecified object made of bronze (Skrzyński 2021). Below Layer 4 was beige-yellow sand with brown patches and streaks (Layer 16), which may be interpreted as the remains of decomposed organic material such as branches (Figs 7: 2; 9; 10). The thickness of this layer generally did not exceed 0.06-0.08 m, only occasionally did it reach 0.2 m. It contained charcoal fragments from birch (*Betula* sp.), European hornbeam (*Carpinus betulus*), ash, oak, and a deciduous tree of an unknown species. In the central part of the mound, brown, humus-rich, and root-strewn sand (Layer 5), with a thickness of 0.1-0.4 m, was present beneath the humus (Fig. 7: 2). A secondarily burnt pottery fragment was discovered on its top. It also contained single stones and small charcoal pieces, almost exclusively from Norway spruce (*Picea abies*), with a small admixture of birch and larch (*Larix*). A clear vertical boundary was visible between Layer 5 and the above-mentioned Layer 4. In the northeast corner of the trench, a pit at least 1 m in diameter and about 0.2 m deep (Feature 12) was recorded dug into Layer 5. Inside this pit, a small glass fragment from the turn of the 19th and 20th centuries and partially burnt pieces of spruce wood and bark were found. Layer 5 covered yellow-grey sand with brown and fuscous patches (Layer 17), with a thickness of approximately 0.20-0.25 m (Figs 7: 2; 9; 10). It, too, contained numerous fine charcoal fragments, mainly of Norway spruce, with minor admixtures of Scots pine, ash, and alder (*Alnus*). These layers, to a depth of about 0.4 m relative to the present ground level, seem to have been heavily disturbed. This was evidenced by traces of digging, particularly visible at their bases and at the top of Layer 22 below (Fig. 11; 12), resulting from the robbing of stones. Layers 5 and 17 were clearly distinguishable from the darker coloured ones below,

Fig. 9. Białowieża Forest, Leśnictwo Wilczy Jar, Site 2.
The middle part of the trench with the boundary of the barrow core (Layer 19).
Photo by D. Krasnodębski

Fig. 10. Białowieża Forest, Leśnictwo Wilczy Jar, Site 2.
The northern part of the trench with the remains of the barrow core (Layers 18 and 19) and Layer 22, containing burnt bones. Photo by D. Krasnodębski

Fig. 11. Białowieża Forest, Leśnictwo Wilczy Jar, Site 2. A fragment of the east-facing profile of the trench with traces of digging at the base of Layer 17 and the top of Layer 22. Photo by D. Krasnodębski

Fig. 12. Białowieża Forest, Leśnictwo Wilczy Jar, Site 2. The northern part of the trench with Layer 22. Photo by D. Krasnodębski

which, near the outer part of the mound, consisted of fuscous-grey sand with a thickness of about 0.10-0.20 m (Layer 20), with small patches of yellow clay, individual small pebbles, and numerous European ash charcoal fragments (Figs 7: 2; 8: 1; 9). On the other hand, closer to its centre was a more homogeneous dark fuscous-grey and, in places, black sand (Layer 22; Figs 7: 2; 8: 1; 9; 10; 12). Its thickness generally did not exceed 0.1 m, and only at the border with Layer 4 did it reach 0.2 m. At the top of Layer 22, there were medium-sized stones (Layer 18), over a dozen of which formed a compact pavement measuring

Fig. 13. Białowieża Forest, Leśnictwo Wilczy Jar, Site 2. Fragments of a pottery bowl in Layer 22. Photo by D. Krasnodębski

1.5 × 1.0 m (Figs 7: 1; 7: 2; 8: 1; 10). In contrast, at its southern boundary were several somewhat larger stones, about 0.3-0.4 m in diameter (Layer 19), arranged in a slightly arched row with an approximately east-west orientation (Figs 7: 1; 7: 2; 8: 1; 9; 10; 12). Layer 22 contained a small number of charcoal fragments from oak, birch, elm (*Ulmus* sp.), and twigs of an unknown deciduous tree. Ten partially burnt pottery fragments from a single vessel (Figs 13; 14) and approximately 145 small fragments of burnt bones have also been found within this layer. The pottery was concentrated in the north-eastern corner of the trench, mainly in an area of about 0.2 m^2 and a depth of up to 0.40-0.45 m relative to the modern ground level (Fig. 7: 1). The bones were scattered over a slightly larger area of approximately 2 m^2, mostly at the same depth as the vessel fragments. Some of them formed a distinct cluster, located at a distance of about 1 m from the pottery. Among the bones stood out two small fragments of a comb or combs (Fig. 15).

Below Layers 20 and 22 was clayey yellow sand with fuscous and grey patches (Layer 30) with a thickness of up to 0.15 m, which was most probably the remains of buried soil (Fig. 7: 2). Only at the edge of the mound was this layer removed. In the northern part of the trench, a small circular pit (Feature 31) was unearthed at the top of Layer 30 and the base of Layer 22. The pit was about 0.5 m in diameter and had a depth of 0.1 m. Several

medium-sized stones were laid inside it (Fig. 7: 1). Nearby, a negative of a stake (Feature 45) was found. It was sharpened at the bottom, had a diameter of about 0.1 m, and a depth of 0.16 m. In the same part of the trench, an oblong structure that was about 0.8 m long, 0.08 m wide, and up to 0.1 m thick was also recorded (Layer 39). It presumably was the remains of a decomposed wooden beam or plank, oriented northeast-southwest (Fig. 7: 1).

The mound was surrounded by a shallow ditch (Feature 47), over 2 m wide and about 0.2 m deep (Fig. 7: 2), which was presumably dug to obtain building material for its construction. It was filled with dark fuscous sand (Layer 3; Fig. 6; 7; 8: 1) with a high content of organic material formed in an aquatic environment as well as individual European ash charcoal fragments. In its upper part were a few stones that had probably slid down from the top of the mound.

FINDS AND PLANT REMAINS

Eleven fragments of pottery were recovered from the excavated part of the site. They are heavily damaged and have traces of secondary burning in the form of vitrification and wall deformation. Almost all the sherds, with the exception of one, were discovered in Layer 22 and originated from the same vessel (Fig. 14). Most of its fragments were in a cluster about 0.4 m in diameter, and only one was found a few dozen centimetres away (Figs 7: 1; 13). It is a small, partially reconstructed, handmade bowl, about 8.5 cm high, with a rim diameter of about 13 cm and a base diameter of 5.6-6.0 cm. It is characterised by a concave neck and a clearly accentuated shoulder. The rim of the bowl is everted and bevelled, and the base is slightly convex. The wall thickness ranges from 0.5 to 1.1 cm (most at the transition to the base), while the base thickness is 1.0-1.2 cm. The walls are well smoothed but uneven in places, especially in the lower part, with adhering pieces of charcoal. The surface of the base is also uneven, with no obvious remains of gritting. The present colour of the bowl (orange, dark fuscous, and grey) is the result of secondary burning, and therefore, the atmosphere in which it was originally fired cannot be determined. Grains of temper, probably crushed stone, with a grain size up to about 1.5-2.0 mm are visible in the sections of the sherds.

Approximately 1.5 m from the bowl, on the top of Layer 5, a small, strongly burnt fragment of another vessel was discovered. It had perhaps a slightly everted rim with a rounded edge.

As already mentioned, the bones found in Layer 22 were heavily burnt and fragmented (Tomczyk 2017). Despite this, it was possible to establish that at least some of them were archaeozoological material (Gręzak 2018). Two rib fragments most likely belonged to a pig. The species affiliation of the remaining 143 fragments could not be determined. These included 106 long bone fragments, 26 flat bone fragments, two cranial vault fragments, and seven unidentified ones. Among them, two fragments of a bone or antler comb (or possibly

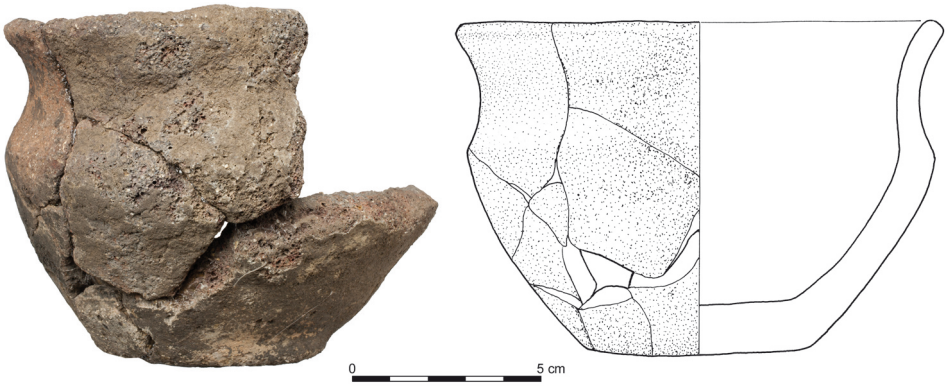

Fig. 14. Białowieża Forest, Leśnictwo Wilczy Jar, Site 2.
Reconstructed pottery bowl from Layer 22. Drawn by G. Nowakowska, photo by M. Osiadacz

Fig. 15. Białowieża Forest, Leśnictwo Wilczy Jar, Site 2.
Fragments of bone or antler comb from Layer 22. Photo by D. Krasnodębski

combs) were also identified. The first of these, measuring 1.48 × 1.04 cm and with a thickness of 2.4 mm, is a small arched piece with three smoothed sides and a partially preserved circular hole that is 1.3 mm in diameter (Fig. 15: 1). Its surfaces were smoothed, with the bone structure more clearly visible on the 'inner' side. The second piece measures 0.56 × 0.45 cm and is 2.1-2.4 mm thick (Fig. 15: 2). All its edges have traces of fracturing. On one of the edges there is a circular hole, while on the opposite one there is a base of five teeth that are about 1 mm wide. This fragment is also arched, probably due to exposure to high temperatures. Both fragments are most likely from a three-layer comb of type B (Thomas 1960, 62-66), the first being a piece of handle lining with a rivet hole and the second an insert, also with a rivet mark and teeth base.

A separate category of archaeological material obtained during the excavations consists of plant remains in the form of burnt wood and macro-remains. The anthracological

analysis included 48 samples taken from Layers 3, 4, 5, 16, 17, 20, and 22, from which 236 charcoal fragments were examined. Most of these were small, approximately 0.5-1.0 cm in diameter. Observation and species identification was hampered in many cases by vitrification, glossing, and surface cracking, possibly resulting from the process of burning damp wood at high temperatures or the rapid cooling thereof (McParland *et al.* 2010, 2679). Only a few fragments, up to 2 cm in diameter, could be identified as twig remains. Charred bark fragments were noted in one sample.

The anthracological spectrum of the site was dominated by European ash, which accounted for more than 38% of the total remains (Skrzyński 2021). Its presence was recorded in five layers, at different stratigraphic levels. The second most abundant was the Norwey spruce, accounting for 24.7% of the collection. In addition, charcoal fragments from oak, birch, Scots pine, European hornbeam, alder, elm, and larch were distinguished, with none of them having a proportion exceeding a few percent. Norwey spruce charcoals, occupying the second place in the total number of analysed samples, were found only in the disturbed Layers 5 and 17 and in the contemporary Pit 12, while the remaining layers were dominated by charcoal from deciduous trees. Layers 5, 16, and 17 were characterised by the most diverse taxonomic composition. Of particular interest was the composition of the sample taken from Layer 16, which contained only vestiges of deciduous trees from at least four species (oak, birch, ash, and hornbeam). By contrast, only charcoal of European ash was isolated in Layer 20. The presence in Layers 4 and 17 of pieces of burnt pine wood, which is classified as having high caloric value, *i.e.*, reaching high combustion temperatures, may indicate that it was selectively chosen as fuel. It appears to have been specifically brought to the site from at least several hundred metres away, as there are no natural pine habitats in the immediate vicinity (Faliński 1986, 54; Kwiatkowski 1994, 70-74; Kwiatkowski and Stepaniuk 2008, 31 f.).

Among the organic macro-remains, sedge seeds were the most abundant group, with 44 coming from lesser pond-sedge (*Carex acutiformis*), two from hedgehog grass (*Carex flava*), and one from an unspecified species (*Carex* sp.). These were found in Layer 22 at the base of the mound, which, due to the site's location in a wetland area periodically inundated by water, may indicate their natural origin. Sedges occur in ash-alder flood plain forests, bog-oak forests, and bog-alder forests (Rutkowska 1971, 290-318; Kwiatkowski 1994, 63-66).

RESULTS OF RADIOCARBON DATING

In order to determine the chronology of the site, seven radiocarbon analyses were carried out, for which five charcoal samples taken from the central part of the mound (from Layers 5 and 22) and two from its periphery (from Layer 4) were selected (Table 1; Fig. 16). The charcoal collected from the greatest depth (more than 0.5 m from the contemporary

Table 1. Białowieża Forest, Leśnictwo Wilczy Jar, Site 2. List of radiocarbon dates. The dates were calibrated using the OxCal v4.4.4 software (Bronk Ramsey 2021) and the IntCal20 atmospheric curve (Reimer *et al.* 2020)

Laboratory code	Stratigraphic context of the sample	^{14}C age (BP)	Calibrated age (68.3% probability)	Calibrated age (95.4% probability)
Poz-99067	Base of layer 22 / top of layer 30	2250±30	386 BC (25.9%) 353 BC 285 BC (42.3%) 228 BC	392 BC (30.5%) 347 BC 314 BC (64.9%) 204 BC
Poz-129539	Layer 4	1760±30	246 AD (13.2%) 260 AD 278 AD (55.1%) 338 AD	234 AD (95.4%) 381 AD
Poz-129538	Layer 5	1745±30	249 AD (13.1%) 266 AD 272 AD (19.8%) 296 AD 308 AD (35.5%) 352 AD	242 AD (95.4%) 401 AD
Poz-129540	Layer 5	1720±30	258 AD (20.3%) 280 AD 330 AD (48.0%) 383 AD	250 AD (27.9%) 295 AD 310 AD (67.6%) 411 AD
Poz-97064	Layer 22	1695±35	263 AD (9.8%) 275 AD 346 AD (58.4%) 410 AD	250 AD (20.2%) 294 AD 312 AD (75.2%) 426 AD
MKL-3871	Layer 4	1170±90	774 AD (68.3%) 977 AD	671 AD (95.4%) 1022 AD
Poz-96965	Layer 5	260±30	1528 AD (13.3%) 1546 AD 1634 AD (46.4%) 1664 AD 1784 AD (8.6%) 1794 AD	1515 AD (29.4%) 1590 AD 1620 AD (52.6%) 1674 AD 1766 AD (13.5%) 1800 AD

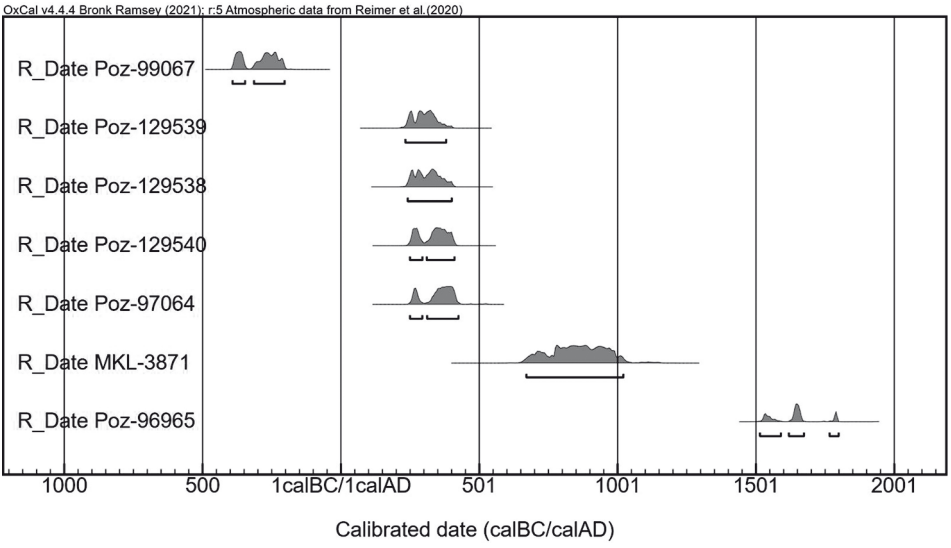

Fig. 16. Białowieża Forest, Leśnictwo Wilczy Jar, Site 2. Distribution of radiocarbon dates

ground surface) was located at the base of Layer 22 and at the top of the buried soil (Layer 30), in the vicinity of the bowl fragments described earlier, but several centimetres lower (Poznań Radiocarbon Laboratory, Poz-99067). This gave a radiocarbon date of 2250±30 BP, which, after calibration with a probability of 95.4%, lies within the range between 392 BC and 204 BC (see Table 1). The next analysis was performed for a sample taken from the top of Layer 22 (Poz-97064). The result obtained (1695±35 BP) after calibration with a probability of 95.4% ranges between 250 AD and 426 AD. A further three analyses were carried out for charcoals from the disturbed Layer 5 (Poz-129538, Poz-129540, and Poz-96965). The first two samples yielded radiocarbon dates of 1745±30 BP and 1720±30 BP, which, after calibration with a probability of 95.4%, gave the years 242-401 AD and 250-411 AD, respectively. The third analysis gave a radiocarbon date of 260±30 BP. The calibrated age of this sample lies within the range between 1515 AD and 1800 AD (probability of 95.4%). Charcoal taken from Layer 4 yielded a result of 1760±30 BP (Poz-129539), which, after calibration with a probability of 95.4%, spans between 234 AD and 381 AD. Analysis of another sample from the same layer, this time obtained from its base at the outer edge of the mound (near Layer 3), yielded a radiocarbon date of 1170±90 BP (Laboratory of Absolute Dating in Cianowice Małe, MKL-3871). The calibrated age of this charcoal falls between 671 AD and 1022 AD (probability of 95.4%).

Thus, the analyses of as many as four samples (Poz-97064, Poz-129538, Poz-129539 and Poz-129540) from different layers and locations gave consistent results. The calibrated age of all of them (see Table 1; Fig. 16) lies between the middle of the 3rd and the turn of the 4th and 5th centuries AD (probability of 95.4%) and between the middle of the 3rd and the middle or late 4th centuries AD (probability of 68.3%). However, the dating results of three other samples differ significantly. The first of these indicates a period that is at least 600 years older. Such a result does not seem to be related to the origin of the sample from the heartwood of a tree (the so-called 'old wood effect'), as the most long-lived oaks in the Białowieża Forest probably lived up to about 400 years (Faliński 1986, 51; Zin *et al.* 2022, 126-135). It can, therefore, be assumed that this dating reflects some kind of use of the site at a time prior to the building of the mound, such as vegetation burning or a forest fire caused by natural factors. The charcoal, the radiocarbon age of which has been determined to be 260±30 BP (Poz-96965), is most likely associated with some activity in the Modern or contemporary period, perhaps a bonfire lit at the site, or possibly a fire (on fires in the Białowieża Forest during the 17th to early 20th centuries, see Niklasson *et al.* 2010). This supposition is confirmed by its deposition at a low depth, in the disturbed Layer 5. Interpretation of the result of the last analysis (MKL-3871) is also problematic, but given the origin of the charcoal (from the outer edge of the mound) and the low dating precision, it can be considered coincidental.

FUNCTION AND CULTURAL AFFILIATION

The unusual shape of the mound and the ambiguous nature of the finds pose problems for its interpretation. The most likely hypothesis is that it is a heavily destroyed barrow of the Wielbark culture. This conclusion is based primarily on the results of the radiocarbon dating. Despite the wide range of dates obtained, four of them fall within the period between the middle of the 3rd and the beginning of the 5th century AD, and therefore from phase C_{1b} or C_2 to phase D of the Roman Period and the Migration Period (Godłowski 1974, 86-92; 1988; more recently Mączyńska 2016; 2019, 43). During this period, the settlement of the Wielbark culture was spread over most of the area east of the Lower and Middle Vistula River (see *e.g.*, Wołągiewicz 1986, fig. 14; Andrzejowski 2005, fig. 4; Cieśliński 2014, fig. 1; 2016, fig. 8). Admittedly, today's Białowieża Forest is located near to the eastern boundary of the area of this culture, but several previously unknown sites dated to the Younger and Late Roman Period have been discovered here lately (see further on).

The hypothesis of the Wielbark culture barrow is also supported by other indications, including the character of the discovered relicts. Despite the location of the site in an area that is difficult to access and its form, which is somewhat reminiscent of minor strongholds, a defensive function is unlikely, mainly due to its small size and the lack of traces of any fortifications. There are many indications that the present shape of the mound is the consequence of the destruction, which resulted in the formation of an extensive depression in the central part of the barrow, extending nearly all the way down to its base. In terms of its diameter, which is approximately 10-12 m, it is similar to the pits found in the central parts of many burial mounds of the Wielbark culture from the Upper Narew and Middle Bug River basins, for example, in Rostołty, Białystok district, Site 1, Barrow 2, Jasionowa Dolina, Sokółka district, Site 1, Barrows 2, 7, and 10, and Kutowa, Hajnówka district, Site 1, Barrow 4 (Jażdżewski 1939, figs 2-4, 7, 9, 10, 44, 45; Jaskanis 2012, 16, 70, 72, 75, 134, pls 34, 38, 42, 77). They were created as a result of grave robbery or stone extraction (*e.g.*, Jaskanis 1973, 175-177; 1976, 228; 2012, 7). Due to the high degree of destruction of the barrow and its small extent of excavation, it is currently difficult to determine the type of construction originally located in it. It is most likely that in the central part of the mound, a multi-layered pavement of small and medium-sized stones was laid. Admittedly, the cobblestones that survived at its base, at the top of Layer 22 (Figs 7: 1; 8: 1; 10), did not form a compact structure at the time of the excavation, but this can be explained by the fact that many of them had been taken out before. The lack of stones besides a few small ones at the edge of the mound (in Layer 20) indicates that the construction occupied only its central part. At the same time, the survival of a stone mantle on the slope of the mound (Layer 10), quite visible on the surface, and the robbing of only stones from its centre suggests that the largest specimens were located there, and their occurrence there in large numbers facilitated their extraction. Both of these premises suggest that the stone

construction that had originally been at the base of the barrow, took the form of a core covering only its central part, about 10 m in diameter. Its outer boundary appears to have been formed by a row of somewhat larger stones (Layer 19), with a slightly arched shape (see Figs 7: 1; 8: 1; 9; 10; 12). Thus, the barrow probably belonged to Type 4 of graves with stone constructions according to Ryszard Wołągiewicz's classification (perhaps Type 4b), in which the core was almost completely destroyed and only the lowest layer of stones survived (Wołągiewicz 1977, 71 f.; see Cieśliński 2014, 66-68; 2020, 66 f.). In the vicinity of the Białowieża Forest, Type 4a graves have been found in Kotłówka, Hajnówka district, Site 1 (Barrows 1 and 3) and possibly in Cecele, Siemiatycze district, Site 1 (*e.g.*, Barrows VII and VIII) (Jaskanis 1996, pls 88 and 89; 2012, pls 50 and 57; Cieśliński 2014, fn. 63), while Type 4b graves are known from, among other places, Skiwy Małe, Siemiatycze district, Site 3 (Jaskanis 1973, 174 f., figs 2-4) and Szpaki, Bielsk Podlaski district, Site 1 (Rusin 2008, fig. 3). However, it cannot be ruled out that the stone construction was similar to the Type 1, which was less common in north-eastern Poland, but was present, for example, in Barrow 1 from nearby Kutowa (Jażdżewski 1939, fig. 44; Jaskanis 2012, pl. 61) and in Barrow 1 from Pielgrzymowo, Nidzica district, Site 1 (Lau 2012, 78). Due to the high degree of destruction of burial mounds and especially stone constructions at cemeteries from north-eastern Poland, classification attempts are not always uncontroversial. It seems that, in addition to the five main types of barrows with stone constructions distinguished by Ryszard Wołągiewicz (Wołągiewicz 1977, 71-73), there were also intermediate forms (see Cieśliński 2014, 67). The stones (Layer 10) lying on the outer slope of the mound at Leśnictwo Wilczy Jar were the remains of a mantle (Figs 5-7). Probably some of them, especially the larger ones, were not *in situ* but ended up in this place as a result of the destruction of the core (see Cieśliński 2014, 72; 2020, 68). Undoubtedly, stone mantles covered only some of the burial mounds from the area in question, for example in Kutowa (Barrow 4; Jaskanis 2012, 134, pl. 77), Jasionowa Dolina (Barrows 7 and 12 and possibly Barrow 1; Jaskanis 2012, 68, 72, 76, pls 30, 31, 38, 45), and in Rostołty (Barrows 1 and 2 and possibly Barrow 3; Jażdżewski 1939, 3, fig. 10; Jaskanis 2012, 14 f., 18, pls 3, 8, 13). In general, however, the presence of this type of construction is difficult to confirm due to the poor state of preservation of the barrows (Cieśliński 2014, 72; 2020, 67 f.).

The present dimensions of the mound, apart from its height, are probably not much different from the original ones, so that its diameter did not originally exceed about 17-18 m. This is within the average for graves of the so-called Rostołty type from the area of the Upper Narew and Middle Bug River basins (Cieśliński 2014, 65, fig. 15; 2020, 65 f., fig. 2). In Jasionowa Dolina, the diameter of the barrows ranged from 8 to 21 m, in Rostołty – from 19 to 26 m, and in Kutowa – from 18 to 21 m (Jażdżewski 1939, 4, 16, figs 2, 4, 7, 44, 45; Jaskanis 2012, 14-16, 18, 21, 27 f., 68, 70-72, 74, 76, 78, 126, 129 f., 132, 134, 136). The diameter of about 20% of the Wielbark culture burial mounds in north-eastern Poland lies in the range of 15-19 m (Cieśliński 2014, 65). The height of the barrow at Leśnictwo Wilczy Jar is difficult to determine. At present it is about 0.5 m in relation to the surrounding

trench, but it could have been much higher, depending on the number of stones taken out from the central part of the mound.

If there was a burial in the barrow, it was probably cremated and originally deposited in its central part, at the base of the mound. Evidence of this ritual is provided by the presence of a layer of dark sand (Layer 22) that contained burnt animal bones as well as burnt grave goods of the deceased in the form of fragments of a comb and a clay bowl. It extended from the northern boundary of the trench to the edge of the stone core, so it can be assumed that it had covered the entire central part of the barrow. Similar burnt layers have been discovered at mound bases at several cemeteries of the Wielbark culture in the area, including Barrows 1, 7, and 10 in Jasionowa Dolina (Jaskanis 2012, 68 f., 73, 75, 78), Barrow 5 in Grochy Stare, Białystok district, Site 1 (Rusin 2005a, 214, 223, fig. 2), Barrow 5 in Rostołty (Jaskanis 2012, 27, 29), and Barrow 1 in Teolin, Sokółka district, Site 1 (Rusin 2016, 61, 75). They are interpreted variously – as cremation burials, *ustrina*, or evidence of other ritual activities, such as burning of vegetation preceding the building of the mound (*e.g.*, Rusin 2005a, 223; Jaskanis 2012, 78; Cieśliński 2014, 78-80). Due to the small number of charcoal fragments and the lack of traces of ground burning, it can be assumed that, in the case in question, the cremation of the deceased took place elsewhere, and only the vestiges of the funeral pyre were deposited under the stone core. Burials involving the deposition of the funeral pyre remains directly on the ground surface, have been discovered at several cemeteries from the Upper Narew River basin, including in Teolin (Barrow 1; Rusin 2016, 74), Kutowa, Site 1 (Barrow 3; Jaskanis 2012, 133, 215 f.), and Jasionowa Dolina (Barrow 10; Jaskanis 2012, 75). The burnt layer found at the base of the last of the mentioned barrows is also sometimes interpreted as an *ustrinum* (Jaskanis 2012, 78). The function of the layer discovered beneath the stone core in the central part of Barrow 1 at Szpaki, which was located approximately 2 m east of a pit burial, is unclear (Rusin 2005b, 37 f.; 2008, 296, 305, fig. 3). In addition to the conjecture that this is a second burial, it is also possible to interpret it as the remains of a funeral pyre preserved *in situ* (Cieśliński 2014, 78 f.). Such a hypothesis is also, of course, not completely ruled out in the case of the barrow at Leśnictwo Wilczy Jar, as the incomplete degree of its excavation and the lack of human bones do not allow us to make clear conclusions regarding the type of burial deposited there. It is necessary to mention here the complicated burial ritual of the Wielbark culture and the discovery of scattered items and sometimes burnt human bones in very different parts of the barrows, which are difficult to interpret as proper graves (*e.g.*, Rusin 2005a, 215, 222; 2016, 72-74).

Due to the species composition of the charcoal found in Layer 22, it can be assumed that the wood of deciduous trees like oak, birch, and elm was used as fuel for the funeral pyre. Small branches were also used. The taxonomic composition of charcoal from the Wielbark culture burial grounds of this region varies so much that it does not allow concrete conclusions to be drawn (Czeczuga and Kłyszejko 1976; Jaskanis 2012, 213; Rusin 2016, 61 f.). This may be due not only to the variation in the species composition of the

forests adjacent to the cemeteries, but also to the different sampling locations within the barrow and, consequently, to the various purpose of the individual wood species. This is evident in Barrow 1 in Teolin, where charcoal fragments from Scots pine and maple mainly occurred within the core, oak and hornbeam were additionally distinguished in the surrounding burnt layer, while only birch was found in the supposed cremation grave itself (Rusin 2016, 61 f.). It is noteworthy that in Layer 20 at Leśnictwo Wilczy Jar, extending at the outer part of the stone core, charcoal fragments of a single tree species, namely European ash, were found. Both this fact and the absence of artefacts in the layer lead to the assumption of different circumstances of its formation compared to Layer 22, for example, as a result of vegetation burning to prepare the place for the burial. The European ash is a natural component of the ash-alder floodplain forest overgrowing the Dubitka River valley in the vicinity of the site (Kwiatkowski 1994, 63 f., map; Murawska 2022).

What is puzzling is the absence of human bones in the excavated area, the presence of which would allow to unequivocally confirm the sepulchral function of the mound. This can be explained, on the one hand, by the limited size of the trench and, on the other hand, by the great fragmentation of the osteological material, which made it impossible to identify the majority of bones. Therefore, it is not completely ruled out that among the bones found, there were also human remains (such doubts arise whenever the burnt bone material is highly fragmented, see *e.g.*, Gręzak and Tomek 2021, 335 on the cemetery in Dąbek, Mława district, Site 9). It should also be noticed that numerous examples of Wielbark culture graves, including barrows, in which no human bones were discovered, are known (Skóra 2014, 49). These include the aforementioned Barrow 10 from Jasionowa Dolina, at the base of which there was a layer with burnt animal bones, vitrified pottery fragments, and grave goods, but no human remains (Jaskanis 2012, 75). The complete absence of human remains in the graves or the small number of bones has been interpreted in various ways, including symbolic or partial burials (Skóra 2014, 50-67; further literature there). The sepulchral function of the mound in question, however, is confirmed by the presence of burnt animal bones. These were frequently discovered in cemeteries of the Wielbark culture, for example, in Barrow 3 in Grochy Stare (Rusin 1999, 226) and in Kutowa, Sites 1 and 2, where, interestingly enough, fragments of combs were also found (Stanaszek 2012, 268, 278). Animal bones, although only partially burnt, were also recorded at Rostołty (Jaskanis 2012, 15 f., 18, 20-23, 37) and Jasionowa Dolina, including in the cremation burial pit in Barrow 1 (Jaskanis 2012, 68-70, 83) and in a presumed cremation grave or *ustrinum* in Barrow 10 (Jaskanis 2012, 75). The latter two burial grounds showed a predominance of livestock bones, with cattle remains dominating (Jaskanis 2012, 212 f., table 1). As in the case of the site in question, pig bones were also found in Rostołty, which accounted for 20% of the total archaeozoological material (Jaskanis 2012, 22 f., 37). However, a direct relationship between the animal remains, and the burials at this cemetery is not certain. The presence of burnt animal bones, in addition to human ones, was also recorded in the necropolises of the Masłomęcz group (Rogatko 1991, 153, 165, table 1).

A few words should be written regarding two small features (31 and 45) discovered at the base of the mound. Due to the lack of any finds in their fills, their function is not clear. One of them (Feature 31), due to the presence of several stones, can be interpreted as a potential hearth, while the other (Feature 45) is probably the negative of a sharpened wooden stake. Pits situated under the mounds, which are believed to have ritual function, are known from several cemeteries of the Wielbark culture in north-eastern Poland (Cieśliński 2014, 80; further literature there). Shallow features, interpreted as hearths associated with the burial rite, have been discovered, for example, in Barrows 1 and 2 in Jasionowa Dolina (Jaskanis 1976, 229 f.; 2012, 69-71, 79, pls 31, 34) and Barrow 4 in Rostołty (Jaskanis 2012, 21 f., pl. 17). Unlike the grave in question, these were generally located at the edge of the mounds and contained charcoal with fragments of animal bones and pottery. No artefacts were found in the eight shallow hearths located at the base of Barrow 2 in Rostołty (Jaskanis 2012, 16, pl. 8). Pits of various types, including hearths, were also recorded in Barrow 1 at Teolin, both within and outside the stone core, but their relationship to the grave is not certain (Rusin 2016, 61-64, 76, fig. 14). In contrast, at Grochy Stare, hearths and negatives of vertically driven wooden stakes were discovered at the base of Barrow 5 (Rusin 2005a, 214 f., 223).

A shallow ditch with a width of more than 2 m was located at the edge of the barrow. It is difficult to say whether it served only a practical function (obtaining building material for the mound) or whether it acted, for example, as a symbolic marker of the grave boundary. A similar ditch surrounding Barrow 5 was recorded at Grochy Stare (Rusin 2005a, 214).

At this point, it is necessary to look at the items found in Layer 22. A three-layer comb made of bone or antler, of which two small fragments were preserved (Fig. 15), undoubtedly belonged to the grave goods. Items of this type have relatively frequently been found at cemeteries of the Wielbark culture in north-eastern Poland. The closest find of a bone comb is one discovered in a child's grave at the Hajduki Range in the Białowieża Forest (Leśnictwo Nowe, Site 4, forest plot 396C), which is located approximately 7 km southeast of the site in question (Dzierżykray-Rogalski and Jaskanis 1961). It is preserved almost completely and consists of three plates joined by bronze rivets (Dzierżykray-Rogalski and Jaskanis 1961, fig. 6; Olczak and Krasnodębski 2022, fig. IV.52: 1). The shape of the handle approximates to a triangle with a truncated and rounded vertex, which, according to Sigrid Thomas' classification, indicates Type II of three-layer combs (Thomas 1960, 94-104). At the flat cemetery in Kutowa, Site 2, small comb fragments were discovered in 17 cremation graves (Jaskanis 2012, 161, 166-173, 180, pls 82/5: 1; 82/8: 1; 85/44: 1; 86: Grave 58/1; 87/60: 1). However, only three of them were classified as three-layer specimens. Fragments of a three-layer comb were found at Site 1 in Kutowa, in Barrow 2 (Jaskanis 2012, 131, pl. 70: 1), and fragments of an item of type B II in Pielgrzymowo, in Barrow 3 (Lau 2012, 72 f.). Many more combs were recorded at the cemetery in Cecele – in Barrow V (Burial 2J) and in 117 flat graves (Jaskanis 1996). Some of them were preserved in larger fragments, which made it possible to assign them to five types according to the classification

of Sigrid Thomas (Thomas 1960). There were at least 77 specimens of three-layer combs (Jaskanis 1996, 13-80, pls 4/21: 2; 11: 6; 20/143: 1; 23/163: 1; 24/175: 4; 25/174: 1; 27/204: 4; 29/219: 2; 33/263: 1; 38: 5; 40/346: 1; 48: 3; 53/441: 1; 53/444: 2; 57: 4; 68: 2; 71: 4; 74/548: 3). Bone or antler three-layer combs were also found in Barrows 1 and 2 in Rostołty (Jażdżewski 1939, 10, fig. 16; Jaskanis 2012, 14, 17, 33, pls 4: 2; 10: 9, 9a) and in Graves 219, 279, and 297 at the flat cemetery in Krupice, Siemiatycze district, Site IA (Jaskanis 2005, 55, 65, 67, 105 f., pls 62 and 72), while fragments of a burnt two- or three-layer example were discovered in Barrow II in Skiwy Małe (Jaskanis 1973, 178; 1974, 438, 441, fig. 4). During the research at the Brest-Trishin cemetery in Belarus (Brest District), 24 diverse combs, including three-layer ones of Types I and II, were found (Kuharenko 1980, 52-59, 99-121, pls 6-28). Thus, it is clear that bone and antler combs were one of the more common grave goods of the Wielbark culture, and this was true both in barrows and flat cemeteries.

The second item, found approximately 1 m north of the comb, is a shattered pottery bowl that could be partially-reconstructed (Fig. 14). Its fragments, mostly secondarily burnt, with pieces of charcoal attached to the outer surface, were generally concentrated in an area about 0.4 m in diameter. Although analogies can be found between the shape and manufacturing technology of this vessel and the pottery of many cultural units from the Pre-Roman and Roman Periods, it has the most equivalents among the ceramics of the Wielbark culture. Due to its shape and size, it can be considered a small bowl, classified by Ryszard Wołągiewicz as Type XIVA (Wołągiewicz 1993, 18). The form of these vessels is reminiscent of the large bowls of Type XaA, but they are sometimes characterised by less careful workmanship. They are dated to phases B_2/C_1-D of the Roman Period and the Migration Period (Wołągiewicz 1993, 26). A very similar bowl was found in Grave 3 in the flat cemetery of the Wielbark culture at Białowieski Park Narodowy, Site 33, located approximately 15 km east of the site at Leśnictwo Wilczy Jar (Krasnodębski *et al.* 2008, 368, fig. 8: 6). In general, however, among the finds from the Upper Narew and Middle Bug interfluve, small bowls with a similarly shaped upper part are relatively rare, and this form was given much more often to larger vessels, which were sometimes additionally provided with a handle. Bowls of Type XIVA have been found, among other places, in Barrow III (Jaskanis 1996, 79, pl. 86: 3) and five flat graves at the necropolis in Cecele, while Type XIVB vessels were discovered in another 17 flat graves from this site (Jaskanis 1996, 13, 23, 27, 31, 33 f., 36, 42, 50, 56, 61, 64, 74 f., table 7, pls 17: 4; 19: 3; 23/163: 3; 28/199: 1; 34: 5; 41: 4; 52: 5; 75/556: 4). At least a few bowl fragments of Type XIV have been discovered at the cemetery in Rostołty, including in Barrows 1, 4, and 5, for example, in burial pits and fireplaces (Jaskanis 2012, 15, 22, 24-27, 35 f.; pls 20: 12; 21: 4; 25: 4). The majority of these were classified as Type XIVB. A fragment of a similar vessel also comes from Barrow 1 in Jasionowa Dolina (Jaskanis 2012, 69, 82, pl. 32: 5). Analogous bowls also belonged to the grave goods of two burials at the cemetery in Krupice. A vessel of Type XIVB was found in Grave 147, while an XaA or XIVA type vessel was discovered in Grave 229 (Jaskanis 2005, 41, 57, 110, pls 42 and 64).

Similar to the bowl from the site at Leśnictwo Wilczy Jar, some vessels from the aforementioned cemeteries were also secondarily burnt. Fragments of burnt and sometimes completely vitrified pottery were discovered, for example, in graves and in the burnt layers in Barrows 3, 4, and 5 in Grochy Stare (Rusin 2005a, 223), in Barrow 1 in Szpaki (Rusin 2008, 305), in Barrows 10 and 12 in Jasionowa Dolina (Jaskanis 2012, 75, 77), and in Barrow II (Burial 1) in Skiwy Małe (Jaskanis 1973, 178). It is believed that the vessels were placed on the cremation pyre as grave goods and sometimes ritually smashed during funerary ceremonies (Gałęzowska 2007, 172; Rusin 2008, 305; Jaskanis 2012, 79, 240). As the fragments of the bowl were found at the border of the trench, it is impossible to determine whether it was deposited at the base of the mound in its entirety and shattered under the influence of the weight of the stones, or whether only fragments of it had been placed there. Little can also be said about the small fragment of a rim from Layer 5 other than that it came from another secondarily burnt vessel.

The final element to be discussed in terms of the function and cultural affiliation of the mound is its location. All known barrow cemeteries of the Wielbark culture in north-eastern Poland are located near watercourses, sometimes at a distance of 20-50 m from them, such as the ones in Kuraszewo and Szpaki (Jaskanis 1963, 323, fig. 1; 1976, 227; 2012, 197; Rusin 2008, 295, fig. 1; Cieśliński 2014, 58-62). At the same time, there are also some burial grounds or parts of them that were situated in floodplains, perhaps waterlogged during water surges (Lau 2012, 12-14; Cieśliński 2014, 59; Cieśliński *et al.* 2019, 13). There is no doubt that the barrow in Leśnictwo Wilczy Jar is one of the lowest located of those identified so far, and such processes undoubtedly took place here (a steady process of drying up of watercourses and lowering of groundwater levels is observed in the Białowieża Forest area, see Grygoruk *et al.* 2022, 19, 44). Some reservations regarding the suggested function of the mound in question may also be raised by the fact that it is an isolated grave, which is unusual in the case of cemeteries of the Wielbark culture (Cieśliński 2014, 62-64). However, in north-eastern Poland, cemeteries with a small number of barrows are more common than in Pomerania and Greater Poland (Cieśliński 2013, 70 f.). Those include, for example, Bielawa, Nidzica district, Site 4 (Michalski 2001) and Kuraszewo (Jaskanis 1963). Despite a careful surface search and a dozen or so boreholes made with a window auger, located to the west, south and east of the barrow (Stepaniuk 2017), no traces of flat graves were found around it, and, besides, their presence has to be ruled out by the waterlogged nature of the area. This can be explained by suggesting that the barrow was an initial one at a newly established cemetery that was not subsequently continued. So far, no traces of a settlement of the Wielbark culture have been discovered in its vicinity. From the settlement Leśnictwo Wilczy Jar, Site 8, located about 100-150 m to the east (see Fig. 2), comes pottery preliminarily dated to the Bronze and Early Iron Ages (Krasnodębski *et al.* 2018; Jakubczak 2021, 312 f.) but nothing later.

In conclusion, both in terms of the character of the stone constructions and the finds, the site in question fits well into the image of the Wielbark culture's funerary customs in

the Upper Narew and Middle Bug interfluve. The excavated mound should be considered as a Rostołty type barrow or, as it was recently proposed, a Rostołty horizon barrow (Cieśliński 2014, 85; 2020, 70 f.). Belonging to this group of graves is not ruled out by the small size of the mound nor the lack of valuable grave goods, which may, moreover, be due to the limited scope of the excavation. As already mentioned, the calibrated age of four charcoal samples lies within the range between 234 AD and 426 AD (Table 1; Fig. 16), which corresponds to the times from phase C_{1b} or C_2 to phase D of the Roman Period and the Migration Period. This coincides with the chronology of the Wielbark culture barrows in north-eastern Poland, most of which are dated from phase C_1 (probably C_{1b}) to phase D (Jaskanis 1976, 219-226; Cieśliński 2013, 55 f.; 2014, 53-58). The artefacts found in the barrow are not distinctive enough to make the dating of the burial more precise.

BIAŁOWIEŻA FOREST IN THE CONTEXT OF CULTURAL CHANGES AT THE END OF ANTIQUITY

Excavations at Leśnictwo Wilczy Jar, Site 2 have yielded further information on the area of today's Białowieża Forest during the Roman Period. The settlement in this region, as well as in the whole interfluve of the Upper Narew and Middle Bug Rivers, is still not satisfactorily researched. This applies not only to the Wielbark culture but also to a wider temporal range, from the Pre-Roman Period to the time of the expansion of Slavs (*e.g.*, Barford *et al.* 1991, 133-139, figs 5-7; Andrzejowski 1999, 41-48, fig. 14; 2005, 109-112; Vyargej 1999, fig. 95; figs 1-4; Dąbrowska 2008, maps 2-6; Beliavets 2016a, fig. 2). Suffice to mention that only in 1959 was the first Roman Period site in the Białowieża Forest discovered by accident – a single child's grave in the aforementioned Hajduki Range (Leśnictwo Nowe, Site 4). For a long time, this was the only and isolated testimony of the presence of a 'Gothic' population in the area (Dzierżykray-Rogalski and Jaskanis 1961). In 2003, a small-scale excavation was carried out at a newly discovered necropolis of the Wielbark culture in the Wielka Kletna Range – Białowieski Park Narodowy, Site 33 (Krasnodębski *et al.* 2008), and a year later the first settlement from the Roman Period – Leśnictwo Podcerkiew, Site 1, was tentatively researched. The latter site was associated with communities of a local group of the Hatched Pottery culture (Olczak *et al.* 2018). As a result of excavations and surface surveys carried out in the following years, the number of known archaeological sites from the Pre-Roman and Roman Periods in the Białowieża Forest has increased significantly (Fig. 17). Despite this, the source base for understanding the settlement of this period is still insufficient.

According to the current state of knowledge, the region of today's Białowieża Forest was settled on a larger scale only in the younger Pre-Roman Period (on the sparse evidence of settlement in earlier periods, see Wawrusiewicz *et al.* 2022). It was probably at this time, or slightly earlier, that the settlement of the local group of the Hatched Pottery culture,

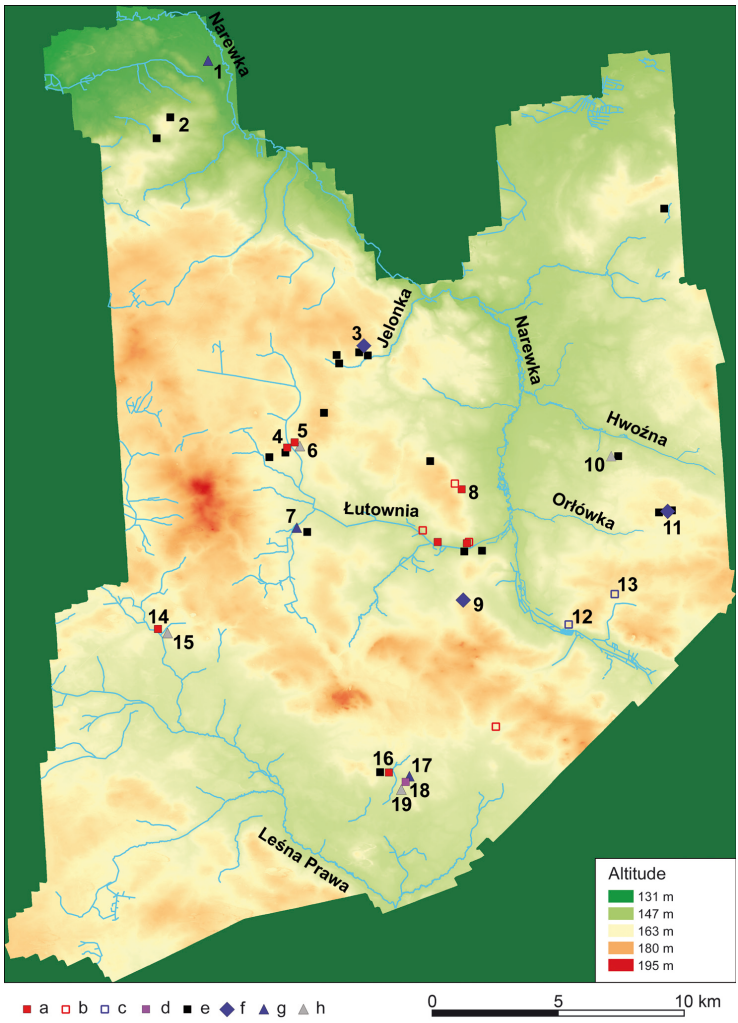

Fig. 17. Location of the sites dating from the Early Iron Age to the end of the Roman Period, situated in the Polish part of the Białowieża Forest: 1 – Leśnictwo Rybaki, Site 3; 2 – forest plot 764B (Krynica forestry); 3 – forest plot 124A (Przechody forestry); 4 – Leśnictwo Postołowo, Site 6; 5 – Leśnictwo Postołowo, Sites 3 and 5; 6 – Leśnictwo Postołowo, Site 4; 7 – Leśnictwo Wilczy Jar, Site 2; 8 – Leśnictwo Teremiski, Site 3; 9 – Leśnictwo Nowe, Site 4; 10 – Białowieski Park Narodowy, Site 22; 11 – Białowieski Park Narodowy, Site 33; 12 – Białowieża, Site 1; 13 – Białowieża, Site 2; 14 – Leśnictwo Sacharewo, Site 9; 15 – Leśnictwo Sacharewo, Site 3; 16 – Leśnictwo Podcerkiew, Site 1; 17 – Leśnictwo Podcerkiew, Site 11; 18 – Leśnictwo Podcerkiew, Site 4; 19 – Leśnictwo Podcerkiew, Site 12. Explanation: a – settlements of the Suraż group of the Hatched pottery culture; b – settlement points and supposed settlements of the Suraż group of the Hatched pottery culture; c – settlement points and supposed settlements of the Wielbark culture; d – settlements of the Wielbark culture and the Suraż group of the Hatched pottery culture; e – settlements and settlement points of an unknown cultural affiliation; f – flat cemeteries of the Wielbark culture; g – barrows and supposed barrows from the Roman Period; h – earth mounds of unknown purpose from the Roman Period or the Migration Period. After Olczak and Krasnodębski 2022, fig. IV.1 (revised)

the so-called Suraż group (*e.g.*, Krasnodębski and Olczak 2002, 220; Olczak 2009; Olczak and Krasnodębski 2018, 153-155) or Suraż-Trościanica group (Beliavets 2004, 256; 2016b, 341) spread here (*e.g.*, Olczak *et al.* 2018; Olczak and Krasnodębski 2022, 89-146; Niedziółka *et al.* 2023). It survived at least until the end of the Early Roman Period and, from the 1st century AD onwards, was part of the post-Zarubintsy horizon, which covered extensive areas in the basins of the Middle Bug, Pripyat, and Middle Dnipro Rivers (Andrzejowski 1999, 42-48; Beliavets 2004, 256 f.; 2016b, fig. 2; Terpilovskiy 2011, 202). The stable settlement developing in the Upper Narew and Middle Bug interfluve under the influence from the forest zone of Eastern Europe may have been one of the reasons for the lack of wider interest in this region in the younger Pre-Roman Period by communities of the Przeworsk culture (Olczak 2009, 263). Although from phase A_2 onwards, a large settlement cluster of this culture existed in the Middle Bug River basin, it probably did not extend beyond the Nurzec River in the north (Godłowski 1984, 114, map 1; Dąbrowska 1988, 73 f., *e.g.*, maps 4, 7, 20; 2008, 83 f., map 3). There is also insufficient evidence for clear influences from the area of the Polesian group of the Zarubintsy culture (Dąbrowska 2004; 2008, 111). At that time, the migration inferred from the written sources of the Germanic Bastarnae and Scirii peoples through these areas from the Jutland Peninsula towards the Black Sea was probably only a short-lived episode for the Upper Narew and Middle Bug River basins (Dąbrowska 2001, 26-28, fig. 2; 2008, 191 f., map 6; Andrzejowski 2005, 112). Archaeological evidence of their presence is provided by artefacts of the Jastorf culture, including a so-called fire dog, found at Site 1C in Haćki, Bielsk Podlaski district (Kobyliński and Szymański 2005, 54 f., fig. III-13; Dąbrowska 2008, 95, 138). In the area of the Białowieża Forest, the only item from the younger Pre-Roman Period that can be connected with the circle of Latčneised cultures is a fibula fragment, probably belonging to the K-M variety according to the typology of Józef Kostrzewski (Kostrzewski 1919), found on the surface or near a settlement of the Suraż group of the Hatched Pottery culture in Leśnictwo Teremiski, Site 3 (Olczak and Krasnodębski 2022, fig. IV.16: 12).

Probably at the beginning of the Common Era, the area in question began to slowly undergo a process of Latčneisation. In the Upper Narew River basin, the oldest finds of the Przeworsk culture can be dated to the developed stage of phase B_2 of the Roman Period (Godłowski 1984, 121; Andrzejowski 1997, 119 f.; 1999, 46 f., fig. 14: B; 2001, fig. 1). The closest to the Białowieża Forest, approximately 11 km to the west of its present boundary, was an alleged cemetery in Lady, Hajnówka district, Site 1. In an accidentally discovered cremation grave, there were, among others, fragments of a vessel typical for this culture (Rajewski 1932, 94 f., fig. 1: 4; Andrzejowski 1999, 47; f. 129). Few artefacts considered to be indicators of the Przeworsk culture were also found at the post-Zarubintsy cemetery in Hryniewicze Duże, Bielsk Podlaski district, Site 2 (Fig. 18), and at the settlement located on the opposite side of the Orlanka River in Zubowo, Bielsk Podlaski district, Site 6 (Andrzejowski 1999, 37 f., 46 f.). Nearly 30 km west of the Białowieża Forest, by the Narew River, there was a Przeworsk culture necropolis in Zawyki, Białystok district, Site 1 (Jas-

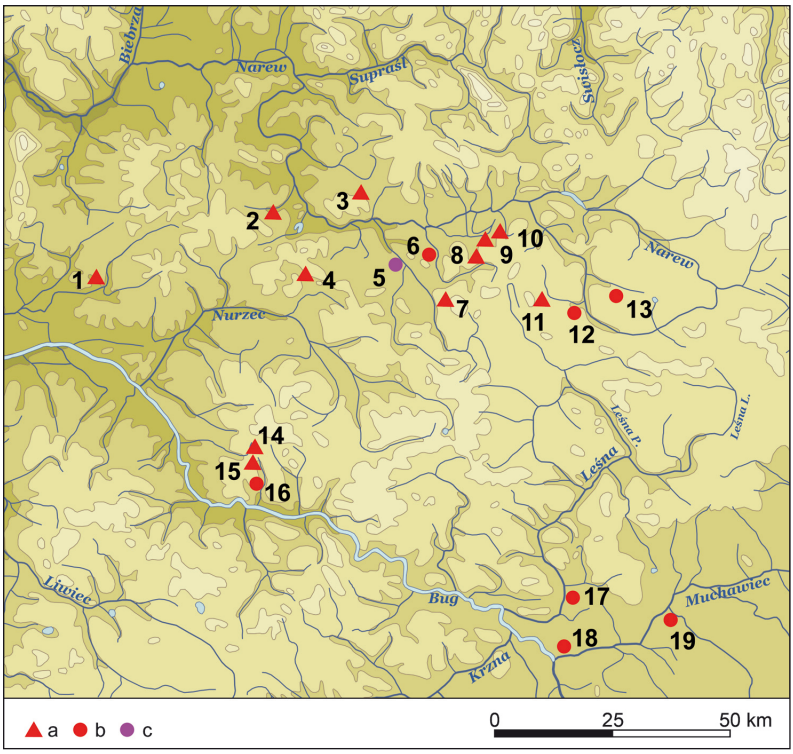

Fig. 18. The most important burial grounds of the Wielbark culture and other cemeteries located in the Upper Narew and Middle Bug interfluve mentioned in the text: 1 – Dmochy-Rodzonki; 2 – Grochy Stare; 3 – Rostołty, 4 – Szpaki; 5 – Hryniewicze Duże; 6 – Pilipki; 7 – Szczyty-Dzięciołowo; 8 – Kuraszewo; 9 – Kotłówka; 10 – Kutowa; 11 – Leśnictwo Wilczy Jar, Site 2; 12 – Leśnictwo Nowe, Site 4; 13 – Białowieski Park Narodowy, Site 33; 14 – Skiwy Małe; 15 – Cecele; 16 – Krupice; 17 – Skorbichy (Druzhba); 18 – Brest-Trishin; 19 – Petrovichi. Explanation: a – Wielbark culture burial grounds with barrows; b – Wielbark culture burial grounds with flat graves; c – other burial grounds. Compiled by H. Olczak (basic map prepared by K. Skrzyńska)

kanis 1962). A similar distance separates the discussed region from the settlement cluster by the Middle Bug River, where in the first centuries AD there were cemeteries in, among other places, Krupice (Jaskanis 2005) and Niemirów, Siemiatycze district, Site 6 (Rusin 2001). However, no clear traces of the Przeworsk culture settlement have been found in the Białowieża Forest so far.

It was not until phase B_2/C_1, with the spread of the Wielbark culture, that the Upper Narew and Middle Bug interfluve entered the range of influence of the Central European *Barbaricum* for good (see *e.g.*, Okulicz 1970; Jaskanis 1976; 2012; Jaskanis and Okulicz 1981; Andrzejowski 2001; 2005; 2007; 2019; Cieśliński 2014). A number of cemeteries are associated with the so-called Cecele phase, the closest of which are located on the edge of the Białowieża Forest, only 17 km north-west to the barrow in question (Fig. 18). These

include the already mentioned sites at Kutowa, Kotłówka, and Kuraszewo, forming a complex consisting of 14 barrows and a flat cemetery (Jażdżewski 1939, 16; Jaskanis 1963; 2012, 106-194), dated to phases C_2-D (Jaskanis 1976, 220 f.; 2012, 181, 248). Furthermore, in addition to the aforementioned cemeteries that have been excavated, incidental discoveries from presumed burial grounds in Szczyty-Dzięciołowo, Site 2 (Jaskanis 1970) and Pilipki, Site 6 (Okulicz 1970, 468-477; Beliavets *et al.* 2018; older literature there), both in Bielsk Podlaski district, also originate from this region. Luxurious artefacts comprising the grave goods of a single burial of a woman (who undoubtedly belonged to the local elite) discovered in Pilipki, testify to the connections of this area with Scandinavia in the C_{1b} phase (Beliavets *et al.* 2018, 173, 177-179). Approximately 30 km to the west of the Białowieża Forest are barrows in Rostołty (Jażdżewski 1939, 2-12; Jaskanis 2012, 14-65) and Szpaki (Rusin 2005b; 2008), and a little further away in Grochy Stare (Rusin 1998; 1999; 2005a). The first of these mentioned barrows probably date to phases B_2/C_1-C_1 and are among the oldest graves of this type in the area of the Biebrza and Middle Bug interfluve (Jaskanis 2012, 37, 246 f.). The cemeteries at Szpaki and Grochy Stare are dated to phases C_2 (Rusin 2008, 306; Jaskanis 2012, 247) and C_{1b}-C_2, respectively (Rusin 1998, 196; 1999, 232; 2005a, 225). On the other hand, about 50 km southwest of the Białowieża Forest, there is the largest and best studied flat and barrow necropolis in the Upper Narew and Middle Bug interfluve – Cecele, which was presumably used from the Pre-Roman Period (phases A_2-A_3) to phase C_3-D of the Roman Period and the Migration Period (Jaskanis 1996, 111 f.). A distinctive feature of the burial rite of the Wielbark culture in north-eastern Poland is the presence of barrows of the so-called Rostołty type, with elaborate stone constructions and often rich grave goods, which are considered to be burials of the tribal elite (*e.g.*, Jaskanis 1976, 247 f.; Mączyńska 2007, 13; Jaskanis 2012, 196, 209, 245; Cieśliński 2014, 82 f.). Numerous cemeteries and settlements of the Wielbark culture are also known from the southwestern part of Belarus, from the basins of the Middle Bug and Pripyat Rivers. The sites located closest to the Białowieża Forest include those in Skorbichy (now Druzhba, Brest District) and Petrovichi, Zhabinka District, as well as the most important of the excavated cemeteries of this region, Brest-Trishin, used from the last quarter of the 2nd to the beginning of the second half of the 3rd centuries (Fig. 18; *e.g.*, Kuharenko 1980, 60-63; Vyargej 1999, 302 f., fig. 95; Andrzejowski *et al.* 2005, 19 f., 22-29; Beliavets 2007, map 1; 2014; 2016a; further literature there).

Taking into account the results of excavations and stray finds, it can be assumed that the areas of the Upper Narew and Middle Bug River basins were quite densely settled in the Younger and Late Roman Periods. Despite this, the region of the Białowieża Forest, located between the above-described settlement clusters, was until recently placed at the edge of the area occupied by the Wielbark culture population (see *e.g.*, Andrzejowski 1999, figs 14: C, D; 2005, figs 3 and 4). As already mentioned, the discoveries of the last twenty years have clearly changed this picture, shifting its extent visibly to the east. Several settlements and cemeteries of the Wielbark culture are currently known from the Białowieża

Forest, and several more are sites of unknown cultural affiliation, generally dated to the period between the 2nd/3rd and 5th/6th centuries AD (Fig. 17; Olczak and Krasnodębski 2022, 119-163). One of the newly discovered settlements of the Wielbark culture is situated in the southern part of the Białowieża Forest, in Leśnictwo Podcerkiew, Site 4 (forest plot 578B/D) (Olczak and Krasnodębski 2022, 120-122). Another one is probably Białowieża, Site 1, located in the centre of the village (Olczak and Krasnodębski 2022, 123). A trace of some unspecified activity related to the Wielbark culture is also probably a glass bead of the TM 254a type (Tempelmann-Mączyńska 1985), found in the fields north of Białowieża, at Site 2 (Górska 1976, 116, fig. 2d; Olczak and Krasnodębski 2022, fig. IV.34). Analogous ornaments were widespread from phase B_2 or B_2/C_1 until the beginning of the Migration Period (Tempelmann-Mączyńska 1985, 53). As recent research has shown, a presumed settlement of the Wielbark culture was also located in the north-western part of the Białowieża Forest, in forest plot 764B, within the former Ladzka Forest (Pawleta 2017; Zapłata 2019a; Zapłata 2019b). Two coins from the second half of the 2nd century AD, discovered during the penetration of the forest with metal detectors – a denarius of Emperor Commodus and a fourrée of Faustina the Younger – also come from the same region (Zapłata *et al.* 2019, fig. III.31). It is also possible that one of the occupation phases at Leśnictwo Sacharewo, Site 9 (forest plots 412B and 413A) is associated with the Wielbark culture. Although the pottery from this settlement is hardly typical of this culture, such a chronology may be indicated by the results of radiocarbon analyses and a denarius of Marcus Aurelius of 162/163 AD found there (Olczak and Krasnodębski 2022, 111 f., 123; Niedziółka *et al.* 2023). A black opaque glass bead, most probably belonging to the TM 11 type, dated from phase B_2-C_1 to phase D (Tempelmann-Mączyńska 1985, 27, pl. 1: 11), was also found at the site (Niedziółka *et al.* 2023, fig. 10B: 8).

Among the burial grounds, the best excavated is the flat cemetery with cremation graves in Białowieski Park Narodowy, Site 33 (forest plot 345A; Fig. 17), dated to phases C_{1b}-D of the Roman Period and the Migration Period (Krasnodębski *et al.* 2008; Olczak and Krasnodębski 2022, 126-133). A second, possibly similar necropolis is located in forest plot 124 (Kądziela 2019; Zapłata *et al.* 2019, 52). The next presumed burial ground, where a single inhumation grave from the phase C_{1b}-C_2, possibly C_2, has been found to date, is the already mentioned Site 4 in Leśnictwo Nowe (Dzierżykray-Rogalski and Jaskanis 1961; Kokowski 1995, 106; Olczak and Krasnodębski 2022, 134 f.).

So far, however, no barrows of the Wielbark culture have been known from the Białowieża Forest. Although several earthen mounds have been investigated here in recent years, which chronologically seem to fall within the time span from the Younger Roman Period to the Migration Period (Fig. 17), their connection with this culture is poorly documented. Indeed, no stone constructions, which were typical of Cecele phase barrows (Jaskanis 2012, 210; Cieśliński 2014, 66-72; 2020, 66-68), have been discovered in any of them. The first of these sites is Leśnictwo Podcerkiew, Site 11 (forest plot 578B), which is part of a multicultural settlement cluster located by the small Jamienka River, in the

southern part of the Białowieża Forest. Its location is very characteristic – on a small 'island' of about 0.5 ha, surrounded by marshes and periodic streams. Eight earthen mounds, each about 10 m in diameter and 0.3 to 0.5 m high, have been found there. At the base of the partially excavated Barrow 5, a layer with burnt planks was discovered, with the bow of an iron fibula, probably of the Almgren 161-162 type (Almgren 1923), and two very small fragments of burnt bones (due to their size, it is uncertain whether they are from a human skeleton). A radiocarbon date of 1905±30 BP was obtained for the burnt wood, which, after calibration, lies within the range between the first half of the 1st century AD to the beginning of the 3rd century AD (Olczak and Krasnodębski 2022, 135-140). Another group of barrows, which may date from the Younger or Late Roman Period, is located in the Ladzka Forest, at Leśnictwo Rybaki, Site 3 (forest plot 750A). It consists of six earthen mounds ranging from about 15 to over 20 m in diameter and up to about 0.8 m in height (Oszmiański 1996, no. 71; Jakubczak *et al.* 2021, 70-79; Olczak and Krasnodębski 2022, fig. IV.57). Beneath the mound of the partially researched Barrow 2, in its centre, a presumed burial pit was unearthed, in which, among other things, three bone fragments and small parts of a copper or bronze object, possibly an appliqué, were found. A glass bead was also discovered during the research (Rutyna and Szubski 2018). Two further groups of mounds are also similarly dated, but no human remains were recovered from them, so their sepulchral function is uncertain: Leśnictwo Postołowo, Site 4 and Leśnictwo Sacharewo, Site 3. The first cluster, consisting of six loosely scattered flat barrows, approximately 11-15 m in diameter and quite variable in height, ranging from 0.4 to 1.0 m, is located by the Łutownia River, on the south-eastern edge of the Szczekotowo multicultural settlement cluster, in forest plot 214D (Olczak and Krasnodębski 2022, 147-152). Under the partially excavated Barrow 112, on its edge, a small cobblestone pavement with a vessel set on it was discovered. It has the most analogies among the miniature forms of Wielbark IC-type pots (Wołągiewicz 1993, 12, pl. 3). Fragments of another vessel, probably also of IC type, were found in a small pit covered by a mound, probably a hearth. The results of radiocarbon analyses indicate that the barrow was built between the mid-2nd and mid-6th centuries AD, with the highest probability between the early 3rd and mid-4th centuries AD (Olczak and Krasnodębski 2022, 151 f.). The other cluster (Leśnictwo Sacharewo, Site 3) is located in forest plot 413A, in the forks of the Leśna Prawa River and an unnamed watercourse flowing into it, a short distance southeast of the already mentioned settlement Leśnictwo Sacharewo, Site 9. There are ten earthen mounds here, ranging from 7 to 12 m in diameter and varying in height from 0.3 to 1.1 m (Krasnodębski *et al.* 2019; Olczak and Krasnodębski 2022, 153-159; Niedziółka *et al.* 2023). A very interesting artefact that was found in the upper part of the excavated Barrow 3 is an iron bow-shaped spur of type F3b, which, according to the classification of this category of items in the Przeworsk culture, can be dated to phases C_{1a} and C_{1b} of the Roman Period (Ginalski 1991, 66 f., 74). The results of radiocarbon analyses of charcoal and plant remains taken from the two mounds (Barrows 3 and 5) suggest that they were built between the second half of the 3rd century and the beginning of

the 7th century AD (Olczak and Krasnodębski 2022, 158, table IV.1; Niedziółka *et al.* 2023, table 2). There are also other groups of earthen mounds for which radiocarbon dates have been obtained that date them to the end of Antiquity or the beginning of the Early Middle Ages (Szubska *et al.* 2020; Olczak and Krasnodębski 2022, 394, 396-398, table VII.1). However, due to the lack or limited size of excavations, their exact chronology, function, and cultural affiliation are unclear for the time being. One of them is Białowieski Park Narodowy, Site 22 (forest plot 257C/D), which contains an interesting group of approximately 100 small mounds with stone constructions, including stelae (Okulicz 1969; Górska 1976, 132; Krasnodębski and Olczak 2012, table 2; Dzik 2015, 126; Olczak and Krasnodębski 2022, 141 f.). Another one is a cluster of earthen mounds at Leśnictwo Podcerkiew, Site 12 (Krasnodębski and Olczak 2012, 159-163). To complete the description of archaeological finds from the Late Roman Period, mention should also be made of a fragmentarily preserved crossbow fibula, probably of the Almgren 161 type, discovered on the surface or in the vicinity of the settlement at Leśnictwo Teremiski, Site 3 (Olczak and Krasnodębski 2022, fig. IV.16: 13).

Other evidence for the relatively well-developed settlement network in the area of today's Białowieża Forest during the Roman Period comes from the results of palynological investigation (Latałowa *et al.* 2015; Latałowa *et al.* 2016; Zimny *et al.* 2017). It is most likely that partial deforestation associated with farming occurred here for the first time in the first centuries AD. Two pollen profiles from the Białowieża National Park area gave radiocarbon dates of 226±131 BC and 24±83 BC, thus coinciding with the settlement of the Suraż group of the Hatched Pottery culture, while another yielded dates of 469±70 AD and 492±73 AD, which may correspond to the late phase of the Wielbark culture or the early phase of the Early Middle Ages (Latałowa *et al.* 2015, 246, table 17.1; 2016, table 2). The earliest evidence of cereal cultivation, including pollen from rye (*Secale cereale*), dates to circa 50 AD (Latałowa *et al.* 2016, 11). In the period between the 1st and 5th centuries AD, in addition to rye, pollen of barley (*Hordeum*) and wheat (*Triticum*), as well as hemp (*Cannabis sativa*), which was also found in seed form, were recorded (Zimny *et al.* 2017, 48). However, the average percentage of anthropogenic pollen indicators from the Białowieża National Park area does not exceed 2-5%, while in the case of cereals it is less than 0.5% (Zimny *et al.* 2017, fig. 11). There is also evidence of animal husbandry and grazing, confirmed by the presence of pollen from meadow and pasture plants, including ribwort plantain (*Plantago lanceolata*) (Latałowa *et al.* 2015, 249; 2016, 33; Zimny *et al.* 2017, 48). Another indicator supporting the deforestation of part of the area is the high proportion of micro-charcoal, suggesting the use of slash-and-burn cultivation (Latałowa *et al.* 2015, 249). Burning of parts of the forest and its thinning are also evidenced by an elevated frequency of fungi spores of the genus *Gelasinospora* and pollen and spores of light-tolerant plants, such as heather (*Calluna vulgaris*), melampyrum (*Melampyrum* sp.), and bracken (*Pteridium aquilinum*), common in fire-affected habitats (Zimny *et al.* 2017, 47). The high magnitude of disturbance to the species composition of forest habitats, with a relatively

low proportion of pollens from cultivated plants, may indicate developed metallurgical production, manifested by an increased demand for certain wood species used in smelting iron in bloomeries (Latałowa *et al.* 2015, 257). Evidence of iron production in the Early Roman Period has been confirmed, for example, at the aforementioned settlement of the Suraż group of the Hatched Pottery culture at Leśnictwo Podcerkiew, Site 1 (Olczak *et al.* 2018).

It is not yet clear to what extent the development of settlements in the first centuries AD caused the creation of agricultural field systems in the Białowieża Forest (Olczak and Krasnodębski 2022, 408-430, fig. VII.43; further literature there). As already mentioned, their discovery became possible thanks to the use of airborne laser scanning data in recent years. The relics of the field systems have the form of barely visible low banks that are parallel and perpendicular to each other and are of varying length ranging from several tens to several hundred metres. Their width is about 2-5 m on average, sometimes reaching up to about 8 m, while their relative height generally does not exceed 0.2-0.3 m, rarely reaching about 0.5 m. The banks surround areas that are roughly quadrangular in shape and range in size from a few ares to over 1 hectare. The embanked fieldplots in the Białowieża Forest resemble in many respects the systems of ancient agricultural fields known in North and West Europe as 'Celtic fields' or 'fossil fields' and usually dated there from the Late Bronze Age to the Roman Period (*e.g.*, Gerritsen 2003, 172-180; Lang 2007, 103-105; Arnberg 2009). In the Białowieża Forest, the banks extend over higher parts of the morainic upland, located at quite varying distances from major watercourses. The area of the smallest clusters is a few hectares, while the most extensive ones are several tens or even hundreds of hectares. The concentration of embanked fields is noticeable in the vicinity of multicultural settlements, which had often been occupied (although not continuously) from the Pre-Roman Period until the Early Middle Ages, like in the Szczekotowo Range (forest plots 213 and 214), the Jelonka Range (forest plots 123 and 124), the Zamczysko and Obołonie Ranges (forest plot 281), in the micro-region by the Jamienka River (forest plots 545 and 578), and the settlement cluster in the Ladzka Forest (forest plots 759 and 760) (Olczak and Krasnodębski 2022, 409-427, figs VII.44, VII.52, VII.56, VII.58-60). The results of radiocarbon analyses of charcoal and other plant remains taken from banks located in several places in the Białowieża Forest indicate that they may have been constructed during the Roman Period, but also, for example, in the Early Middle Ages (Stereńczak *et al.* 2020, fig. 10; Krupski *et al.* 2022, table. 9; Olczak and Krasnodębski 2022, 413; Niedziółka *et al.* 2023, table 2).

This brief overview of archaeological discoveries from the last twenty years proves that during the Younger and Late Roman Period, settlement of the Wielbark culture spread in the area of today's Białowieża Forest. The sites described above probably represent only a small part of the settlements and cemeteries from this period that could be found here. This area, due to many years of neglect, still requires intensive and multidirectional activities in the field of archaeological research. The same postulate applies to the Belarusian

part of the Białowieża Forest, where investigations are even less advanced than in the Polish part. With the exception of a few stray finds (for example, at least two bronze eye brooches of the Prussian series found about 6 km east of the village of Kamyanyuki, Kamyenyets District), no archaeological sites dated to the Roman Period have been known from there so far. However, it is already possible to conclude that the settlement patterns prevailing in today's Białowieża Forest in the Younger and Late Roman Period did not differ in general outlines from the picture we know from the rest of north-eastern Poland. The region became part of the Central European *Barbaricum* in contact with the Roman world at this time, as evidenced, for example, by stray finds of Roman coins from the reigns of Marcus Aurelius and Commodus (Zapłata *et al.* 2019; Olczak and Krasnodębski 2022, 111 f., 123; Niedziółka *et al.* 2023, fig. 11), as well as the presence of imported glass objects in the cemeteries (Dzierżykray-Rogalski and Jaskanis 1961, fig. 5: d, e; Krasnodębski *et al.* 2008, figs 4: 3, 8; 5: 1, 4; 10: 1, 2, 4, 5). As was the case in the whole territory occupied by the Wielbark culture (*e.g.*, Gałęzowska 2007, 166-171; Kokowski 2007, 129-158; Jaskanis 2012, 214-216; Cieśliński 2016, 232-236), a diversity of burial rites was also characteristic for the area of the present-day Białowieża Forest, which on the one hand manifested itself in the practice of both cremation and inhumation, and on the other in the establishment of flat cemeteries and, as shown in the research at the site Leśnictwo Wilczy Jar 2, the erection of barrows with stone constructions.

The discussed mound, located 17 km southeast of the important Wielbark culture settlement cluster in Kotłówka, Kutowa, and Kuraszewo, is the easternmost grave of the Rostołty type (or Rostołty horizon). The Białowieża Forest thus appears to be a transitional area between the western part of the Upper Narew and Middle Bug interfluve, where Wielbark culture barrow cemeteries are quite numerous, and the Belarusian Pobuże region, from where they are not yet known (Vyargej 1999, 302 f.; Beliavets 2016a, 405). However, it should be noted that such a picture may be due to the already mentioned insufficient state of excavation research. At the same time, this is the only barrow with features typical of the Wielbark culture graves researched in the Białowieża Forest so far. Indeed, the other earthen mounds described above cannot, for the time being, be considered unquestionably as graves of this culture, mainly due to the lack of stone constructions in them. Thus, despite the items from the mounds dating to the Roman Period and the results of radiocarbon dating, their cultural affiliation is not entirely clear. The dominance of the Wielbark culture communities in the Younger and Late Roman Periods in the present-day Białowieża Forest does not exclude influences from other cultural zones. Above all, the survival in some enclaves of populations of the Suraż group of the Hatched Pottery culture, which from the 1st century AD onwards belonged to the broader post-Zarubintsy horizon, must be reckoned with. As in the rest of the Upper Narew and Middle Bug River basins, in the Białowieża Forest, Wielbark settlers often occupied areas that had already been inhabited. This phenomenon can be observed, for example, in the Szczekotowo Range and in the micro-region by the Jamienka River, which had been occupied by communities of the

Suraż group in the Early Roman Period (Olczak and Krasnodębski 2022, 90-98, 107-109, 120-122, 147-152). It cannot be ruled out that an acculturation process took place with regard to the communities of the Suraż group, analogous with that that occurred in the case of the population groups of the Wielbark and Przeworsk cultures, whose close contacts are attested, among other things, by the use of the same cemeteries (Wołągiewicz 1981, 86 f.; Andrzejowski 2005, 117; Cieśliński 2016, 226 f.; Andrzejowski 2019; 2020, 21-28). In addition to the Wielbark culture necropolis in Kutowa, where, among other things, a bronze ringed pin of the Zarubintsy culture was found (Jażdżewski 1939, fig. 62), a very good example of permeation of multi-cultural influences is the cemetery in Hryniewicze Duże. This site, located a little further west, was used in phases B_2 and B_2/C_1 of the Roman Period (Szmit 1922; Andrzejowski 1999). In fact, in the grave goods from this necropolis, in addition to the predominant post-Zarubintsy elements, clear influences from the Wielbark culture, Przeworsk culture, and the West Baltic circle are also visible (Andrzejowski 1999, 30-48). It is very likely that in the Białowieża Forest, which is a border region between the Central European *Barbaricum* and the Eastern European forest and forest-steppe zones, a peculiar cultural conglomerate was formed, which, however, it is not possible to characterise in detail at the present stage of research.

Despite these reservations, there is now no longer any doubt that in the Białowieża Forest there are barrows from the Roman Period, and not – as was thought until recently (*e.g.*, Górska 1976, 124-128; Bieńkowska 2005, 242) – exclusively Early Medieval burial mounds. Subsequent research will probably lead to the discovery of more Wielbark culture graves in this area, as in both the Polish and Belarusian parts of this forest complex, there are numerous clusters of mounds with morphological features where such an origin is not ruled out. It should be expected that in the near future the settlement area of this culture, which is currently artificially delimited in this region on the eastern border of Poland (*e.g.*, Cieśliński 2016, fig. 8), may be moved even further east.

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