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8th-10th century hillforts in the Sudetes – exploring current state of research and observations, towards new horizons

ABSTRACT

The article presents the latest results of archaeological studies on the 8th-10th century hillforts in the Sudetes. The authors present previously unknown structures, found through the analysis of aerial scans using the ALS method. Excavation and office studies conducted since 2005 in the Sudetes also allowed for correcting the chronology of some previously known hillfort sites. The article also presents a discussion on the structures referred to as 'quasi-hillforts' and those considered to be destroyed. The findings are concluded by a summary of changes in the archaeological research of the early medieval Sudetes over the last 15 years, i.e. since the publication of the last monograph devoted to hillforts in this part of Central Europe.

KEYWORDS

Early Middle Ages, hillforts, the Sudetes, LIDAR

I. INTRODUCTION

Early medieval hillforts from the Sudetes have been regularly presented in subject-related publications since the 19th century. They became part of the tourist and cultural landscape, which is often reflected in old graphics (Fig. 1.1.), photographs and postcards (Fig. 1.2). Over two hundred years of field search for previously unknown structures fascinated new generations of archaeologists, who conducted multifaceted field survey, probing and excavations. Hillforts constitute a particularly interesting group among the relics of the earliest defensive structures in the Central European Lowlands, particularly Slavic hillforts built between the end of the 8th century and the second half of the 10th century. Similar structures had been certainly built before. Wooden, earth and stone defences started to be erected on a larger scale by the population of the prehistoric Lusatian culture at the end of the Bronze Age and during the Hallstatt period of the Iron Age (Niesiołowska-Wędzka 1974). Then, the tradition disappeared for over 1,000 years and returned along with the emergence of Slavs in Central Europe at the turn of the 8th and 9th centuries, i.e. in the tribal sub-period of the early Middle Ages.

Hillforts were not based on the immediate, past local cultural and construction traditions (prehistoric defensive structures ceased to be built in these areas around the middle of the 1st millennium BC), although quite often adapted the Hallstatt ruins, unoccupied for several previous centuries. After the fall of the Avar Kaganate, in the last decade of the 8th century, inspirations for their creation could have reached the Western Slavic region from the main European civilization centres of that time – Byzantium and the Carolingian Empire. It is assumed that the shape and character of Slavic military construction in the last centuries of the 1st millennium AD were strongly influenced by Carolingian cultural influences (Jaworski 2005, 268–269; Wachowski 1996, 55; 1997, 46). This issue requires further in-depth research, both on a macro and micro scale. One of the related phenomena pertains to hillfort-based settlement in different parts of the Slavic territories (Andrzejewski, Sikora 2017; Antoniewicz, Wartołowska 1964; Biermann 2011; Buko 2013; Curta 2004; Jaworski 2005; Kaletynowie, Lodowski 1968; Kouřil, Procházka 2018; Lutovský 2001; Poleski 2004; Bialeková 1989; 1992; Sláma 1981; 1986; Slivka, Vallašek 1991).

The territorial scope of the abovementioned publications covers either historical lands or geographic units. The fact that some of these lands developed territorially (in Poland e.g. Silesia, Lesser Poland or Pomerania) in the

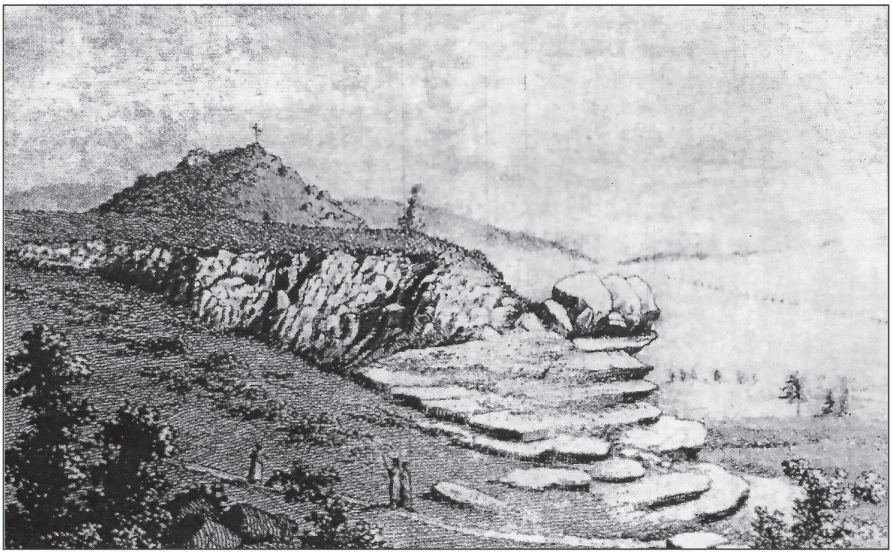

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FIG. 1. Breite Berg (Basalt Mountain) near Strzegom: 1 – drawing by J. Engels from 1809 showing quarries; 2 – siding railway tracks leading to the quarry intersecting the hillfort embankment on Szeroka Mountain (based on Bersu 1930, p. 5, 9)

11th or even 12th century, poses a methodological problem. Hence, studies on various aspects of early medieval culture may be more objective if considered within geographical units with their natural boundaries, internal physiography and hydrographic network. One of such clearly outlined geographical

units in the landscape of Central and Eastern Europe are the Sudetes – the highest massif among the "Old Mountains of Europe" and part of the superior geological and geographical unit known as the Czech Massif (apart from the Sudetes, it also includes the following ranges: Ore Mountains, Šumava, Rhön, Thuringian Forest, Franconian Forest, Bohemian Forest and Bavarian Forest). The Sudetes, with its highest peak Śnieżka (1602 m above sea level; situated in the Karkonosze Mountains), are currently on the territory of three countries – the Czech Republic, Poland and Germany.

Throughout the Middle Ages, the Sudetes were on the border between various Central European political structures. In the 9th century, they separated the Great Moravian State from its northern neighbours – Slavic tribes, inhabiting the area later known as Silesia (Buko 2005; Moździoch 2017; Wachowski 1997). In the last quarter of the 9th century, the Czech state located to the south of the Sudetes and ruled by the first Přemyslids, considerably gained in importance, and during the 10th century it began to expand its borders to the north, perhaps also influencing the northern, Silesian foreground of the Sudetes. From the mid-10th century, the borders of another important player on the political map at that time began to shift towards the Sudetes – the Polish state ruled by the Piast dynasty. The German East March also started expanding to the east around at the same time (968 AD), initially to the Lausitz region. It was symbolically marked by the establishment of a church diocese in Meissen, i.e. formerly Slavic settlement on the western frontier of the Sudetes, to christianize the Slavic Lusatian Serbs. The system of Slavic tribal settlements in the catchment of the upper Odra, that is in the Sudetes and at its foothills, was completely disintegrated during the inevitable clash of political interests among these three powerful political and economic entities. The newly erected hillforts in this area are referred to as early state (or 'castellan') hillforts in the subject literature. and were an essential element in exercising the princely (and later royal) power in the territories of the ruler.

Differentiating often similar in form prehistoric hillforts from those created in different phases of the early Middle Ages associated with the tribal period (end of the 8th century to the end of the 10th century) was a time-consuming procedure, based on a series of excavation and surface studies performed by several generations of researchers. The summary of these works was a monograph on Slavic hillforts in the Sudetes published at the beginning of the 21st century, which presented 64 structures, discovered and verified as late 8th-10th century settlements from Polish (Silesian), Czech (Czech and Moravian) and German (Lusatian) parts of the Sudetes (Jaworski 2005, 33–35).

In the conclusion of his work, the author expressed the conviction that the number of sites from that time will certainly be significantly expanded as a result of new field and office studies (Jaworski 2005, p. 327). It turns out that shortly after writing those words, Polish archaeologists obtained another important tool, which revolutionized research on the relics of past settlement: making LIDAR data from ALS scanning available to the general public as a 'side effect' of the constantly developed national flood protection system (ISOK). The first overview maps appeared on the website www.geoportal.gov.pl in 2013 and covered mainly mountainous areas of southern Poland. Since then, the regularly extended territorial scope of the data became a tool used in many fields of science.

Currently, technology allows for identifying settlements through maps showing the results of laser scanning. For Central Europe, such studies based on shaded relief models, often supported by aerial photographs and non-invasive prospection, were undertaken for prehistoric, medieval and modern sites (Andrzejewski, Sikora 2017; Engel, Sobczak 2019; Furmanek *et al.* 2015; Furmanek, Wroniecki 2018; Gojda, John, Starková, 2011; Kittel *et al.* 2019; Mackiewicz, Myślecki 2015; Rodak, Wroniecki 2019; Šebková, John 2014). So far, such analyses encompassing the Sudetes have been scarce, covering selected medieval and modern periods (Chorowska *et al.* 2017; Duma *et al.* 2020; Fokt, Legut-Pintal 2018; Legut-Pintal, Rajski 2019, Lisowska, Rodak 2020; Migoń, Latocha 2018).

Unfortunately, the experience gained by researchers from prehistoric and medieval times with all the possibilities offered by the laser scanning data analysis, cannot be unreflectively used for the early Middle Ages, including the study of hillforts. For example, while the DTM form of a typical late-medieval village is so characteristic that its chronology can be determined with a high degree of probability using historical sources, the discovery of a structure resembling a hillfort is only an indication for an archaeologist, requiring further verification. It may as well turn out to have completely different origins and date (e.g. abandoned ponds surrounded by dikes, clay and gravel pits, structures protecting fields and plots against soil sinking). Moreover, finding a structure of evidently military nature does not automatically provide the information most important for an archaeologist – chronology. Hence, the practice of archaeologists specializing in early medieval period does not differ much from their colleagues from the first decades of the 20th century: they have to select structures used in various periods of prehistory and later times out of many lists of Silesian (including the Sudetes) fortifications with

an indefinite chronology and stone-wood-earth embankments, developed by Vug and his successors (Vug 1890).

The last 15 years that have elapsed since the publication of the monograph on 8th-10th century hillforts in the Sudetes (Jaworski 2005) have brought many discoveries that allow us to see many issues raised by the publication in a new light. The new findings were made during excavations and studies on the material culture of the already discovered hillforts, as well as completely new archaeological sites, including the ones found using the numerical terrain model analysis. In the article, the authors also want to draw attention to quasi-hillforts, alleged hillforts and structures that were considered to be completely destroyed, and to which researchers did not pay much attention. Updated and verified chronology of settlements will also be presented.

II. THE STATE OF RESEARCH ON SUDETIAN HILLFORTS

The first studies on Sudetian hillforts date back to the first half of the 18th century. Initially, they had the form of descriptions of old fortifications relics preserved in the landscape and other monuments of material culture located in their immediate vicinity (stone sculptures, millstones, possible objects of worship within the hillforts or their immediate vicinity, pottery, etc.). These pioneering activities of mainly Silesian and Lusatian archaeologists (the interest in this issue in the Czech part of the Sudetes began a little later) have already been presented many times in the archaeological literature (Kramarek 1969, 1970; Richthofen 2004; 2009, 45–55; Jaworski 2005, p. 14 f.; Rodak 2017, p. 21 f.), so here we will limit ourselves to a few remarks summarizing their most significant results. Pioneering inquiries from the 18th to the first half of the 20th century focused both on identifying and cataloguing the discovered structures, as well as trying to define their functions and chronology (Drescher 1867; Schuster 1869; Vug 1890; Zimmermann 1874). The publications of that time were of a different nature than the later archaeological studies. They mostly included multifaceted monographic studies devoted to individual hillforts or their group, in which the form of former defensive structures was given the same attention as their geographical and natural context, as well as their history both mentioned in legends and documented by written sources. They were written in the spirit of the late Enlightenment research on landscapes (the so-called *Heimatkunde*) developed in Germany and treated, especially in the country of its origins, as a separate scientific sub-discipline. Its theoretical

foundations were created by the theologian and educator Christian Wilhelm Harnisch, who worked in Breslau (currently Wrocław) in the years 1812-1822. In the nineteenth century, excavations of Sudetian hillforts were still carried out to a very limited extent. The first large-scale study under the supervision of Oskar Schuster took place in 1873 on the Basalt Mountain in the Strzegom Hills (Breiteberg bei Striegau). In the 1870s, Rudolf Virchow studied the Lusatian part of the Sudetes, excavating the hillforts in Landeskrone and Rotstein, both located in the Lusatian Foothills (Richthofen 2003: 272). With the development of scientific activity and the increase in the number of publications at the turn of the 19th and 20th century, the scale of archaeological research conducted in Silesia also increased. Survey work and excavations were undertaken by various institutions: *the Schlesisches Museum für Kunstgewerbe und Altertümer in Breslau* and the Wrocław University, as well as *the Gesellschaft für Anthropologie und Urgeschichte der Oberlausitzitz* and Görlitz and Bautzen museums in Lusatia region. The work carried out at that time was still based mainly on surface prospecting, but more and more often it also took the form of larger excavations (Raschke 1927; Bersu 1930; Petersen 1931; Uhtenwoldt 1942). In the Silesian part of the Sudetes, regular excavations were carried out in Niemcza and Strzegom, and short research expeditions and amateur excavations covered hillforts in Będkowice, at the top of Ślęża, Mount Krzyżna near Karpniki, Myślibórz, Witostowice, Gilów and Piotrowice. In the Lusatian part of the Western Sudetes, the excavations were carried out in Białogórze, Budziszyn, Koźlice, Landeskrone (basalt peak within the boundaries of today's Görlitz), Niedów, Pieńsk, Tylice, Zawidów and Zatonie. In the Czech part of the mountains, archaeologists studied the hillfort in Andělka-Loučna (Schubert 1906, 117; Jaworski 2005, 51). All these studies were summarized by the Wrocław geographer and geodesist Max Hellmich in the manuscript *Catalogue of Silesian Settlements* published at the end of the 1920s, currently kept in the archives of the City Museum of Wrocław (Hellmich 1930; Demidziuk 2014).

After World War II and resettlements in Central Europe resulting from decisions made during the Potsdam Conference (1945), archaeological research on the northern side of the Sudetes became the domain of Polish archaeologists. Research on the Silesian defensive facilities of the early medieval Slavs was given priority and in 1949 included in the so-called 'millennium studies program', related to the 1966 millennial anniversary of Polish statehood (related to the baptism of Prince Mieszko I in 966). From today's perspective, two trends in archaeologists' activity can be distinguished at that time:

publication of existing materials known from past literature and excavation of previously unexplored sites. Initially, the former had a form of general catalogues, often prepared by researchers from centres outside Silesia (Antoniewicz, Wartołowska 1964). In time, more detailed works began to be published, resulting from both thorough study of previously acquired artifacts and the implementation of the 'millennium program' (Kaletynowie, Lodowski 1968; Lodowski 1980; 1990). First Polish excavations aimed at establishing the functions and chronology of a Sudetian hillfort were undertaken on Ślęża and in Niemcza at the turn of the 1940s and 1950s (Hołubowicz, Hołubowicz 1952; Hołubowicz, Kaźmierczyk 1963). They were covered both by the nationwide millennium program (see Kurnatowska 1997; Młynarska-Kaletynowa 2017; Szczerba 2017) and based on individual initiatives of Silesian archaeologists and monument conservators (Lodowski 1990). It is worth noting that in the first decades after World War II, historians (mainly medievalists and regionalists) and sightseeing experts were also interested in the issues related to early medieval Sudetian hillforts. Thanks to the latter group, many hillforts were included in tourist maps published by Państwowe Przedsiębiorstwo Wydawnictw Kartograficznych (National Cartographic Publishing House), though not all of them had been archaeologically confirmed as actual relics of defensive structures.

By the end of the 1970s, numerous scientific expeditions were carried out in the Sudetian hillforts at the initiative of Wrocław archaeologists. Regular excavations were conducted in Niemcza, Gilów, Będkowice, Niedów, Dobromierz, Witostowice, Rzymówka and within the Ślęża massif (Lodowski 1980, older literature there). In the 1980s and 1990s, the interest in such structures slightly decreased among researchers, with the Gilów hillfort being the only regularly excavated site at that time (Jaworski 2005, p. 76 ff.). The first two decades of the 21st century were the period when research on Sudetian fortifications regained momentum. A number of surface, survey and excavation studies were carried out in Sudetian hillforts, including Bolesławiec, Gierów, Gniewków, Grodziszcze, Jelenia Góra, Koźlice, Myślibórz, Nawojów, Nowy Kościół, Pietrzyków, Romanów (Gromnik), Tylice, Witostowice (Rodak 2017) and Zawidów. In parallel to field activities, a project entitled "Atlas Grodzisk Wczesnośredniowiecznych z obszaru Polski" (Atlas of Polish Early Medieval Hillforts) was initiated in 2014, an interactive database of hillforts from the Polish territory (Moździoch 2019; www.atlasgrodzisk.pl).

The results of field and office studies obtained in recent years changed the existing knowledge of archaeologists and historians on various aspects

of early medieval defensive structures in the Sudetes. It happened through extending the scope of research on previously known hillforts and studying artifacts obtained in its course with new analytical methods. In many cases it enabled refining the chronology of many known structures (e.g. hillforts in Dobromierz, Jelenia Góra Grabary or Gniewków). However, it should be emphasized that over the last few decades, a relatively small number of new, previously unknown structures was included into the list of Sudetian hillforts (e.g. a hillfort on the eastern slope of Ślęża and in Wałbrzych – Stary Książ; Domański 1996; Jaworski 1994).

III. METHODS: VERIFYING HILLFORT CHRONOLOGY AND LOCATION

In 2013, a shaded relief model for a part of Poland was published at www.geoportal.gov.pl, performed by aerial laser scanning carried out under the National IT Protection System (ISOK: isok.gov.pl). The theoretical foundations for the method were developed a few years earlier (Devereux *et al*. 2008; Opitz, Cowley 2013) and despite some of its imperfections, it revolutionized recognizing historic and geomorphological structures, allowing for viewing the terrain at any time and place.

Using the ISOK program assumptions and the resulting metadata (geoportal.gov.pl), the Sudetes were examined in terms of previously unknown and difficult to interpret structures. If possible hillforts were noticed on numerical terrain models, a research procedure was undertaken including the following steps: the given structure was measured and analysed in terms of its geomorphology, followed by field visit and surface prospection including the potential hillfort interior and its immediate surroundings. Often at this point, ceramic material was obtained, which allowed for an initial determination of chronology. The final stage consisted of survey and excavation studies, in some cases combined with non-invasive magnetic prospection. The latter, due to the rocky ground and complex geological conditions in the Sudetes, often brought distorted and difficult to interpret results (Mackiewicz *et al*. 2018). This is also related to the mosaic geological structure of the Sudetes, which makes them different from both the lowlands and other ranges such as the Carpathians or the Alps.

Both field and office studies also encompassed cartographic publications, which placed hillforts in places unknown to archaeologists or not included

in any catalogues. This mainly concerns tourist maps published in Poland in the 1950s and 1960s (Fig. 2.1). Every hillfort symbol on a tourist map with high circulation and many editions published between the 1950s and 1980s required field prospecting and verifying not only the chronology, but also the physical presence of such structure, as such points often did not correspond to archaeological data (scientific studies and monument conservator's lists). Thus, such marking introduced information chaos that the authors of this publication wanted to eliminate. Some of the hillfort symbols have been positively verified, but in other cases the military function or even existence of such structure was questioned (e.g. Ponikwa and Gorzanów in the Bystrzyckie Mountains in the Kłodzko Region, or Przeworno and Przerzeczyn-Zdrój situated in the Niemcza-Strzelin Hills – see Table 2).

Along with publishing the updated physical and geographical division of Poland (Solon *et al*. 2018), the ranges of some Sudetian regions have also changed (Kondracki 2001, Potocki 1993; 1994) (Fig. 2.2). The Niemcza-Strzelin Hills were extended to the east, thus the early medieval Sudetian hillforts should include the sites in Gierów, Strzegów and Wieliczna (the latter is also referred to in literature as Wilanówka or Jagielno). The borders of the Izerskie and Kaczawskie Foothills were shifted to the north, which made it possible to include the destroyed Pieńsk hillfort to the Sudetes (Kaletynowie, Lodowski 1968, 114–115).

At the same time, field and office studies resulted in refining chronology and function of sites considered by some researchers as early medieval hillforts. Such chronological verification included military structures in Karpniki (Sokolec castle ruins on Mount Krzyżna, north of the village) and Otok (a hillfort situated west of the village, on the eastern edge of the Bóbr river terrace). The previously proposed dating and origins of the structure in Karpniki was based on a set of 11 spearheads, discovered during amateur excavation at the 14th-15th century Sokolec castle in 1904. In 1939, Ernst Petersen dated the spearheads to the 6th-8th century and suggested correcting the chronology of the Mount Krzyżna hillfort (1st phase - 6th-8th century, 2nd phase – 14th-15th century; Petersen 1939a, 61; 1939b, 130). Such dating, although with some reservations, was maintained by later researchers (Lodowski 1980; Jaworski 1996; 2005). Discovering these spearheads in the Giant Mountains Museum collection, for many years considered to be lost during World War II, enabled their typological and chronological verification. According to new findings, they were created in the late Middle Ages and should be dated to the 14th-15th century (Marek 2008, 38–39, 93–100). Therefore, there are currently

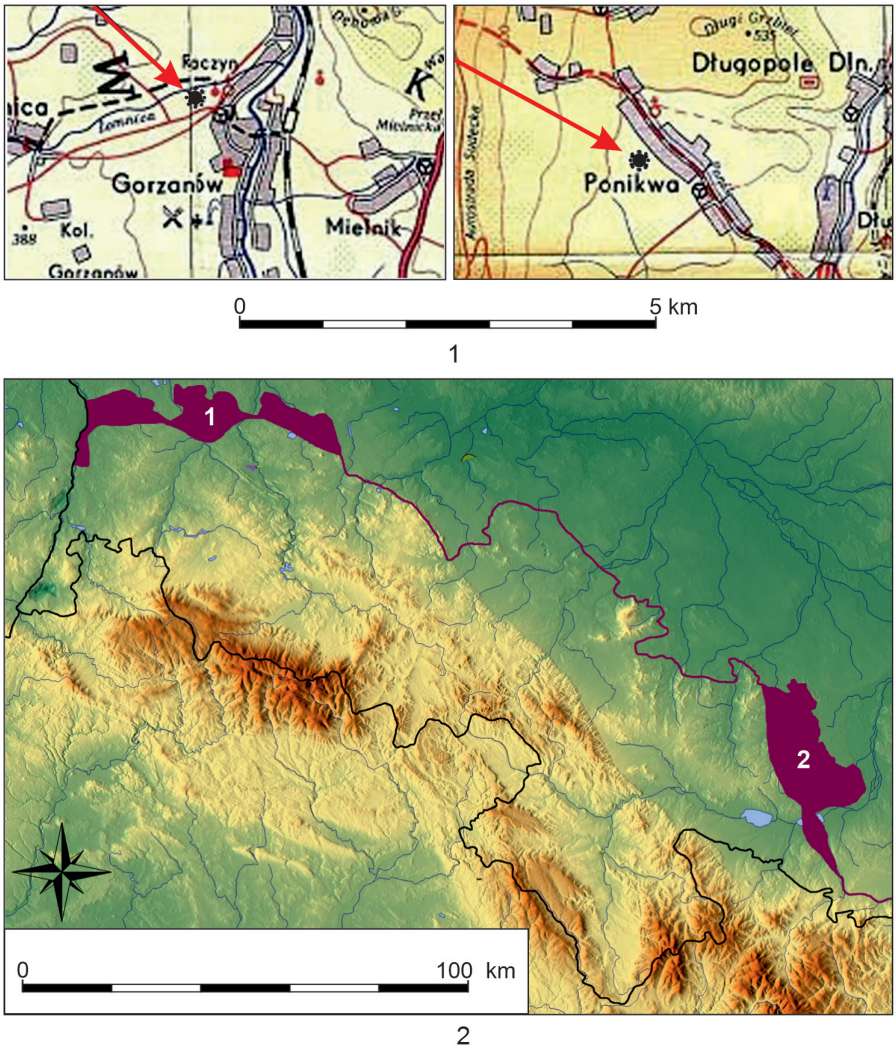

FIG. 2. 1. Incorrectly identified hillforts in Gorzanów and Ponikwa, marked in a tourist map (compiled by E. Lisowska, background: Ziemia Kłodzka 1978). 2. Changes in the Sudetes border introduced in 2018. Expanded areas marked in violet: 1 – Jizera Foothills expanded by southern part of the Lower Silesian Forest and the Chojnów Plain; 2 – Niemcza-Strzelin Hills expanded by Wawrzyszewsko-Szklarskie Hills (compiled by E. Lisowska, based on Kondracki 2001 and http://geoserwis.gdos.gov.pl/)

no archaeological or written sources allowing to consider the Karpniki site as early medieval (Chorowska *et al.* 2009, 209–210; Jaworski 2009, 146–147).

Before 2013 when shaded relief model released, verification of the known hillforts was conducted only by the field prospection. During this time in case of several sites their chronology had been changed. In turn, the Otok hillfort, previously associated with the so-called early state phase (11th-12th century) should in fact be dated to the 9th-10th century, i.e. the tribal period according to the early medieval chronologic division of the Western Slavic region. The basis for such correction were ceramic materials found on the surface of the site. Thus, the Otok hillfort can be included in the Kwisa-Bóbr group of Sudetian structures existing in the 9th and 10th century (Jaworski 2005, 38). Similar corrections and shifting some of the Sudetian sites from early state to tribal settlements group apply to several other Polish (Gromnik, Gniewków, Zawidów) and Czech (Křenov-Mařín) sites (see Jaworski, Pankiewicz 2008a; Rodak 2017, 209 ff. for details on chronologic corrections).

IV. NEW RESEARCH ON SUDETIAN HILLFORTS

Since the last monograph on early medieval Sudetian hillforts (Jaworski 2005), a program of regular studies on such sites was continued in the Polish part of the region, including surface prospecting, surveying and, most notably, excavations (Table 1). The results have already been partially published (Jaworski, Pankiewicz 2008a; Jaworski 2009; Lisowska 2016; Rodak 2009; 2017), and the findings regarding the site location and chronology are presented below. Some of the most important publications on Sudetian hillforts include books by A. Pankiewicz (Pankiewicz 2012) and S. Rodak (Rodak 2017), verifying the chronology of the most common pottery artifacts found within hillforts. Regular excavations conducted since 2005, which provided new information from the previously known 9th-10th century structures, covered the following sites: Bolesławiec (Rodak 2009, 2010), Gierów (unpublished), Gniewków (Werczyński, Rodak 2011; 2012; Rodak 2009), Gilów (Jaworski, Pankiewicz 2008c), Gromnik (Jaworski, Pankiewicz 2007; 2008a), Jelenia Góra - Grabary (unpublished), Koźlice (Fokt *et al*. 2008; Fokt 2013), Myślibórz 2, Myślibórz 4 (Lisowska, Rodak 2020), Nawojów (unpublished), Nowy Kościół (Lisowska 2016), Pietrzyków (unpublished), Stary Książ (unpublished), Tylice (Fokt *et al*. 2008; 2011; Fokt, Rodak 2008), Witostowice (Samborski, Sych 2015), Zawidów (unpublished).

Research conducted within these hillforts led to the discovery of new households and storage pits (Bolesławiec, Gniewków, Gromnik, Pietrzyków). Additionally, in the case of Jelenia Góra - Grabary hillfort, we discovered a broad open settlement complex from the 9th-10th centuries, located on a wide plateau below the hillfort. Among the artifacts discovered within these strongholds, items related to local economic activity deserve special attention, including iron coulter, knives, whetstones and spindle whorles. In the case of two sites (Gromnik and Nowy Kościół), houses set on the stone foundations were found, which are the example of a rare type of early medieval household construction in the Sudetes, previosly known only from Gilów hillfort.

During the surface prospection, and after 2013 also using shaded relief models, four new 9th-10th century fortifications were discovered (Fig. 3-5). Their chronology was determined based on the discovered ceramic artifacts. Three of them are located in the slightly lower, northern part of the Sudetes: in two adjacent mesoregions of these mountains – the Wałbrzych Foothills (Pietrzyków) and the Kaczawa Foothills (two hillforts in Myślibórz: sites 4 and 10). The fourth newly discovered settlement is the site in Jemna in the Owl Mountains, located about 60 km to the southeast of the other three.

The Pietrzyków hillfort (Dobromierz commune) was established on the edge of the escarpment overlooking the valley (Fig. 4). The teardrop-shaped structure is surrounded by distinct embankments on three sides, up to 2 m high. The excavation conducted in 2017 allowed for establishing the site chronology for end of 9th and 10th century. During the study, a half-dugout from the tribal period, relics of an old road surrounding the site and horseshoes from the 13th-14th century were also discovered on the site, indicating its later re-use (see also: Boguszewicz 1998).

Another two hillforts were discovered in the Myślibórz Gorge (administratively within Myślibórz village, Paszowice commune). Both sites (4 and 10) had been previously reported as structures of undetermined chronology. Numerical terrain models for both of them have also been recently developed as part of spatial analyses on defensive assumptions in Silesia (Legut-Pintal, Rajski 2019, 28). The first hillfort, marked as Myślibórz site 4, is located on a rocky headland and has a transverse embankment, up to 2m high. The second was built on top of the Skałka Mountain and marked as Myślibórz site 10 (Fig. 5). It is a multi-unit complex with an interesting and complicated embankment outline: some of its sections are 1 m wide at the base and 0.5 m high, while at the top of the mountain there are fragments reaching 3 m height and 4-5 m width at the base. Excavation and surface

FIG. 3. Newly discovered hillfort in Jemna: 1 – digital terrain model; 2 – south-eastern view (photo: E. Lisowska, DTM: geoportal.gov.pl)

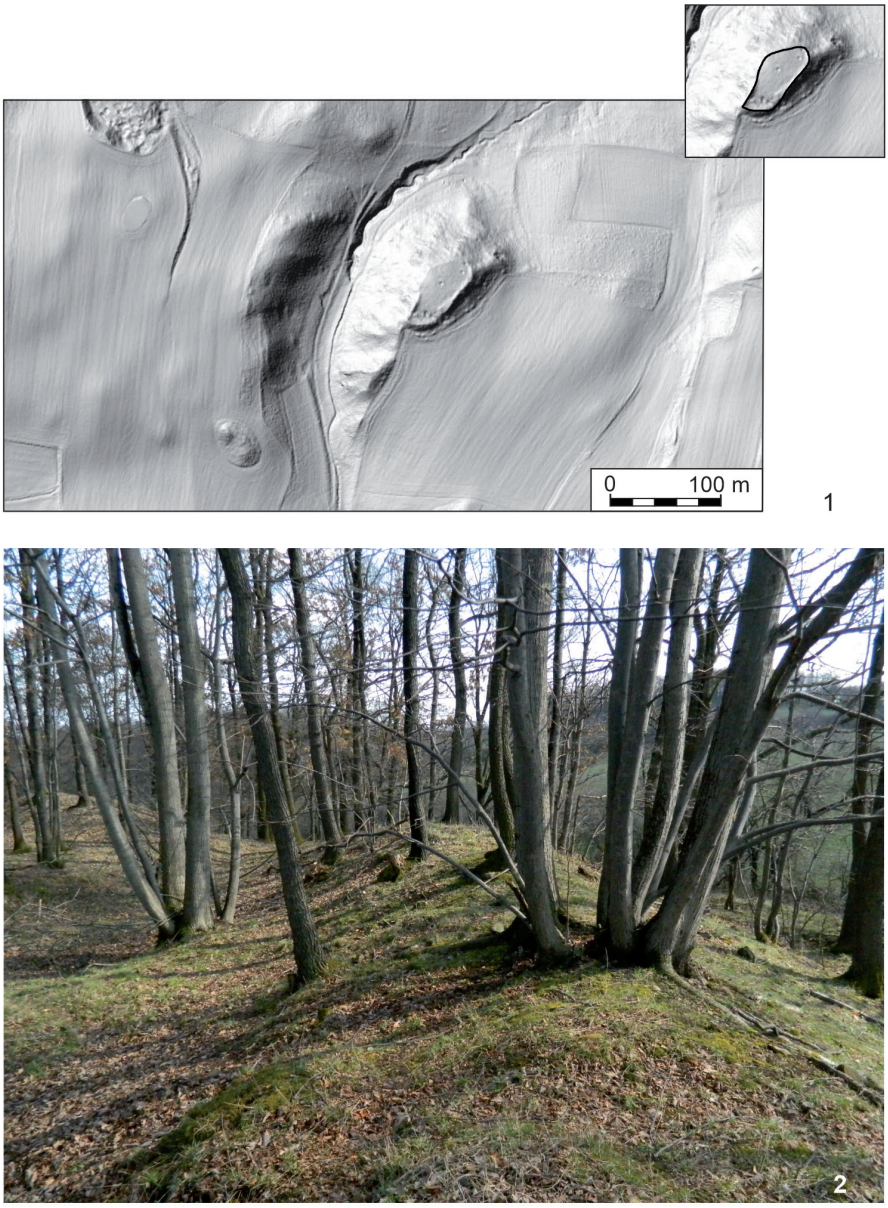

FIG. 4. Newly discovered hillfort in Pietrzyków: 1 – structure model; 2 – southern view of the embankment (photo: E. Lisowska, DTM:geoportal.gov.pl)

FIG. 5. Newly discovered hillfort in Myślibórz: 1 – structure model; 2 – north-eastern view (photo: E. Lisowska, DTM: geoportal.gov.pl)

studies carried out in 2018 (Lisowska, Rodak 2020) provided artifacts allowing to establish the chronology of both hillforts for the end of the 9th and 10th century. It was also confirmed by radiocarbon tests of coal samples taken from embankments and structures found in Myślibórz sites 2 and 4 (Lisowska, Rodak 2020). Based on radiocarbon dating of the samples from sites 2 and 4 in Myślibórz and on analogies in the form of ceramic materials, we can date the site 10 in Myślibórz for the similar period. The pottery obtained from a small trench on the site 10, represents a full set of features analogous to the pottery from the sites 2 and 4.

The last new hillfort in Jemna near Ząbkowice Śląskie is a two-part complex, situated within the lower parts of the ridge on the south-eastern edge of the Owl Mountains (Góry Sowie), at the mouth of a small valley open to the east (Fig. 3). The fortifications have the form of closed embankments, reaching 5 m at the highest point and disappearing almost completely in the lower parts of the hillfort. During surface prospection in 2014, 9th-10th century vessels fragments were discovered here (oral information from A. Boguszewicz).

V. THE ISSUE OF ALLEGED AND QUASI-HILLFORTS

Apart from sites with a recognized chronology and function, there are structures in the Sudetes which, due to their form, may be considered as alleged or quasi- hillforts. They are recorded both during traditional and aerial surface prospection (photograph analysis), as well as laser scanning image analysis.

A site was considered by the authors as alleged if it has not been excavated and no pottery were found on their surface, is surrounded by structures resembling relics of embankments or moats (visible on the shaded relief model and in the field), and its form, size and the location corresponds to the already known Sudetic hillforts or those located in the neighbouring areas. They may resemble some of the so-called transitional period castles, i.e. early feudal Central European defensive structures from the 13th century which made use of natural terrain strategic conditions as well as wooden and earth fortifications instead of masonry (Boguszewicz 2010). During the field survey, the structures referred to in this study as alleged did not provide any artifacts that would support their dating. Looking for relics of possible defensive structures (embankments or moats) also did not allow for unequivocal confirmation of their origins and functions, leaving the final verdict on the issue for future excavations.

In turn, quasi-hillforts are similar in dimensions and form to the 9th-10th century structures, but are much less clear on the numerical terrain model and in the field. Surface, excavation and metal detector prospection was conducted simultaneously within these sites. Despite the use of several methods, neither their chronology nor function could be established. The main reason was the lack of artifacts, which should be found given the appropriate amount and area of surveys and prospection. Such activities proved to be reliable by large-scale verification studies of Lower Silesian hillforts conducted in the 1950s and 1960s (Kaletynowie, Lodowski 1968).

Wojciech Chudziak (2017, 44–54) wrote about quasi-hillforts, considering the term to be incorrect for describing structures broadly understood as problematic (elevations, holy mountains, headlands). According to Chudziak, the characteristic feature for a hillfort is 'an artificial delimitation of space, and only then its function'. Apart from some formal shortcomings in this statement, the authors agree with its message, suggesting that the term should be used for structures distinguishable in the landscape or on a numerical terrain model, with a poorly marked outline referring to the plans and sizes of known hillforts. Defining the function and chronology of these anthropogenic or natural formations is difficult or even impossible to establish, even despite the use of excavation or surface methods, as well as non-invasive prospection techniques. On the other hand, the prefix quasi (translates as "almost" [almost-hillfort] or "somewhat" [somewhat-hillfort]) does not indicate the intention to create such a form in the Middle Ages, which would justify the use of such terminology (examples below).

So far, two of the Sudetian structures described in literature have been identified as alleged hillforts – Dębowy Gaj site in the Izera Foothills and Mount Grodowa site in Nielestno, Kaczawa Foothills (Legut-Pintal 2017, 58–59). During surface prospecting conducted in Dębowy Gaj, several fragments of vessels dated generally to prehistoric and medieval periods were discovered. A magnetometer prospection and aerial photos analysis were also carried out, which allowed for recognizing possible relics of heavily damaged embankments (Furmanek 2017, 72–78). In Nielestno such research was not carried out due to the rock formations accompanying the site.

In the course of analysing shaded relief maps and field research, other structures were identified that can be considered as alleged hillforts of unknown chronology. They can be divided into two main types: the remains of transverse and curved embankments separating a given space (most often a headland) and structures with oval embankments.

Transverse and curved embankments similar to the ones identified in, e.g. Stary Książ and Myślibórz, were noticed in four places. The first is visible on the elevation north of the Sędziszowa village in the Kaczawa Foothills. It is located on a nameless, gentle upland plateau about 360 m above sea level towering over the hamlet of Różana (Fig. 6.3, 7.4). This 60 m long embankment is closed by a headland towering over the Kaczawa Valley. It is difficult to see on the shaded relief model and reaches a maximum height of 20–40 cm. Its interior shows clear anthropogenic changes. The second structure with a curved embankment was recorded on a hill in the northern part of the Grobla village in the Kaczawa Foothills (Fig. 6.2; 7.2). The clearly visible embankment is 100 meters long and about 1 meter high. Another curved embankment was discovered in the area of Stary Książ (Wałbrzych), on the Mount Skiba hill (433 m above sea level, the highest elevation in the area of the Książ and Stary Książ castles (Fürstenstein/Fürstenberg). This embankment is 190 m long and reaches 120 cm in its highest point (Fig. 6.5; 7.3). A similar structure was noticed in Boguszyn near Kłodzko (Fig. 6.4; 7.5). The embankment is 190 m long and 50–200 cm high. All the above-mentioned sites close the space delimited by the slope, creating a flat plateau with a suitable surface for potential development.

Several structures were included among the early medieval alleged hillforts with a circular embankment. The first located in the southern part of Bardo, at the border with the Opolnica village, on a hill called Kozioł in the Bardo Mountains (Fig. 6.1; 7.1). It has an oval shape with a diameter of 25 and 30 m. It is strategically positioned (a great vantage point, natural defences), at the mouth of the gorge opening the Mandra Valley. Taking into account geomorphological conditions, this passage is the most convenient way connecting the Kłodzko Land with the Sudetic Foreland it could have been the north-south route connecting Silesia with the area of Bohemia, heading towards Prague. The hillfort surroundings also show significant anthropogenic changes. In the course of surface prospecting, no artifacts allowing to establish the chronology were found. The structure has not been excavated.

Another alleged hillfort is located on a rocky hill in the Pomocne village (Męcinka commune). This structure may in the future be classified as quasi-hillforts. The elevation it is located on is a volcanic burrow, which determines its specific shape. The structure has not been excavated but is described in literature as an alleged hillfort (Legut-Pintal 2018).

The next site is situated on the Dębowe Hills (part of the Niemcza–Strzelin Hills) east of Niemcza (Fig. 6.6; 7.6). The almost 2 km long embankment encloses the area of 15 hectares – such an extensive site has not yet been noted

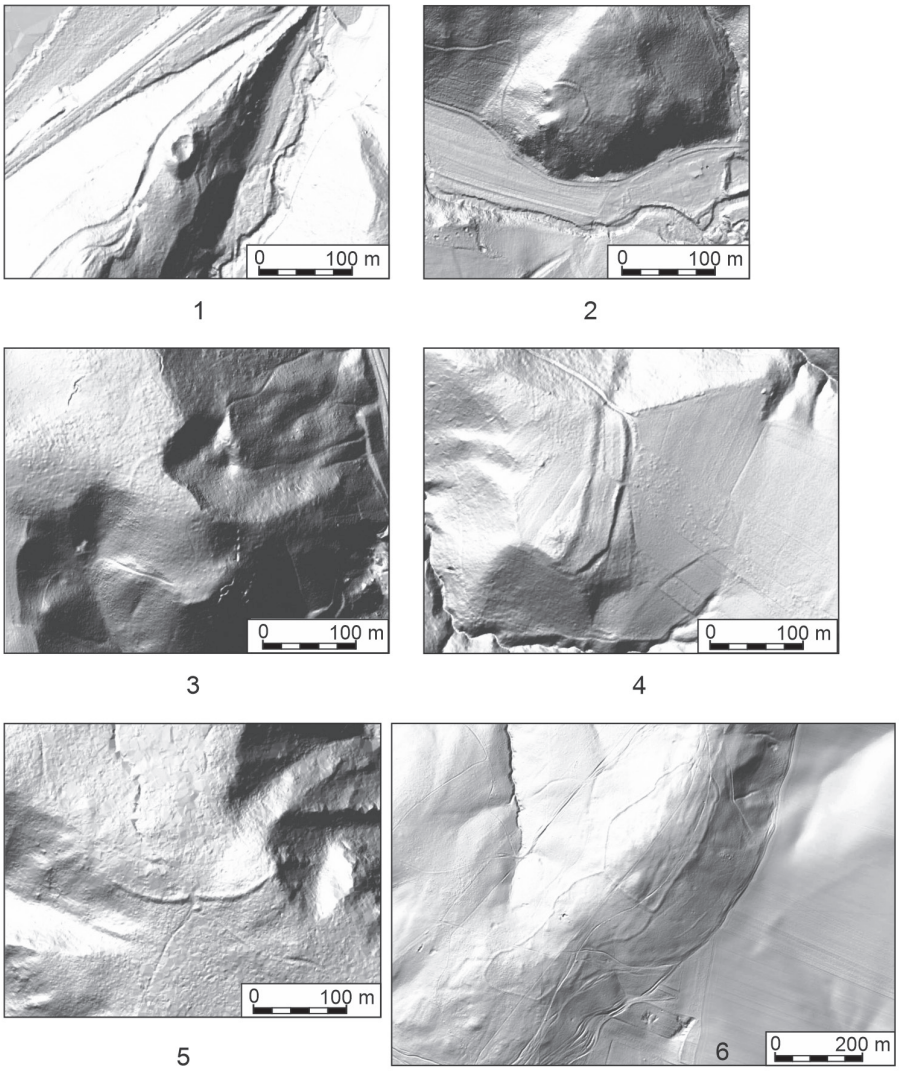

FIG. 6. Digital models of the new hillforts and objects: 1 – Opolnica; 2 – Grobla; 3 – Sędziszowa (Różana); 4 – Boguszyn; 5 – Stary Książ (Mt Skiba); 6 – Niemcza (Dębowe Hills) (produced by E. Lisowska, DTM: geoportal.gov.pl)

among the Sudetian hillforts. At its highest point, it reaches only 50 cm. Considering its unusual shape and large size, it is most probably not a hillfort relic. It should also not be interpreted as an animal pen, which can for instance be observed on the slopes of Ślęża, as they are much smaller and built on

FIG. 7. Newly discovered hillforts of unconfirmed chronology: 1 – Opolnica; 2 – Grobla 3 – Skiba (Stary Książ); 4 – Różana (Sędziszowa); 5 – Boguszyn; 6 – Enclosure near Niemcza (photo K. Jaworski & E. Lisowska)

rectangular and square plans (Chudzik 2013; Komorowski 2016). Nevertheless, the structure located on the Dębowe Hills was undoubtedly created as a result of anthropogenic activities: its shape resembles the embankments discovered, among others, on Radunia in the Ślęża Massif and on Łysica in the

Świętokrzyskie Mountains (Cehak-Hołubowiczowa 1959; Gąssowscy 1970). However, at the present stage of research, it is difficult to assess both its function and chronology.

In the case of structures recognized as quasi-hillforts, the premise for confirming them in the field was an oval outline visible on the numerical field model or other feature characteristic to hillforts. At the next stage, surface prospection was undertaken to demonstrate the possible presence of historic material on the surface or in meadow molehills, paying special attention to the degree and nature of levelling visible on the maps. Then, in some cases, two kinds of surveys were carried out: the structure was probed with 10-15 1x1 m excavations and larger excavations (2x3 m, 1.5-4 m) located at its lowest and highest points, on flats and in depressions (Fig. 8; 10). In addition, the entire structure and the adjacent area were examined with a metal detector. Magnetometric prospection was not used, due to the experience of previous studies with this method on other defensive assumptions in the Sudetes (Mackiewicz *et al*. 2018), which revealed a high magnetic susceptibility of the substrate rocks, preventing proper recognition of basic structures. In all quasi-hillfort sites, soil contained a large number of sharp-edged stones of various sizes that could interfere with the results of the magnetometer measurements.

So far, the authors have distinguished four quasi-hillforts in the Sudetes. Three are located in the Kłodzko Land: in Duszniki Zdrój – Dolina, Duszniki Zdrój – Strążycka Valley, Rudawa near Tłumaczów and one was found in the Lasocki Ridge in Jarkowice located in the eastern Giant Mountains (Table 2). The structure in Duszniki Zdrój – Dolina, situated on a slope gently sloping towards the Bystrzyca Dusznicka river, has an irregular outline resembling a two-part hillfort, with a 3.2 ha oval area of the possible main part and the remaining 10 ha territory that could serve as a borough (Fig. 8). It is located in a strategic point with good visibility as well as easy and close access to water. Within this facility, 15 trenches (1m x 1m) were made, in which no prehistoric or medieval artifacts were found. Two other structures in Rudawa (Fig. 9.1) and Duszniki Zdrój – Strążycka Valley (Fig. 9.2) have regular oval outlines. The former is situated on a gentle elevation with very good visibility. At the same time, its relics are the least visible of the forms discussed here, most likely natural or slightly changed anthropogenically, perhaps as a result of atypical ploughing. A surface prospection was carried out at both sites at different times of the year, no artifacts were discovered.

The quasi-hillfort in Jarkowice lies on a plateau that bears signs of anthropogenic interference (Fig. 10). The structure is located on the eastern slope of

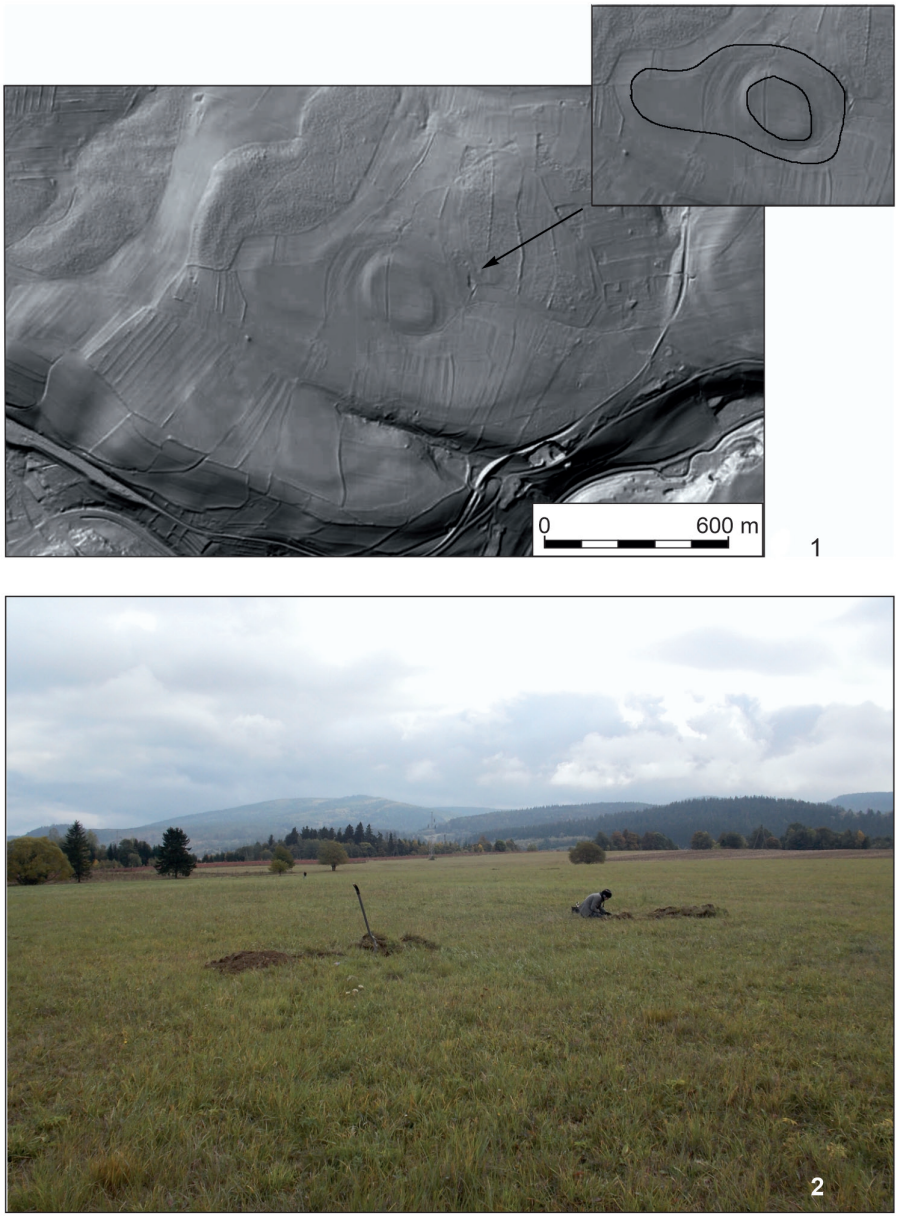

FIG. 8. Quasi-hillfort in Duszniki Zdrój – Dolina: 1 – digital terrain model; 2 – archaeological excavation in 2016 (photo: E. Lisowska, DTM: geoportal.gov.pl)

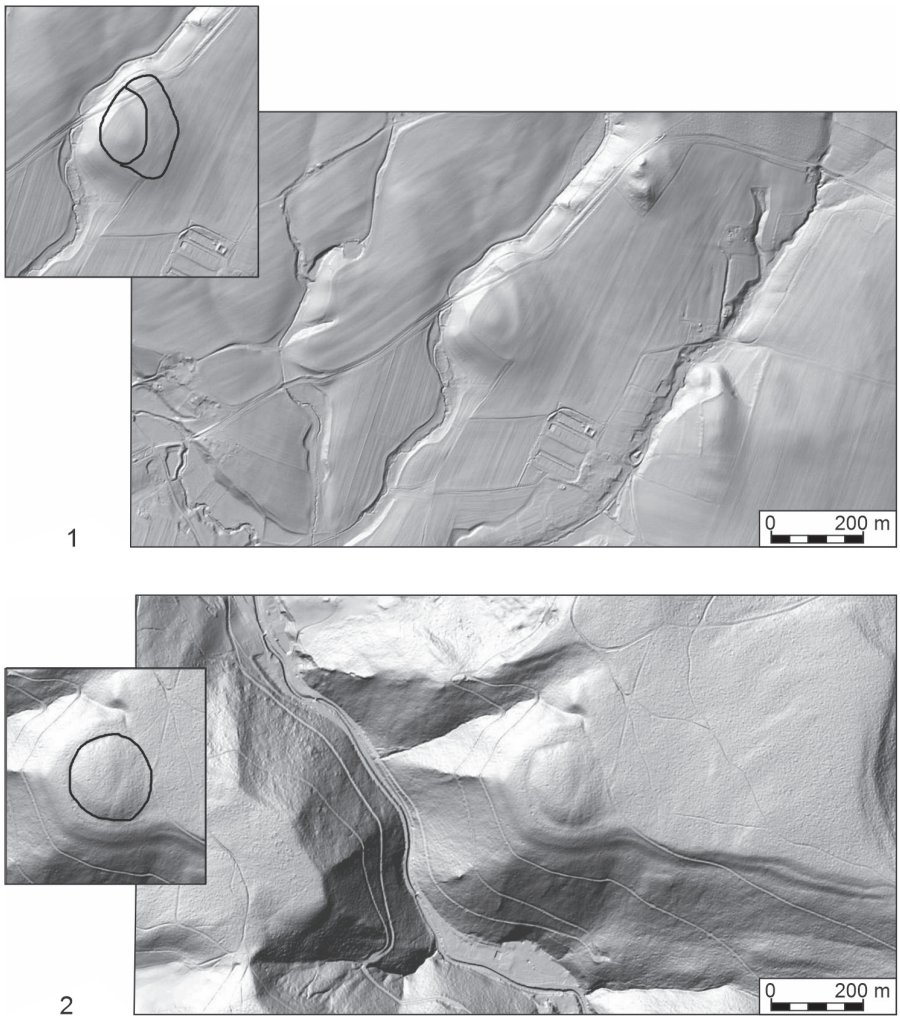

FIG. 9. Models of quasi-hillforts: 1 – Duszniki Zdrój, Strążycka Valley; 2 – Rudna near Tłumaczów (produced by E. Lisowska, DTM: geoportal.gov.pl)

Mount Kluka, overlooking the confluence of the Srebrny Potok and Złoty Potok streams. During the excavation in the two trenches (2m x 3m and 2m x 2m), no structures or artifacts were found. The structure measures 140m x 80m and is probably an example of slope terracing for agricultural crops, popular from the end of the 19th century (Latocha 2005; Latocha, Urbanowicz 2010, 145).

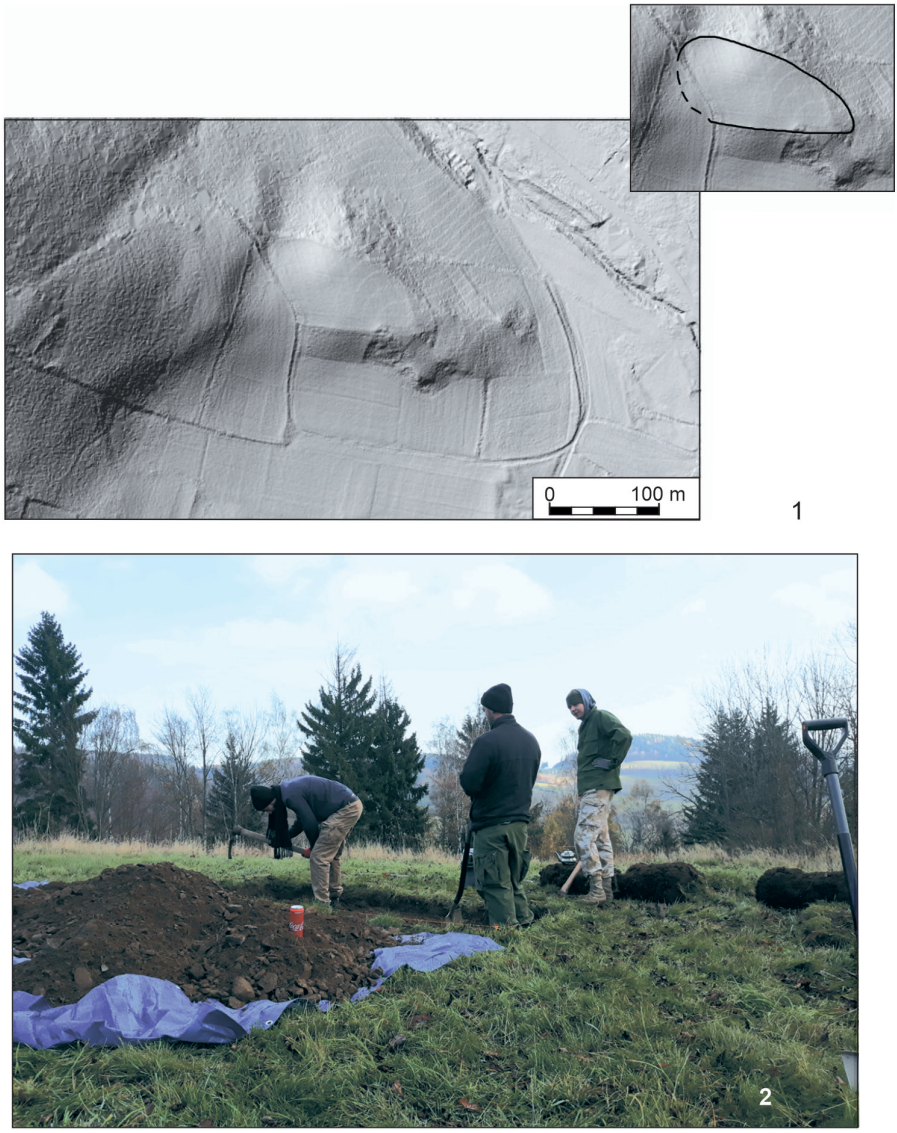

FIG. 10. Quasi-hillfort in Jarkowice: 1 – digital terrain model; 2 – archaeological excavation in 2019 (photo: E. Lisowska, DTM: geoportal.gov.pl)

The last of the problematic sites is the embankment located on Mount Ptasznik in the Golden Mountains. It was described as "of unknown nature" already in the 19th century literature (Vug 1890) but functioned in the archives

as a Lusatian culture hillfort and in some tourist guides as Celtic or medieval one. The excavations carried out for two seasons did not result in discovering any artifacts that would allow for establishing chronology or function of the site (Baron *et al*. 2014). Due to the well-preserved embankments of clearly anthropogenic nature and the lack of artifacts, the structure does not fit into the classification proposed here, and at the present stage should be defined as embankment of unknown chronology and purpose (similarly to the embankment in the Dębowe Hills near Niemcza).

VI. DESTROYED HILLFORTS?

Literature on defensive structures in the Sudetes contains information about completely destroyed hillforts, mainly due to the exploitation of rock material in the 19th and 20th century. Until recently, structures previously described as 'completely destroyed' in the tourist and archaeological literature from before the 1970s included sites on the Mount Bazaltowa and in Graniczna near Strzegom, in Nowy Kościół, Piotrowice, Pieńsk and Nadrzecze (Table 3). Field supervision allowed for determining the actual state of their preservation, and luckily, it turned out that not all are entirely destroyed. For instance, the Nowy Kościół hillfort has been preserved in its entirety. Incorrect information about its destruction due to agates exploitation was the result of a mistake by German archaeologists regarding its location made in the 1920s and 1930s. Field survey in 2006 (Jaworski 2007, 28 f., Fig. 8), and subsequent excavations in 2014 and 2015 allowed to identify the structure as a one-part hillfort, functioning at the end of the 9th and in 10th century. Remnants of log houses with dry stone foundations erected on specially prepared platforms were discovered inside the complex (Lisowska 2016). The hillfort was surrounded by a wood-and-stone embankment, with a single iron bowl buried underneath as an offering in its southern part. A gate led to the interior from the east, which burnt down in the mid-10th century along the rest of the structure (Lisowska 2016, 210).

Verifying other 'destroyed' hillforts located north of Strzegom on the Mount Bazaltowa and on the Mount Zwycięstwa (germ. Streitberg) in the nearby Graniczna village, showed the possibility of carrying out rescue excavations within the still preserved fragments of embankments and adjacent parts of hillfort interior. In the case of the Mount Bazaltowa site, such relics can be found in its north-eastern part (probably covered by quite a thick layer of rock rubble from the quarry operations on the site), while the hillfort

near Graniczna was partially preserved in its eastern part. After the alleged destruction of this structure at the end of the 1960s, surface prospection was carried out three times (in 1995, 2008 and 2020), during which a fragment of the former hillfort square was discovered underneath a paved road, probably laid in the second half of the 19th century directly on the early medieval hillfort (Fig. 11). It should also be emphasized that in the case of both the Mount Bazaltowa and the Mount Victory sites, large parts of the areas adjacent to the former hillforts were preserved, especially on the eastern and northern sides. They may be excavated in the future to learn more about the structures (topographic context, possible military artifacts such as arrowheads or traces of settlement functionally related to the hillforts).

Unfortunately, the possibility of excavating the destroyed hillforts in Nadrzecze, Pieńsk and Piotrowice was irretrievably lost at the beginning of the 1930s. Mining activity completely destroyed the above-mentioned structures, making it impossible to verify them in the field. The only available sources are archival information (Kaletynowie, Lodowski 1968, older literature there), including research documentation from before 1945 kept in Wrocław, Görlitz and Dresden archives.

FIG. 11. Graniczna, Strzegom province. The old road built before 1945 covers probably the preserved relics of the hillfort's interior (photo: K. Jaworski)

Early medieval hillforts destroyed in historical times are a separate research problem. Their probable location of these 10th-12th century structures can be determined based on references in written sources or archaeological discoveries. The irretrievably destroyed hillforts include sites in Kłodzko, Kamieniec Ząbkowicki and perhaps Srebrna Góra. Written sources document the first two, such as the Czech chronicle of Cosmas of Prague, mentioning the Kłodzko hillfort in 981 AD, and the Kamieniec Ząbkowicki hillfort in 1096 (Kaletynowie, Lodowski 1968, 66, 71–72; Kosmas 2006, 141, 282). The authors base the assumption that a hillfort could be located in Srebrna Góra (destroyed by the fortress construction in the 18th century), and this hypothesis is based on accidentally found fragments of 9th-10th century pottery in one of the fortress corridors (oral information from Łukasz Melski). Such structure is also indirectly indicated by the sequence of hillforts located within the Sudetian Marginal Fault, which could be logically supplemented by a hillfort near one of the two peaks above Srebrna Góra, currently occupied by 18th century fortifications.

Another 9th-10th century hillfort, which was most likely destroyed by the later transformations at the turn of the 13th and 14th century, could have functioned at the site of the Homole castle, located on the Lewin Hills (Jaworski 1988). The survey conducted in August 2020 provided a dozen fragments of early medieval pottery located on a secondary deposit created during the construction of the late medieval castle.

It is also possible that the early medieval hillfort functioned in the place where the remains of the 13th/14th century castle in Płoszczyna are located today. 9th-10th century pottery fragments were discovered in the fields just below the castle (surface prospection by R. Rzeszowski from the Giant Mountains Museum in Jelenia Góra; Jaworski 2009). Studies have not yet confirmed the early medieval phase of this structure (Chorowska *et al*. 2009, 155–157; Legut-Pintal 2017, 67–68).

VII. DISCUSSION

Over 1000 years of intensive anthropogenic transformations of the Sudetes are reflected in historical, cartographic and archaeological sources, and are also visible in the morphology of the area. Almost 300 years of Slavic tribes' presence in this area between the second half of the 8th and the 10th century is visible in the remains of defensive fortifications and accompanying infrastructure.

The process of transforming and destroying the previous structures started already in the 13th century, adjusting them to the construction of brick castles. In the 18th century, soon after the previously Austrian Silesia was taken over by Prussia, the construction of the Kłodzko and Srebrna Góra fortresses, largest in this part of Europe, probably obliterated the relics of older defensive structures. During the last 200 years, further destruction of early medieval hillforts was related to mining activities.

Studies on Sudetian hillforts conducted over the last 15 years changed the image of settlement and chronology of over 20 sites, i.e. 1/3 of previously discovered structures of this kind (Fig. 12, 13, 14). The research presented here is the result of computer analyses, surface prospection, survey and excavation research, non-invasive prospecting, as well as museum and cartographic inquiries. Due to the specificity of the mountain sites, as well as rocky and often shallow soil layer, studying such structures is relatively difficult. In addition, slope movement more intense than on the lowlands could have broken off or collapsed large fragments of the old fortifications, so that their present condition may be far from the original. The authors aimed at organizing the knowledge about known hillforts and introduce new, problematic and alleged structures into the scientific discourse. Therefore, it was necessary to develop a model approach. We propose that the verification of new structures includes the following steps:

1. Computer and geomorphological analysis based on shaded relief models with simultaneous query in written, cartographic, iconographic sources and archives;
2. Surface prospection. Thorough search of fields, or molehills, burrows and animal feeding places in the case of forests. If obtaining artifacts is possible at this stage, initially a given structure can be considered a hillfort, provided that the artifacts are accompanied by embankments or other forms of space limitation, such as ditches or moats;
3. Magnetometric prospection in areas without volcanic rocks or soil with large amount of stones;
4. Survey probing;
5. Excavation is necessary to establish the function and exact chronology. If appropriate organic material is obtained, radiocarbon tests are recommended;
6. Examining the surroundings and the external context, trying to reconstruct roads leading to the hillfort, determining the distance from water courses and the nature of their valleys, examining the nearest rock outcrops.

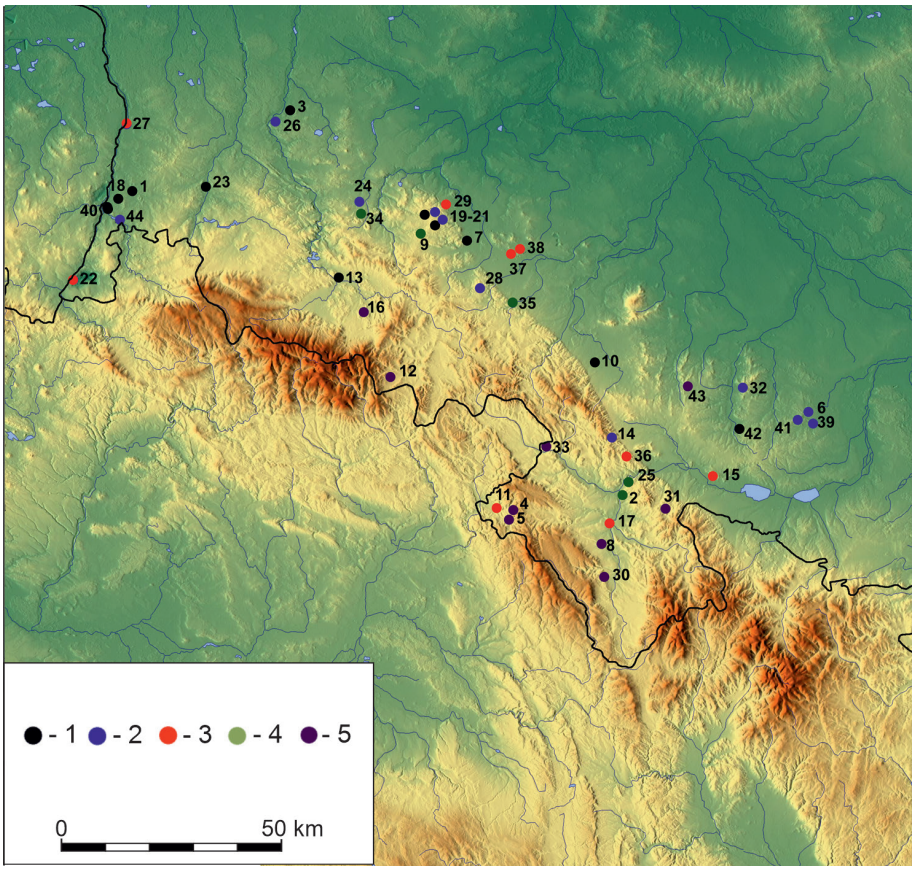

FIG. 12. Locations and sites discussed in the article: 1 – hillforts from 8th-10th centuries according to Jaworski 2005; 2 – the new hillforts from 8th-10th centuries; 3 – hillforts from 8th-10th centuries destroyed during the medieval and early modern times; 4 – alleged early medieval hillforts; 5 – quasi and non-existed hillforts (compiled by E. Lisowska, background: maps-for-free.com).

Sites discussed in the paper: 1 – Białogórze; 2 – Boguszyn; 3 – Bolesławiec; 4 – Duszniki Zdrój - Dolina; 5 – Dusziki Zdrój - Dolina Strążycka; 6 – Gierów; 7 – Gniewków; 8 – Gorzanów; 9 – Grobla; 10 – Grodziszcze; 11 – Homole; 12 – Jarkowice; 13 – Jelenia Góra - Grabary; 14 – Jemna; 15 – Kamieniec Ząbkowicki; 16 – Karpniki; 17 – Kłodzko; 18 – Koźlice; 19-21 – Myślibórz site 2, 4, 10; 22 – Nadrzecze; 23 – Nawojów Śląski; 24 – Nowy Kościół; 25 – Opolnica; 26 – Otok; 27 – Pieńsk; 28 – Pietrzykowice; 29 – Piotrowice; 30 – Ponikwa; 31 – Ptasznik; 32 – Romanów (Mt Gromnik); 33 – Rudna; 34 – Sędziszowa (Różana); 35 – Wałbrzych, Stary Książ (Mt Skiba); 36 – Srebrna Góra; 37 – Strzegom Bazaltowa Góra; 38 – Strzegom Graniczna; 39 – Strzegów; 40 – Tylice; 41 – Wieliczna; 42 – Witostowice site 1 and 2; 43 – Niemcza (Wzgórza Dębowe); 44 – Zawidów

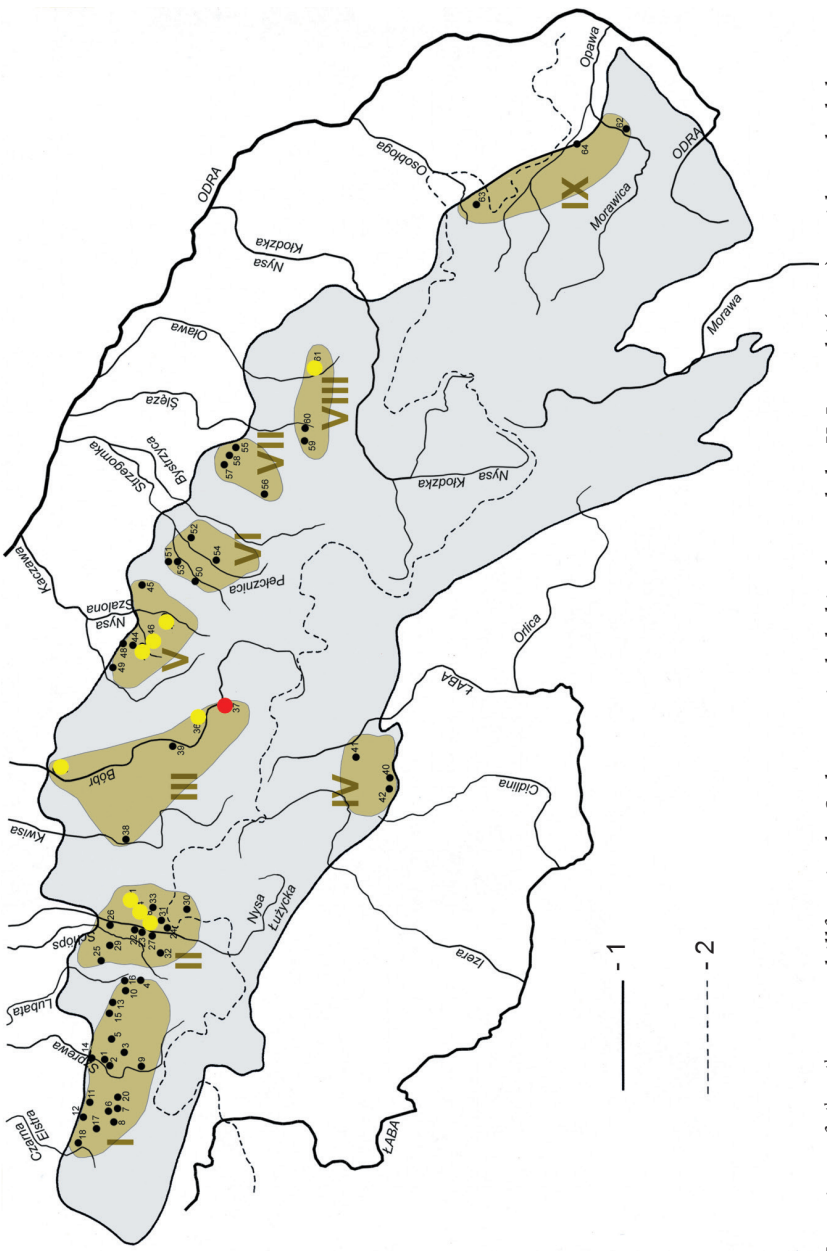

FIG. 13. Locations of 8th-10th century hillforts in the Sudetes, as included in the study by K. Jaworski (2005) – with marked changes: yellow dots – changes in chronology; red dots – deleted early medieval sites (compiled by E. Lisowska based on Jaworski 2005, background: maps-for-free.com)

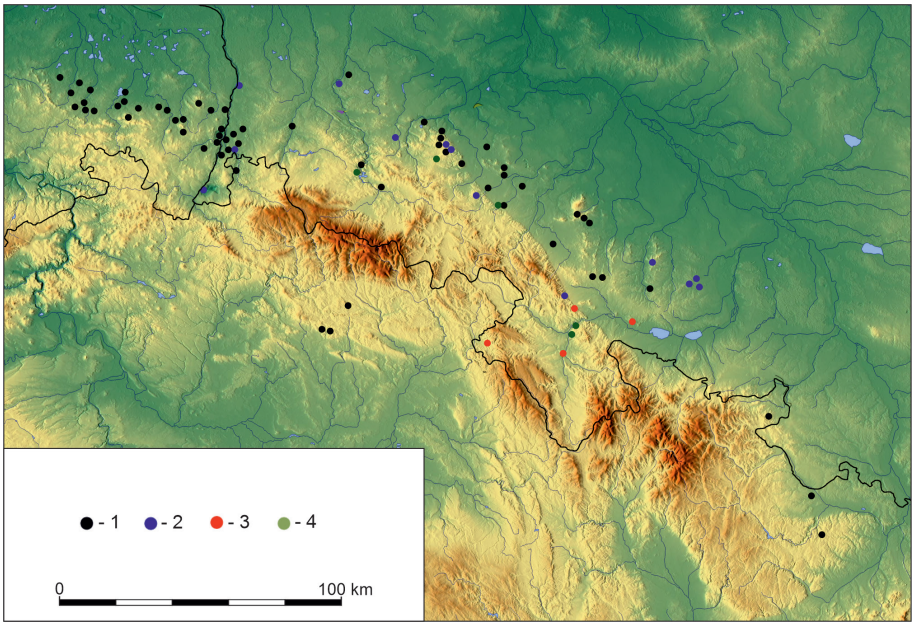

FIG. 14. Current map of 8th-10th century hillforts in the Sudetes, including changes recorded since 2005. 1 – hillforts from 8th-10th centuries according to Jaworski 2005; 2 – the new hillforts from 8th-10th centuries; 3 – hillforts from 8th-10th centuries destroyed during the medieval and early modern times; 4 – alleged early medieval hillforts (compiled by E. Lisowska, background: maps-for-free.com)

There are still many structures similar to those presented in the text in the Sudetes, which require appropriate studies. The model approach proposed here may be a starting point for similar research in the future, while the results presented above will help to better understand the specificity of the Sudetian assumptions. Publishing results of excavation in quasi-hillforts will also help avoiding archaeologically barren sites.

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English translation Grzegorz Piątkowski

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TABLE 1. List of hillforts with updated data changed since 2005

Site/ county (powiat)/ commune (gmina)	Sudetes region/ coordinates	Type of studies (research director)	Changes since 2005	Structure description, area	Comments	References
Boguszyn/ kłodzki/	Bardzkie Mountains/ 50° 28′ 40″ 16° 42′ 07″	Surface prospection (march 2020 – Lisowska)	Alleged hillfort. New. No artifacts.	Two transverse embankments, approximately 180 m long and 0.5 to 2 m high, cutting off an area of 2.2 ha	Alleged, with double transverse embankment	unpublished
Bolesławiec/ bolesławiecki/ Bolesławiec	Kaczawa Foothills/ 51° 16′ 38″ 15° 33′ 58″	Excavations in 2009-2010 (S. Rodak)	Precised chronology: 9th-10th century	Hillfort on a headland with a separating archway embankment		Rodak 2010
Gierów/ brzeski/ Grodków	Niemcza-Strzelin Hills/ 50° 39′ 17″ 17° 14′ 03″	Surface prospection in the 1960s. Excavation in 2015 (P. Samborski; K. Jaworski)	Precised chronology: 9th-10th century (2015), inclusion in the Sudetes area as a result of changes in geographic mesoregions in 2018.	Oval hillfort 100 x 180 m, probably the second part is present (hardly visible). In the south-western part, a double row of embankments separated by a moat	Studies from 2015, unpublished	Kaźmierczyk, Macewicz, Wuszkan 1977: 126-129
Grobla/ jaworski/ Paszowice	Kaczawa Foothills/ 50° 58′ 59″ 16° 06′ 20″	Surface prospection in 2019 (K. Jaworski, E. Lisowska, D. Maciejczuk)	Newly discovered hillfort. No dating artifacts on the surface.	Embankment surrounding the 0.5-1 m high rock headland		unpublished
Grodziszcze/ świdnicki/ Świdnica	Dzierżoniów Valley/ 50° 47′ 46″ 16° 33′ 08″	Excavation in 2000 (K. Jaworski, A. Pankiewicz, A. Boguszewicz)	Precised chronology: 9th-10th century and 11th-12th century	Three-part complex, longitudinal and separated by moats, with an area of about 3.4 ha		Pankiewicz 2005

cont. Table 1

Site/ county (powiat)/ commune (gmina)	Sudetes region/ coordinates	Type of studies (research director)	Changes since 2005	Structure description, area	Comments	References
Gniewków (Bolesławice)/ świdnicki/ Dobromierz	Obniżenie Podsudeckie/ 50° 59′ 24″ 16° 12′ 15″	Excavations in 2009-2010, 2017 (S. Rodak, D. Werczyński)	Precised chronology, included using C14, to 9th-10th century.	Two-part complex located on the slope of the oxbow lake of the Nysa Szalona river. Total hillfort area is about 16 ares.		Rodak 2011; Werczyński, Rodak 2011; 2012
Jelenia Góra – Grabary/ jeleniogórski/ Jelenia Góra	Jelenia Góra Valley/ 50° 54′ 47″ 15° 47′ 20″	Surface prospection until 1945 – A. Pogoda Excavations in 2001; 2018-2020 (E. Lisowska, R. Rzeszowski, S. Rodak)	Precised chronology, included using C14, to 9th-10th century, discovered a vast settlement below the hillfort	Oval hillfort with a small square not exceeding 2.5 ares.	No archival documentation from before 1945 in Grabary file. Hillfort documentation located in Strupice file.	Wrocławski 2001
Jemna/ ząbkowicki/ Stoszowice	Owl Mountains/ 50° 35′ 29″ 16° 38′ 47″	Surface prospection in 2015 (K. Jaworski, E. Lisowska, A. Pankiewicz)	Newly discovered hillfort. 9th-10th century pottery fragments on the surface	Two-part hillfort with a total area of approximately 1 ha. Some of the second part embankments probably destroyed by slope movements.		unpublished
Karpniki/ Jeleniogórski/ Mysłakowice	Jelenia Góra Valley/ 50° 51′ 50″ 15° 52′ 06″	Analysis of museum collections (L. Marek)	Excluding early medieval chronology, shift to late medieval	Also referred to as early medieval in older literature		Marek 2008: 38; Chorowska *et al*. 2009: 209-210.
Koźlice/ zgorzelecki/ Zgorzelec	Jizera Foothills/ 51° 06′ 30″ 14° 59′ 04″	Excavations in 2006-2007 (K. Fokt, S. Rodak)	Precised chronology to 10th century.	Ring-shaped hillfort, with embankments reaching 3 m and an area of 16 ares		Fokt 2008; Fokt 2011

cont. Table 1

Site/ county (powiat)/ commune (gmina)	Sudetes region/ coordinates	Type of studies (research director)	Changes since 2005	Structure description, area	Comments	References
Myślibórz 2/ jaworski/ Paszowice	Kaczawa Foothills/ 51° 01′ 10″ 16° 06′ 51″	Excavation in 2018 (E. Lisowska, S. Rodak)	Precised chronology (included using C14) to 9th-10th century	Hillfort with an arched embankment on a rocky headland with an area of 16 ares		Lisowska, Rodak 2020
Myślibórz 4/ jaworski/ Paszowice	Kaczawa Foothills/ 51° 01′ 11″ 16° 07′ 01″	Excavation in 2018 (E. Lisowska, S. Rodak)	Precised chronology (included using C14) to 9th-10th century	Hillfort with an arched embankment on a rocky headland with an area of 20 ares		Lisowska, Rodak 2020
Myślibórz 10/ jaworski/ Paszowice	Kaczawa Foothills/ 51° 01′ 32″ 16° 07′ 14″	Excavation in 1994 (research by A. Boguszewicz, unpublished materials), Surface prospection in 2019 (E. Lisowska)	Precised chronology to 9th-10th century. Pottery on the surface. Museum query.	Multi-part hillfort with overlapping sequences of embankments and ditches with a maximum height of 2 m. Total area 1.18 ha	Hillfort may also have an earlier chronology (Bronze/Iron Age)	Lisowska, Rodak 2020
Nowy Kościół - Dynowice/ złotoryjski/ Świerzawa	Kaczawa Foothills/ 50° 51′ 50″ 15° 52′ 06″	Surface prospection in 2006, Excavations in 2014, 2015	Precised chronology (included using C14) to 9th-10th century	Hillfort with an irregular shape similar to an oval, located on a steep rocky hill.	Ritual offering: a Silesian bowl under the embankment	Lisowska 2016
Nawojów Śląski/ lubański/ Lubań	Jizera Foothills/ 51° 09′ 28″ 15° 19′ 32″	Excavation in 2020 (P. Zawadzki – Museum in Lubań)	Previously determined chronology confirmed	Oval hillfort with a moat located on the bank of the escarpment on the Kwisa river	In 2020, a modern tunnel in the hillfort wall was discovered	Studies from 2020, unpublished
Opolnica/ ząbkowicki/ Bardo	Bardzkie Mountains/ 50° 29′ 58″ 16° 43′ 10″	Surface prospection in 2020 (K. Jaworski, E. Lisowska, Ł. Przygodzki)	New hillfort. Middle Ages, no artifacts on the surface	Oval hillfort with a high embankment and an internal area of 5 ares		unpublished

cont. Table 1

Site/ county (powiat)/ commune (gmina)	Sudetes region/ coordinates	Type of studies (research director)	Changes since 2005	Structure description, area	Comments	References
Otok/ bolesławiecki/ Bolesławiec	Kaczawa Foothills/ 51° 13′ 44″ 15° 30′ 44″	Surface prospection in 2010 (K. Jaworski, E. Lisowska, A. Pankiewicz, S. Rodak)	Vessel fragments from 9th-10th century on the surface	Oval hillfort with a high embankment an internal area of about 4 ares		Jaworski 2009, 150-153; Kaletynowie, Lodowski 1968, 113-114
Pietrzyków stan. 4 (nazwa lokalna: Bronówek)/ świdnicki/ Dobromierz	Walbrzych Foothills/ 50° 54′ 33″ 16° 12′ 52″	Surface prospection in 2016, Excavation in 2017 (E. Lisowska)	New hillfort. chronology: 9th-10th century, occasionally used in the 13th-14th century	Hillfort with an irregular shape similar to an oval, located on a steep rocky hill. Internal area of 19 ares.	Two more hillforts dating from the 11th-13th century and the 14th-15th century within the village	unpublished
Romanów 1 (Góra Gromnik)/ Strzeliński/ Przeworno	Niemcza-Strzelin Hills/ 50° 42′ 07″ 17° 06′ 35″	Excavations in 2005-2017 (K. Jaworski, A. Pankiewicz, E. Lisowska)	Precised chronology to 9th-10th century, discovery of an open settlement below the site	The hillfort embankments were mostly destroyed by the construction of the castle and activities in the 19th and 20th centuries. Preserved embankment in the north-eastern part. The hillfort probably occupied the entire clearing at the top of the mountain.	Artifacts of Great Moravian origin have been discovered in the borough and its vicinity: a stud, a hoof knife and a bradatica	Jaworski, Pankiewicz 2007; 2008a; 2008b; Lisowska 2017
Sędziszowa (Różana)/ złotoryjski/ Świerzawa	Kaczawa Foothills/ 51° 02′ 50″ 15° 52′ 03″	Surface prospection in 2019 (K. Jaworski, E. Lisowska, D. Maciejczuk)	New settlement. Alleged. No artifacts available.	The headland cut off with a very poorly visible outline of the embankment (?) or an arched fence relic 60 m long (20-50 cm high)	Numerous depressions, platforms and mounds in the internal area	unpublished

cont. Table 1

Site/ county (powiat)/ commune (gmina)	Sudetes region/ coordinates	Type of studies (research director)	Changes since 2005	Structure description, area	Comments	References
Strzegów/ brzeski/ Grodków	Niemcza-Strzelin Hills/ 50° 38′ 42″ 17° 17′ 30″	Surface prospection before 1945, Excavation in 1960, 1969 (J. Kaźmierczyk, K. Macewicz, Z. Bagniewski)	Included in the catalogue of Sudetic hillforts due to the change in geographical mesoregions, the current chronology requires re-verification	Oval hillfort with an area of 2,2 hectares, embankments maximum 2,5 m high		Kaźmierczyk *et al.* 1977, 490-493
Tylice/ zgorzelecki/ Zgorzelec	Jizera Foothills/ 51° 07′ 01″ 15° 01′ 56″	Excavation in 2008 r. (K. Fokt)	Precised chronology to 9th–11th century	Oval hillfort with an area of 55 ares, embankments 2-3 m high		Fokt *et al.* 2008
Wałbrzych, Mt Skiba/ wałbrzyski/ Wałbrzych	Wałbrzych Foothills/ 50° 51′ 50″ 15° 52′ 06″	Surface prospection in 1994 (P. Rzeźnik, K. Jaworski) and 2019, 2020 (K. Jaworski, E. Lisowska, A. Pankiewicz)	New settlement. Alleged. No artifacts available. Numerous mounds and niches, traces of old roads visible on the surface.	180 m long arched embankment, maximum 1.8 m high, separating an anthropogenically transformed space	Possible religious function - excavation required.	unpublished
Wieliczna (Wilanówka/ Jagielnica)/ strzeliński/ Przeworno	Niemcza-Strzelin Hills/ 50° 51′ 50″ 15° 52′ 06″	Surface prospection in 2007-2017 (K. Jaworski, E. Lisowska, A. Pankiewicz)	Included in the catalogue of Sudetic hillforts due to the change in geographical mesoregions, the current chronology (12th-13th century) requires re-verification due to the possibility of older artifacts	Oval hillfort, elongated along the north-east-south-west axis. Embankments visible, 1-2 m high.		Kaletynowie, Lodowki 1968, 149

cont. Table 1

Site/ county (powiat)/ commune (gmina)	Sudetes region/ coordinates	Type of studies (research director)	Changes since 2005	Structure description, area	Comments	References
Witostowice 2/ strzeliński/ Ziębice	Niemcza-Strzelin Hills/ 51° 09′ 28″ 15° 19′ 32″	Excavation in 2014, 2015	Precised chronology to 9th-10th century A hoard of 40 Silesian bowls at the Witostowice 1 site.	Witostowice 1 and 2 hillfort complex. Site 2 early medieval, 9th-10th century. Teardrop-shaped hillfort, distinct embankments up to 2 m high. Part of a possibly larger hillfort complex.		Samborski, Sych 2015; Czechowski *et al*. 2016
Zawidów/ zgorzelecki/ Sulików	Jizera Foothills/ 51° 01′ 14″ 15° 04′ 10″	Excavation in 2019-2020 (P. Konczewski)	Precised chronology to 9th-10th century (shift from the 10th-12th century dating - two stages of use: tribal and the 12th-13th century	Fortified hillfort on an elongated oval plan, partially destroyed, internal area of approximately 19 ares.	Study conducted by P. Konczewski, as part of '1000 years of Upper Lusatia - people, castles, cities'	Kihl-Byczko 1971; Kaletyn 1979: 52, zawidow.eu

cont. Table 1

TABLE 2. Non-existent hillforts (present in literature and on maps) and quasi- hillforts mentioned in the article

Site/ county (powiat)/ commune (gmina)	Sudetes region/ coordinates	Structure description	Verification	Structure function	References
Duszniki Zdrój – Dolina/ kłodzki/ Duszniki Zdrój	Table Mountains 50° 24′ 46″ 16° 24′ 10″	Oval structure, dimensions 180 x 200 m	Surface prospection in 2014 Excavation in 2016	Unrecognized, the site is not an early medieval hillfort	none
Duszniki Zdrój – Dolina Strążycka/ kłodzki/ Duszniki Zdrój	Bystrzyckie Mountains 50° 23′ 00″ 16° 23′ 40″	Oval structure, dimensions 160 x 180 m	Surface prospection in 2014	Unrecognized, the site is not an early medieval hillfort	none
Gorzanów/ kłodzki/ Bystrzyca Kłodzka	Upper Neisse Trench 50° 21′ 10″ 16° 37′ 52″	Structure marked on tourist maps	Surface prospection in 2020	Structure incorrectly marked on the old tourist map - no anthropogenic transformations (apart from modern ones) visible in the area, no historical artifacts. The structure is located entirely in the area of a church and cemetery	Chanas, Łużna 1989; Staffa *et al.* 1994: 133-136
Jarkowice/ kamiennogórski/ Lubawka	Karkonosze Mountains 50° 43′ 30″ 15° 53′ 21″	Headland structure with an artificial terrace, dimensions 80 x 140 m	Excavation and surface prospection in 2019	Probably the remains of slope terracing	none Information in the literature (Jaworski 2009) about early medieval pottery fragments discovered somewhere in the village

cont. Table 2

Site/ county (powiat)/ commune (gmina)	Sudetes region/ coordinates	Structure description	Verification	Structure function	References
Ptasznik (szczyt)/ kłodzki/ Kłodzko	Golden Mountains 50° 24′ 27″ 16° 48′ 05″	110 m and 35 m long regular embankments - an anthropogenically transformed area	Excavations in 2013 and 2014	Unrecognized, excavation did not provide material to establish the structure chronology	Baron *et al.* 2014 In past literature it functions as a Lusatian culture hillfort
Ponikwa/ kłodzki/ Bystrzyca Kłodzka	Bystrzyckie Mountains 50° 15′ 04″ 16° 36′ 19″	Structure marked on tourist maps	Surface prospection in 2020	Structure incorrectly marked on the old tourist map - no anthropogenic transformations visible in the area, no historical artifacts.	Chanas, Łużna 1989 Staffa *et al.* 1992: 188
Rudawa/ kłodzki/ Nowa Ruda	Stone Mountains 50° 34′ 17″ 16° 25′ 48″	Oval structure, dimensions 110 x 130 m	Surface prospection in 2014 and 2016	Unrecognized, the site is not an early medieval hillfort	none

cont. Table 2

TABLE 3. Early medieval hillforts (known and alleged) destroyed as a result of later anthropologic activity

Site/ county (powiat)/ commune (gmina)	Sudetes region/ coordinates	Type of studies (research director)	Basis for recording the structure	Description of damage	Comments	References
Graniczna – Góra-Zwycięstwa/ świdnicki/ Strzegom	Strzegom Hills 50° 59′ 43″ 16° 21′ 48″	1913 – excavation: Martin Jahn 1927 – excavation: Georg Raschke 1960s – surface prospection 1967-1968 – excavation: K. Nowiński, B. Buczek-Płachtowa	Hillfort with 9th-10th century artifacts from previous excavations	Almost completely destroyed, embankment preserved in the eastern part, part of the square preserved thanks to the cobbledroad above it	After removing the cobblestones in the eastern part, the structure can be explored and verified	Jaworski 2005; Kaletynowie, Lodowski 1968; Kaźmierczyk 1978
Homole/ kłodzki/ DusznikiZdrój	Lewin Hills 50° 59′ 43″ 16° 21′ 48″	1962 – K. Eysymontt 2020 – excavation (K. Jaworski, E. Lisowska, A. Pankiewicz, D. Maciejczuk, S. Rodak)	In the secondary deposit below the castle, pottery fragments from the 9th-10th century, early medieval ceramics, also present on the mountain slopes	Completely destroyed by the construction of the castle at the turn of the 13th and 14th century	The hillfort location in this place is additionally supported by geographical conditions	Eysymontt 1963; Jaworski 1988
KamieniecZąbkowicki/ ząbkowicki/ KamieniecZąbkowicki	Otmuchów Depression 50°31′ 15″ 16° 52′ 50″	1918-1945 surface prospection 1987 – studies near the monastery (J. Lodowski)	Information in the Chronicle of Cosmas about a hillfort in Kamieniec in 1096.	Hillfort probably located on the top of the Castle Hill or on the site of a monastery built in the 14th century. In the 19th century, a palace complex was erected on the Castle Hill on the initiative of Marianna Orańska. Monastery chronicles (1592) record the discovery of the old walls during the monastery reconstruction.	None of the currently visible anthropogenic transformations are related to the hillfort remains. Several early medieval sitesin the vicinity of KamieniecZąbkowicki,	Kaletynowie, Lodowski 1968: 66; Müller 1837; Moździoch 1998

cont. Table 3

Site/ county (powiat)/ commune (gmina)	Sudetes region/ coordinates	Type of studies (research director)	Basis for recording the structure	Description of damage	Comments	References
Kłodzko/ kłodzki/ Kłodzko	Kłodzko Valley 50° 26′ 29″ 16° 39′ 11″	none	Information in the Chronicle of Cosmas about a hillfort in Kłodzko in 981. In 1114, information about the castle burnt down (ibid.)	Completely destroyed by the construction of the late medieval castle and, above all, the fortress in the 18th century. Geographically, it is the most suitable place for a hillfort.	Confirming the hillfort location is theoretically possible by examining the waste heaps from the fortress construction	Kaletynowie, Lodowski 1968: 71-72
Nadrzecze (Gościszów)/ zgorzelecki/ Bogatynia	Zittau Basin 50° 55′ 35″ 14° 52′ 31″	1918-1945 – surface prospection 1944 – excavation G. Bierbaum 1960 - surface prospection	Hillfort with early medieval artifacts from previous excavations. Artifacts dated to 9th-10th century by G. Bierbaum.	Completely destroyed by lignite mining	The structure was still visible during the inventory in the 1960s. Extensive research documentation in 1944 in the Dresden archives	Frenzel 1930; Kaletynowie, Lodowski 1968: 101; Fokt 2013
Pieńsk/ zgorzelecki/ Pieńsk	Jizera Foothills 51°14′ 28″(?) 15°02′ 22″(?)	1850-1945 surface prospection, 1959-1966 surface prospectionand survey by the Conservator of Archaeological Finds	Hillfortof allegedly oval form measuring 120 x 200 m. Included in the Sudetes area due to changes in the geographical division	Completely destroyed by sand mining before 1939	The location given in the Kaletynowie, Lodowski1968 catalogue is incorrect. The hillfort was probably a few hundred meters further south.	Feyerabend 1889; Hellmich 1930; Moździoch 1990, Schultz 1940 Kaletynowie, Lodowski 1968, 115 Fokt 2008
Piotrowice/ jaworski/ Jawor	Kaczawa Foothills 51°03′ 36″ 16°07′ 16″	Do 1945 surface prospection, 1966 surface prospection by the Conservator of Archaeological Finds; 1977 – surface prospection J. Lodowski	A two-section hillfort consisting of two adjacent oval sections. Hillfort with 9th-10th century artifacts from previous excavations.	Completely destroyed by ore mining	In the 1960s, the relics of the embankments from the northern side were still visible, last time they were examined in 1977.	Kaletynowie, Lodowski 1968, 115-116.

cont. Table 3

Site/ county (powiat)/ commune (gmina)	Sudetes region/ coordinates	Type of studies (research director)	Basis for recording the structure	Description of damage	Comments	References
SrebrnaGóra/ ząbkowicki/ Stoszowice	Owl Mountains 50° 34′ 26″ 16° 38′ 31″	Accidental discovery – 2018 Ł. Melski	During the cleaning works in the fortress, numerous pottery fragments from various eras were discovered, including the 9th-10th century. They may come from the gable clearing or the immediate vicinity	Completely destroyed	Although the artifacts' origins are not known, locating the hillfort here is justified by geographical reasons and the in relation to other 9th-10th century hillforts.	None - unpublished studies
Strzegom – BazaltowaGóra/ świdnicki/ Strzegom	Strzegom Hills 50° 58′ 13″ 16° 19′ 52″	1759-1852 – surface prospection 1904-1919 – emergency excavation – G. Bersu; 1960-1965 – emergency excavation – K. Smutek, B. Gediga, J. Kaźmierczyk	Hillfort with 9th-10th century artifacts from previous excavations	Hillfort almost completely destroyed Fragments of embankment and square have probably remained in the western part	Early medieval Nine men's morris boards carved in rock were discovered in the nearby Krzyżowa Hill.	Bersu 1930; Kaźmierczyk 1978

cont. Table 3