HUMAN REMAINS & VIOLENCE

Mapping Ponar (Paneriai): a reassessment

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Abstract

The Ponar-Paneriai base, the main extermination site of Vilna-Vilnius, began its existence as a Red Army fuel depot in 1940. After Nazi occupation of the city in 1941 the *Einsatzgruppen* and mostly Lithuanian members of the *Ypatingasis būrys* used the pits dug for the fuel tanks for the murder of the Jews of Vilna and large numbers of Polish residents. During its operation, Ponar was cordoned off, but changes to the topography of the site since the Second World War have made a full understanding of the site difficult. This article uses contemporary plans and aerial photographs to reconstruct the layout of the site, in order to better understand the process of extermination, the size of the Ponar base and how the site was gradually reduced in size after 1944.

Key words: Holocaust, Ponar-Paneriai, Einsatzgruppen, mapping, Vilna-Vilnius

Ponar, as it was known to Vilna's Yiddish-speaking Jewish community, or Ponary in Polish and Paneriai in Lithuanian, had a tragic history well before the Holocaust. In the winter of 1812 Napoleon's retreating Grande Armée was routed by the Cossacks of Kutuzov's imperial Russian army on this low, sandy and forested hill.[1] Thousands of soldiers perished while struggling to draw their carts filled with pillaged loot and artillery pieces along narrow paths that passed over the muddy and icy slopes. In the intervening century and a half, Ponar was to become a sunny, forested weekend retreat for the citizens of Vilna[2] (Wilno in Polish and Vilnius in Lithuanian). It was here that many of the city's Jewish youth would spend their summers in camps of the various youth movements, picking wild strawberries and mushrooms and picnicking among the trees of the forest. This idyllic setting would be disturbed in 1941, when Ponar would once again become a place of horror.

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Over a number of centuries Vilna, known by Jewish tradition as *Yerushaliym d'Lita*–(Jerusalem of Lithuania), developed into a major centre of Eastern European Jewry.[3] From a small community of Jewish traders, originally invited to settle in the city by Grand Duke Vytautas in the fourteenth century, the community reached its zenith at the end of the nineteenth century, when its numbers accounted for 47 per cent of the city's population. Originally centred in the back streets of the Jewish quarter and around the prayer halls of the Great Synagogue, the community later spread throughout the city, becoming involved in all aspects of traditional and modern life. Vilna was particularly famous as the home of the illustrious eighteenth-century Torah scholar Rabbi Eliyahu, son of Shlomo Zalman, the Gaon of Vilna. Subsequently, Vilna became a major centre of religious learning, the community praying in some 160 synagogues and studying at the Ramailes Yeshiva and many *Batei Midrash*. Under Tsarist and later Polish rule, Vilna became one of the most important political, cultural, communal and educational centres of Jewry and home to important community and national organisations: the Jewish Teachers Seminary of Russia; the Strashun Library; the Central Committee of the Zionist Organization in Russia; the Jewish Labor Bund, which was established in Vilna; socialist, religious, liberal and Zionist political parties; schools belonging to different Jewish ideological trends; the Yiddish and Hebrew press; Jewish theatre and arts; the Council of Yeshivot, an umbrella organisation of the 'Lithuanian' yeshivas; the YIVO Institute of Yiddish language and Jewish history and culture.

Although the size of the Jewish population dropped through migration during the first decades of the twentieth century, approximately 60,000 Jews lived in the city prior to the Second World War, including many who had fled east after the German conquest of the western part of Poland in September 1939. After the Ribbentrop–Molotov non-aggression pact, Vilna – then Wilno, the largest city of eastern Poland – was conquered by the Soviets in September 1939. In June 1940 the construction of an aviation-fuel storage facility began in the forest resort of Ponar, in conjunction with a military airfield. Three railway sidings from the main line that led west from the city were cut into the forest and pits were dug into the sandy soil to a depth of 5–8 m., with diameters of 12–32 m. The pits were connected by deep trenches intended for the laying of pipes between the storage tanks. The Nazi invasion of the Soviet Union interrupted the work and the project was not completed. The German military occupied Vilna on 24 June 1941, the persecution of Jews beginning days later.

The first killings of Jews at Ponar were on the initiative of Lithuanian vigilantes, just days after occupation of the city. On hearing of these actions on 2 July 1941, *SS-Obersturmbannführer* Dr Alfred Filbert, the commander of *Einsatzkommando* 9, immediately decided to use the pits dug for the uncompleted fuel storage tanks at Ponar as the extermination site for the Jews of Vilna and the surrounding area, together with other unwanted locals, especially the Polish intelligentsia.[4] Probably shortly afterwards an area of forest around the storage tanks, including the railway sidings, was cordoned off with a 4 m-high barbed-wire fence, upon which notices were posted to warn off the inquisitive, informing that entry was forbidden under penalty of death. The main gate was set on the north side of the facility, just off the

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main road from Vilna to Kovno (Kaunas) and Grodno. The site was guarded by Lithuanian police and military units seconded to Nazi command.

Organised mass shootings of thousands of Jews began at Ponar on 11 July 1941. On 6 September 1941 the Jews were driven into two ghettos situated in the territory of the historical Jewish quarter and the surrounding streets. The small ghetto, in the old Jewish quarter, was emptied on 21 October 1941 and almost all its inmates were shot at Ponar. The Nazis liquidated the large ghetto on 23 September 1943, although groups of Jews were murdered at Ponar right up to the final days of Nazi rule of the city in July of 1944.[5]

Typically, the victims were marched under guard the 14 km from Vilna, through the gates of the facility, known simply as the 'base' (*baza* or *bazė*), or transported to Ponar by cart, truck or train, stopping at the adjacent railway station or in a siding that led directly into the camp, and were then held in trenches prior to execution.[6] For the first murders, in July 1941, the victims were forced to stand in the former fuel storage pits and were then strafed with machine gun fire. However, this proved inefficient. Many of the victims were just wounded and the process consumed a large amount of ammunition. After falling into the mass grave, a few of the injured even managed to crawl out and return to the ghetto, where some reported on the events to the *Judenrat*, who repressed the information as panic mongering. Realising that their method was flawed, the murderers improved the system. On arrival at Ponar, the victims, concentrated in a trench, were ordered to undress and to hand over their valuables. Although the executioners were formally obliged to deliver the booty to the Germans, the local market was flooded with stolen goods, a practice recorded by the Polish journalist Kazimierz Sakowicz who lived in a house (no. 8 in Figure 12) close to the gate of Ponar.[7]

Men were separated from women and children, the men being shot before the execution of their families. After the victims were blindfolded with rags of clothing, the condemned were lined up and instructed to hold the waist or hand of the person in front. Under continual abuse, they were then led in single file, in groups of ten to twenty, by a Lithuanian guard to the chosen execution pit. The condemned were lined up on the edge of the pit facing an earth embankment on the pit's edge. Ten executioners lined up on the other side of the pit and shot each victim in the back with a single shot from confiscated Red Army rifles, the bodies falling into the pit below. Older children stood with the adults to be shot, while infants were held by their mothers. To save ammunition, babies were often thrown into the pits alive. After a salvo, an officer would check the accuracy of the shots, and if anyone gave signs of life, they were finished off. Due to the size of the pits, they filled up only after a large number of executions. To make maximum use of the space, plank bridges were built into the pits. Victims were marched onto the bridge and killed when they reached the designated point. In this way, bodies filled the pits evenly, from the centre to the edges. On other occasions the Jews were forced to lie down directly on top of the dead, and then shot. Sakowicz[8] also reports the use of hand grenades to kill the victims. With the large number of rotting corpses, and fear of epidemic disease, the bodies would be covered with a light sprinkling of earth before the next group was brought in.

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The executions were conducted by various groupings of *Einsatzgruppe* A and B, together with Lithuanian auxiliary policemen of the *Ypatingasis būrys* ('Special Ones') under command of *SS-Obersturmbannführer* Dr Alfred Filbert, *Oberscharführer* Horst Schweinberger and *Oberstormführer* Franz Schauschutz of *EK9*; and supreme command of *SS-Hauptsturmführer* Martin Weiss from Gestapo Department 4 of the Security Police (*Sipo*).[9] The executioners were almost all members of the *Ypatingasis būrys* under German command. This group, totalling probably no more than 150 Lithuanian, but also a few Polish, volunteers, were recruited mostly from the paramilitary nationalist *Lietuvos šaulių sąjunga* (Lithuanian Riflemen's Union), commanded by former junior officers of the Lithuanian army, Juozas Šidlauskas, Balys Norvaiša, Jonas Tumas, Mečys Butkus, Balys Lukošius and Petras Jakuba. Because of their origin, they were derisively nicknamed 'Shaulists' or 'Ponary Riflemen'. The *Einsatzkommando* men usually attended to the planning and coordination of activities and also served as drivers.

As Red Army troops advanced in 1943, the Nazi units, under orders from *Sonderdirectiv* 1005, tried to cover up the crime at Ponar. Eighty inmates, drawn from captives taken in the city after the liquidation of the ghetto in September 1943 and Jewish Red Army soldiers imprisoned at the Stuffhof concentration camp, were formed into a *Leichenkommando* (corpse unit).[10] Initially shipped back and forth from cells in the Gestapo headquarters in Vilnius, the *Leichenkommando* was then housed in one of the storage pits (pit 5h on Figure 12) surrounded by a barbed-wire double fence, accessed by a ladder that was drawn up at the end of each day after the prisoners were shackled.

During the day the workers were forced to exhume the bodies of those executed during the previous two years, to remove their gold dental fillings, to pile the bodies on logs, to pour diesel fuel on them and incinerate the pyre. The ashes and bones were then ground up, mixed with sand and distributed in the surrounding forest.

Realising that after their work was finished they too would meet a similar fate, some of the workers decided to escape by digging a tunnel from the pit that was their prison. For three months they dug a tunnel some 35 m in length, using only spoons and their hands. On the night of 15 April, 1944 they made their escape. The prisoners cut their leg shackles with a nail file found in the clothes of the victims, and forty of them crawled through the narrow tunnel. Unfortunately, they were quickly discovered by the guards and many were shot. Around fifteen managed to cut the fence of the camp and escape into the forest. Eleven reached the partisan forces and survived the war.

While it is extremely difficult to arrive at exact figures for the number of victims martyred at Ponar, we can use a number of sources that are based on pre-war population numbers and the reports of the Nazis themselves, including the Jäger Report. In August 1944 the 'Soviet Extraordinary State Commission to Investigate and Establish War Crimes of the German-Fascist Invaders'[11] investigated the Ponar massacres and conducted a forensic examination (Figure 1), including the exhumation of bodies resting in the upper layers of some of the mass graves.[12] The commission report, which includes the first schematic plan of Ponar, determined that during the three years that the extermination site operated, from July 1941 to

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Figure 1 Forensic examination of the 'Soviet Extraordinary State Commission to Investigate and Establish War Crimes of the German-Fascist Invaders' in August 1944. Credit and copyright: Yad Vashem, Jerusalem (hereafter YV), 2655, ID 36271, Submitted by Reuven Dafni.

July 1944, more than 100,000 people were killed there. According to an exhaustively researched book by Monika Tomkiewicz,[13] the murdered included 72,000 Jews from Vilna and the surrounding district; 5,000 Soviet prisoners of war; between 15,000 and 20,000 Poles; 1,000 Russians and Lithuanians described as Communists or Soviet activists; and 40 Roma and members of a local Lithuanian Detachment who refused to follow German orders.[14]

Vilna was liberated by the Red Army, together with groups of Soviet, Polish and Jewish partisans, on 13 July 1944. On 20 September 1944, the Fast of Gedalia, a memorial service was held at Ponar, led by the poet Shmerke Kaczerginski in front of a few hundred survivors of Vilna's Jewish community. Later a memorial stele for the murdered Jews was erected with an inscription in Yiddish and Russian. As the attitude of the government of the Lithuanian Soviet Socialist Republic to the memorial of the Holocaust became more hostile, the monument was destroyed by the Lithuanian-Soviet authorities. It was replaced in 1948 with an obelisk that mentioned only the victims of Fascist terror, inscribed only in Russian and Lithuanian. Slowly over time, the site became overgrown with trees, sections of it were handed over to the Red Army and a railway siding dissected the extermination site, separating the entrance gate from the site.

Only in 1985 did the authorities finally relent, as pressure mounted to properly recognise the massacre at Ponar. The small museum at Ponar, originally opened in 1960, was replaced with a new building in 1985. The site was redeveloped with

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asphalted paths between the execution pits that, sadly, had little to do with the historical lines of movement through the site, and new commemorative stones with Russian and Lithuanian inscriptions were erected inside each of the pits (Figure 2). Only in July 1991, at the time when the Soviet Union was disintegrating, was the fact that most of the victims were Jews given expression. An additional plaque, between the existing inscriptions, was engraved with the Star of David and was inscribed, finally, in Hebrew and Yiddish stating that, 'Here in the Ponar forest, between July 1941 and July 1944, the Hitlerist occupiers and their local accomplices massacred one hundred thousand persons, among who were seventy thousand Jews – men, women and children'. At the centre of the site a large Jewish memorial was dedicated,

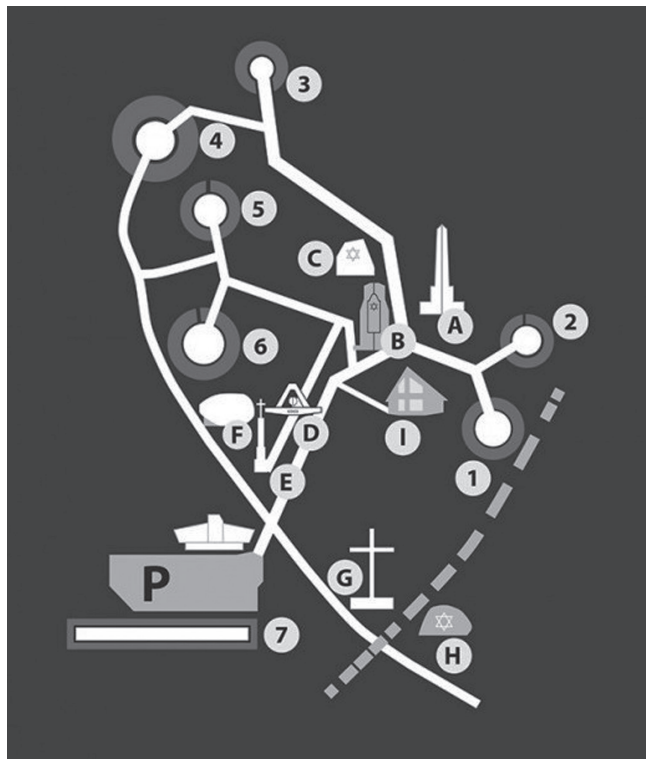


Figure 2 Plan of Ponar displayed at the site since landscaping in 1985. A – The Soviet memorial obelisk to the victims of Fascist terror (1948); B – Memorial to the Jewish victims (1991); C – Memorial to victims from the Kailis and HKP forced labour camps (2000); D – Memorial to the Lithuanian basketball team murdered at Ponar (2004); E – Memorial to Lithuanian victims (1993); F – Memorial to Red Army soldiers murdered at Ponar (1997); G – Memorial to Poles and members of the Armija Krajowa (1990); H – Memorial to Enzio Jagomast and family (1996).

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and over time further memorials have been added, including: a memorial dedicated to the memory of many thousands of Poles and members of the Armija Krajowa murdered in Ponar; a cross devoted to Lithuanian victims; a memorial to the murdered workers of the Heereskraftfahrpark 562 (HKP) and Kailis slave labour camps; and to the slaughtered prisoners of war of the Red Army. Custody of Ponar was also transferred to the newly established Vilna Gaon State Jewish Museum (Figure 3).

With the requirement to reorganise the site, update the small museum and publicise the massacre, the Museum asked our team, which was working to uncover the remains of the Great Synagogue of Vilna demolished during and after the Second World War, to help relocate the escape tunnel of the *Leichenkommando*. We had been using geophysical techniques in our work at the Great Synagogue of Vilna and it was suggested that these techniques could also be useful at Ponar.

In 2004 the Lithuanian archaeologist Vytautas Urbanavičius had uncovered the entrance to the tunnel. He showed it to be identical in design to the testimonies gathered from the survivors.[15] We were asked to investigate if we could identify the length of the tunnel, its direction and where it ended, so marking the point of

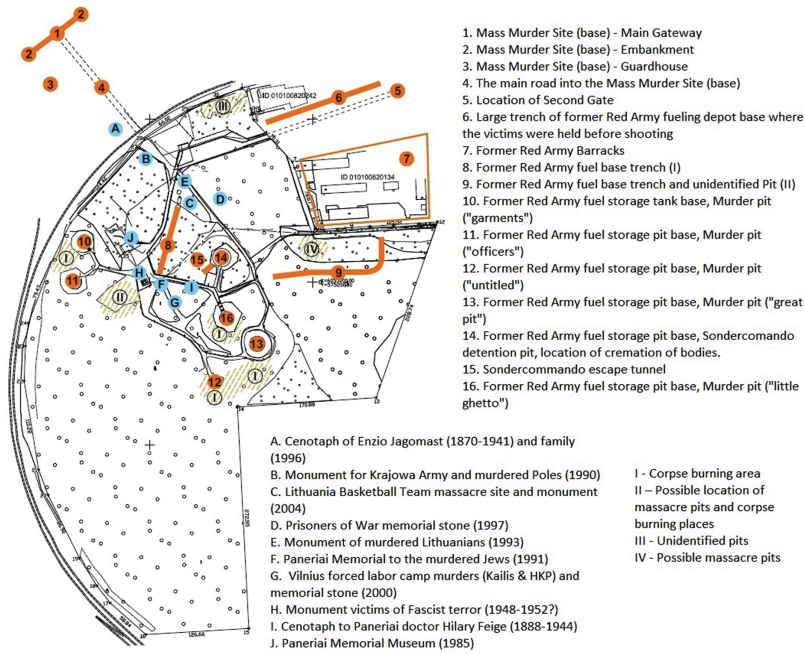


Figure 3 Plan of the Paneriai Memorial area today, showing six pits and a number of memorials, as presented by the Vilna Gaon State Jewish Museum. Credit: Vilna Gaon State Jewish Museum, http://www.jmuseum.lt/en/exposition/i/198/ (accessed March 2018).

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escape. Utilising electrical resistivity tomography[16] our team quickly identified the escape tunnel along its entire length, but further work at the site quickly showed us that the site as it is presented today is far from the layout of Ponar during its years of operation. Examination of a series of hand-drawn maps, made both by perpetrators and Soviet investigators, combined with the physical changes at Ponar since 1944, showed how little we know about the size, internal movement and even the operational aspects of the site. Given the lack of clear contemporary information, we turned to analyses of the best documentation we have from the period, that is, the aerial photographs taken as part of an intelligence set at the time of the Vilnius offensive, between 5 and 13 July 1944.

The schematic plans

Two plans are included in the report of the 'Soviet Extraordinary State Commission to Investigate and Establish War Crimes of the German-Fascist Invaders'.[17] While providing essential information, both prove difficult to associate with the topography. Furthermore, they seem to present parts of the site, without providing an overall picture, one of these plans being beyond comprehension. Indeed, only after working on the aerial photographs were sections of these plans comprehensible.

The plan (Figure 4) was prepared by the surveyor E. Zgorevski, signed by him and dated to 31 August 1944. As it is not connected to a general map of the area it requires a degree of interpretation. It shows an arbitrary perimeter area that had no relation to the actual line of the outer fence of the extermination camp, as far as we can assess, that encompasses an area of 48 ha. The plan includes a key, showing: forest, cleared forest, roads, rail lines, pits and trenches, pyres. It also includes an extremely important table that includes metric dimensions of the pits and trenches that proves difficult to read.

Clearly visible are two railway sidings that entered the camp from the north-east. At the end of the northern line is a platform or trench (no. 7) beside a small pit (no. 8) – a pit that is not visible on the aerial photographs. Just below (south of) the trench is the pathway that led from the main entrance on the north side, marked 'to Vilna', through the camp to the second gate on the east side to the village houses, noted as 'to Ponary'. This path branches south towards the pits, forking to either side of pit '1', which is filled in with black ink. Leading in a south-easterly direction is the trench that had been cut for the fuel pipes, which, according to this plan, does not reach the feature '7'. This trench was used to herd the victims from the entrance to pits 1, 3 and 5, according to the plan. One section of the trench, leading to pit 5' passes through a rectangular feature '4' of unclear nature. The plan also shows the position of ten pyres, three beside pit 1, five between pits 3 and 5 and two adjacent to pit 6. Also visible are the areas of forest, surrounded by a dotted line, that were cleared to provide firewood for the burning of the corpses.

The second contemporary plan (Figure 5) was hand drawn by Alex Pflüger, a Wehrmacht soldier of the 96th Infantry Division who was an eyewitness to the crimes at Ponar in July 1941.[18] Indeed, the only known photographs of the execution of Jews at Ponar where taken by his colleague, Otto Schroff, on the same day

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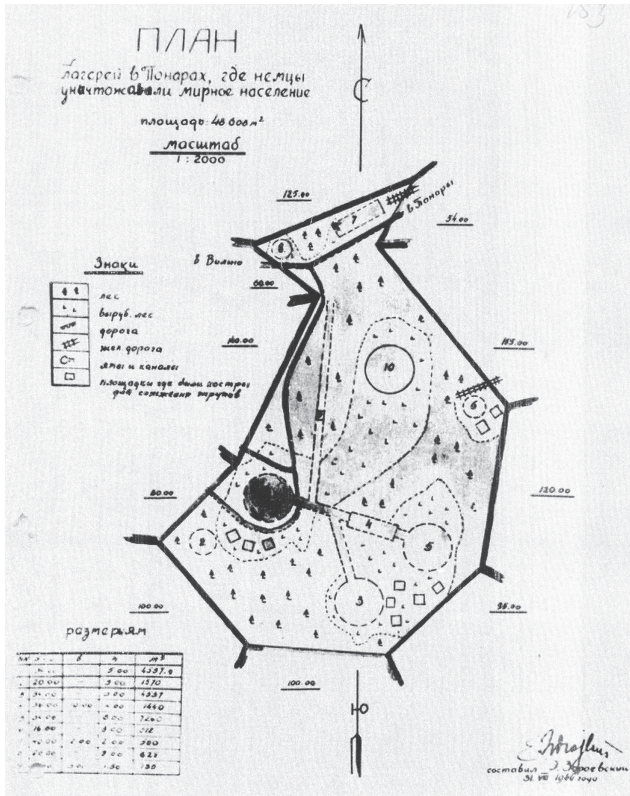


Figure 4 Plan of Ponar compiled by E. Zgorevski, dated 31 August 1944, included in the report of the 'Soviet Extraordinary State Commission to Investigate and Establish War Crimes of the German-Fascist Invaders' and titled 'Camp in Ponar where the Germans slaughtered civilians' (GARF 94-1-7021, 11572; Yakovlev, *Трагедия Литвы*, 24-45). The key differentiates, from top to bottom, forest, cleared forest, road, railway, pits and trenches and place of pyres in which bodies were burned. The plan also includes a table that provides dimensions of each of the features.

(Figures 6 and 7). At the trial of *SS-Obersturmbannführer* Dr Alfred Filbert, which ended in June 1962 in Berlin, Pflüger's witness statement included the plan shown here.[19] The plan is best annotated using Pflüger own words:

> I suddenly saw a column of about 400 men walking along the road into the pine wood. They were coming from the direction of Vilna. . . . After we followed the group for about 800 to 1,000 metres, we came upon two fairly large sandpits. The pits were not joined, but were separated by the path and a strip of land. We overtook the column

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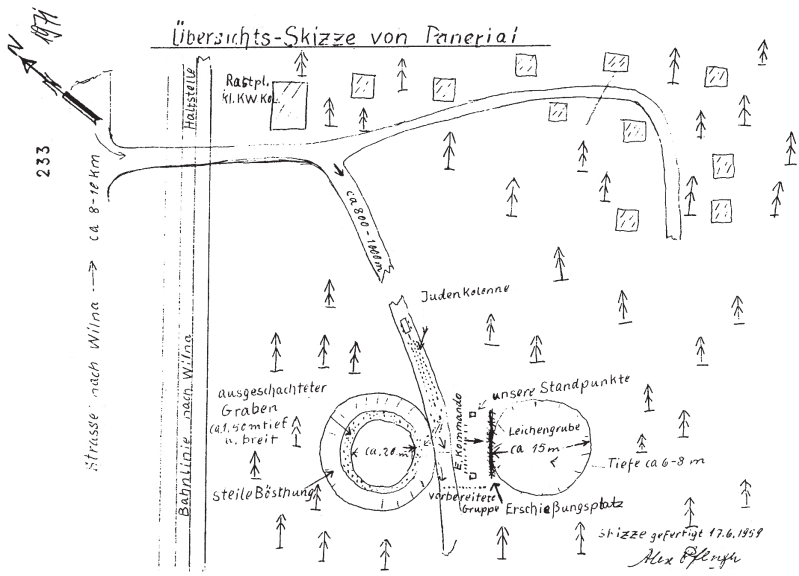


Figure 5 Plan of Ponar drawn by Alex Pflüger, dated 17 June 1959, as part of his witness statement to the crimes at Ponar. Central Office of the State Justice Administrations for the Investigation of National Socialist Crimes, Ludwigsburg (hereafter ZSLA-NSA), 207 AR-Z 14/58, p. 1683 ff.; LArch Berlin, B Rep. 058, Nr. 7167, fols 225–235; LG Berlin vom 22.6.1962, 3 PKs 1/62; published in *Justiz und NS-Verbrechen*, Vol. XVIII, trial no. 540, *Einsatzcommando* 9.

just before we reached the pits and then stopped close to the entry to one of them (the one on the right – '*Leichengrube*', with a diameter of around 15 metres). I myself stood about 6–8 metres from the entry (marked on plan – '*unsere Standpunkte*'). To the left and right of the entry stood an armed civilian [in fact a member of *Ypatingasis būrys*, whom Pflüger describes as carrying a carbine, and wearing an armband]. The people were then led into the gravel pit in small groups to the right by the guards. Running around the edge of the pit there was a circular ditch which the Jews had to climb down into.

This ditch was about 1.5 metres deep and about the same again in width [annotated '*ausgeschachteter Graben 1.50 m. tief u. breit*']. Since the ground was almost pure sand the ditch was braced with planks. . . . After a short time, the Jews had all been herded into the circular ditch.

. . . After this, ten men were slowly led out from the ditch. These men had already bared their upper torsos and covered their heads with their clothes [this process is clearly visible in Schroff's photographs].

I would like to add that on the way to the execution area the delinquents had to walk one behind the other and hold on to the upper body of the man in front. After

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Figure 6 Jews herded into trench in a pit in Ponar prior to execution. Credit: Yad Vashem 4613/915, ID 25580, www.yadvashem.org. Photographed by Otto Schroff, submitted by Moshe Shalvi.

> the group had lined up at the execution area ['*Erschießungsplatz*'], the next group was led across [*vorbereitete Gruppe*]. The firing squad [marked '*E. Kommando*'], which was made up of ten men, positioned itself at the side of the path, about 6–8 metres in front of the group. After this, as far as I recall, the group was shot by the firing squad after the order was given. The shots were fired simultaneously so that the men fell into the pit behind them at the same time. The 400 Jews were shot in exactly the same way over a period of about an hour. The pit into which the men fell had a diameter of about 15 to 20 metres and was I think 5 to 6 metres deep.

The description and the plan indicate that the pits being used for execution in July 1941 were the two pits just south-east of the entrance path (pits 5a and 5b

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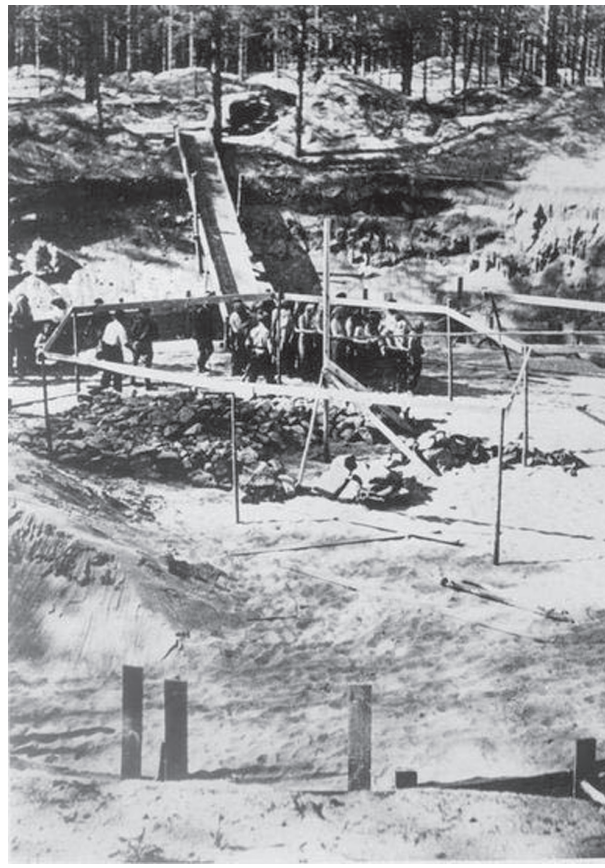


Figure 7 Jews herded into trench in a pit in Ponar prior to execution. Credit: Yad Vashem 4613/916, ID 26903, www.yadvashem.org. Photographed by Otto Schroff, submitted by Moshe Shalvi

in Figure 12). The Wehrmacht soldiers describe the dramatic events unfolding in front of them and were not concerned with describing the surroundings, so no mention is made of the other pits, nor of other facilities at the site. Indeed, at this early stage of the executions at Ponar it is not clear if the site had been fully prepared or surrounded by a perimeter fence.

Furthermore, the plan, together with the accompanying photograph, clearly illustrates the process. The victims are marched in from the Vilna–Grodno road or from the railway siding, followed by a vehicle. They are led through the first pit, where they are rotated through the trench around the edge, split into groups of ten or so and moved to the edge of the second pit, where they are shot by a firing squad.

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The aerial photographs

Aerial photographs form the basis of analysis for this section. As the Red Army advanced, the Luftwaffe flew aerial reconnaissance missions over the advancing front to identify targets for the German ground troops and the bombers of the Luftwaffe. These photographs are large-format, high-definition images that captured much beyond the information sought by the military, even details that the Nazis would rather have hidden. After the fall of Nazi Germany, these reconnaissance photographs were collected by the Allies and transferred to the United States and the United Kingdom, where they remained classified until the break-up

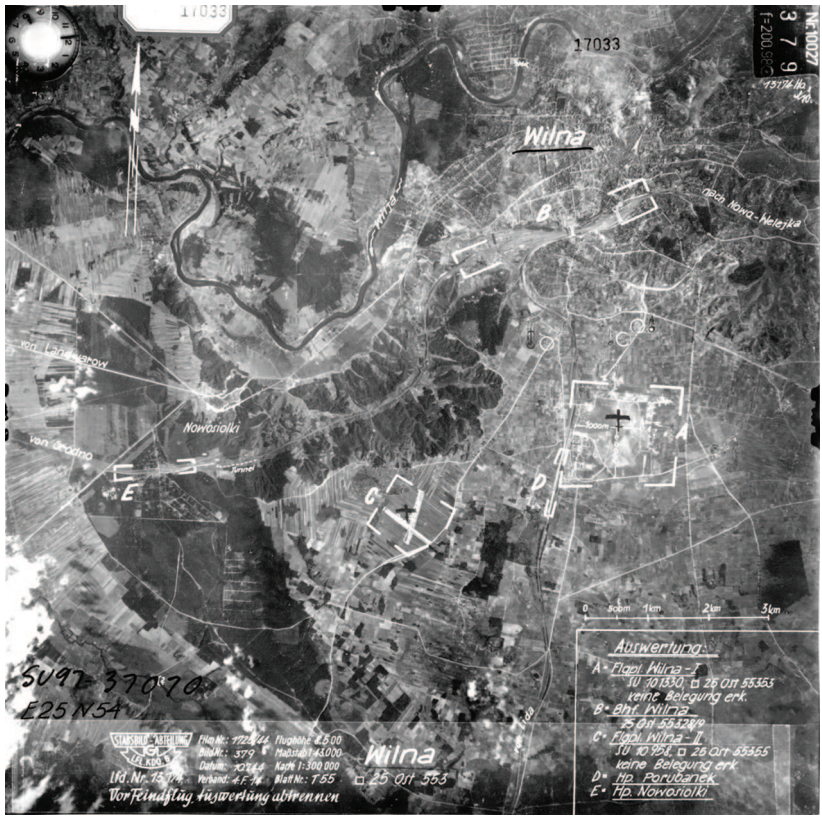


Figure 8 Aerial reconnaissance photograph of the Luftwaffe, dated 10 July 1944. The photograph identifies targets: airports A and C, train stations B, D and E. The execution pits at Ponar are clearly visible beside the letter E. Credit: National Archives and Records Administration, Washington, DC (hereafter NARA), image RG 373-DT-TM-5-Wilna-17033.

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of the Soviet Union. Later they were deposited in the US National Archives and Records Administration in Washington, DC and the National Collection of Aerial Photography in Edinburgh. The first image (Figure 8) that came to our attention, photographed on 10 July 1944, during the battle of Vilnius, clearly shows plumes of smoke rising from the fighting in the streets of the former ghetto in the upper right-hand corner, while in the lower left the white pits of Ponar are clearly visible. This image has been marked by a Nazi intelligence analyst in white ink, noting strategic targets, including two airports, railway junctions at Vilna and the Polish village of Nowosiółki near Ponar, the Ponary railway tunnel, river bridges and probable anti-aircraft batteries. Unfortunately, part of the Ponar site is covered by the white markings, but later a series of other images were added, giving detail to the site, all the photographs showing the results of the battle through numerous bomb craters scattered over the landscape, but concentrated around the airport and along the railway tracks (Figures 9–11).

Given that no proper plan of Ponar survives, and due to the numerous changes that have occurred over the years at the site, the aerial photographs have the potential to help understand the original layout of the Ponar extermination camp during the Second World War. A series of these images were compiled to draw a plan that, in our view, represents an image of the spatial layout of the site, the way that the Red Army had prepared the site as a fuel depot, the entry and exit points to the site, the pathways within the site, the structures and more.

The plan of the Ponar extermination site from the aerial photographs

Before the Second World War the area around the site would have been dominated by the railway line (marked in light green on the plan (Figure 12)) that ran through the site. A double track, laid in 1859 under Tsarist rule, as part of the St Petersburg to Warsaw route, ran from the important junction at Vilna, through a tunnel just to the east of the plan, westwards to Kovno (Kaunas).[20] A small station (marked 1 on the plan) was established just south of the track, serving the village known as Nowosiółki to the north of the line and Ponary to its south. On both sides of the track were the village homes (coloured brown on the plan), usually modest wooden dwellings of the style typical of the region, set in spacious plots in which fruit and vegetables were cultivated. One of these houses (no. 8), close to the gate of the Ponar base, was the home of Kazimierz Sakowicz. The village was connected to Vilna–Grodno road from the north. The main village road crossed the tracks from north to south, with numerous dirt roads criss-crossing the area of Ponar, the major paths marked in grey on the reconstructed plan.

After the Soviet occupation of the then Polish city of Wilno on 18–19 September 1939, the Red Army bolstered the defences of the city. A civilian airport had been constructed in the neighbourhood of Porubanek/Kirtimai in the south of the city in 1932.[21] This airport was prepared for military operations and it was decided to establish a fuel depot at Ponar, hidden among the trees. As we do not presently have archival data, we rely on the information gleaned from the aerial images. It would

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Figure 9 Aerial reconnaissance photograph of the Luftwaffe. The execution pits at Ponar are clearly visible, as are the results of bombing along the railway. Credit: NARA, image RG 373-GX929b SG-exp-238, Creative Commons CC0 1.0.

seem that three sidings were laid south of the main line to facilitate the establishment of the depot (2a–c on the plan). The northern siding (2a) ran along the side of the existing track and then turned south-west to run adjacent to the Vilna–Grodno road. The central siding (2b) was the main logistical track of the depot. One of the aerial images (Figure 13) clearly shows train cargo wagons parked on the southernmost siding (2c) at the end of the war. Two ancillary buildings (3a and 3b on the plan), which specifically relate to this siding, were probably built at this stage, as were loading bays and platforms, covering a length of some 270 metres, set up on both sides of the track (4a–c) and three paved areas (4d–f) set between this siding and a third siding (2c) that was located just to the south, right up to the space where the fuel storage tank pits were excavated. The latter probably served the builders during the construction. Also associated with this logistical area was a road that

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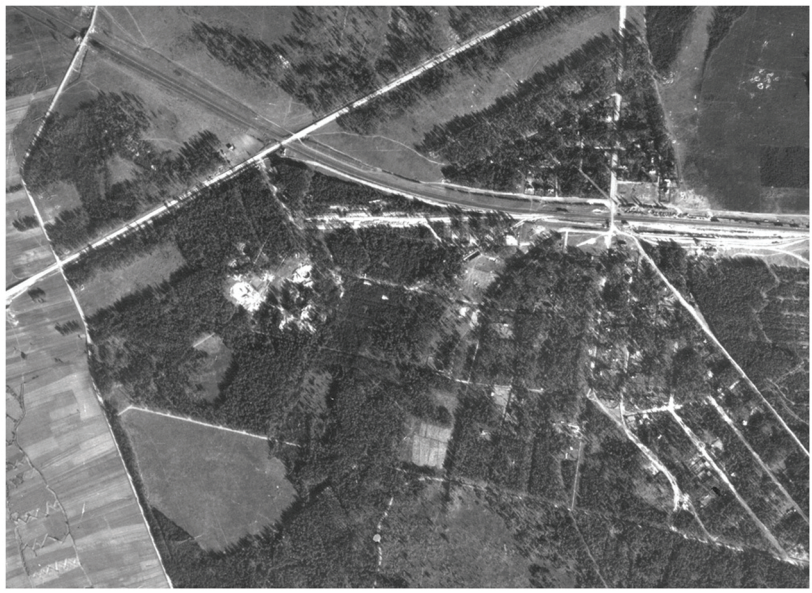


Figure 10 A zoom on the execution pits at Ponar. This photograph and Figure 11 form the basis of this analysis. Credit: NARA, image RG 373-GX929b SG-exp-238, Creative Commons CC0 1.0.

went right through the depot, from the main village road close to the station, before turning north to connect with the Vilna–Grodno highway. Judging from the photographs, what comprised a structure or a logistical space was not always easy to identify, although some of the images were taken in the early morning or late in the afternoon when buildings leave long shadows, while low-lying platforms and open spaces leave none.

Among the trees of the forest we identified nine round pits (5a–i) excavated in the sand. These were shored up initially with wooden supports and walls lined with stone were built inside some of them. The engineering design would probably have envisioned the placing of metal fuel tanks in these pits. While nine pits are visible from the aerial photographs, only six are displayed today at the memorial site (5a, 5b, 5e, 5f, 5g, 5h), and seven are usually listed in most records. Only further geophysical work can confirm the actual number. One of the lost pits (5c), clearly identifiable on the aerial image, was identified by our geophysical team (Figures 13 and 14), while the others require future work. Pit 5h was used for the detention of the *Leichenkommando*, and it was from here that their escape was made.

At the western end of railway siding 2b a trench (marked in yellow) connected to pits 5a, 5b, 5c, 5e and 5g. Unlaid piping, set in the trenches, was planned to have channelled aviation fuel from the end of the railway siding into the tanks. There

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Figure 11 The execution pits at Ponar. This photograph and Figure 10 form the basis of this analysis. Credit: NARA, image RG 373-GX8211 SD-exp-216, Creative Commons CC0 1.0.

is no reason to suppose that the other tanks were not connected to this system of trenches, although they are not visible on the aerial photograph, nor evident on the surface today. During our geophysical survey, adjacent to the Jewish memorial at the centre of the present site we managed to isolate this trench.

As we have stated from the historical research, the depot was not completed before the invasion of the Wehrmacht on 24 June 1941. The Germans adopted the pits for extermination and utilised the transport routes to the site for the transfer of Jews from Vilna to Ponar. While we do not know the stages of development of the site, we can use the photographs to understand the layout as it stood by the end of the war.

Although the exact line of the perimeter fence cannot be seen from the air, the lines of features, especially the paths and the rail sidings, would suggest a logical line along which the fence of the Ponar base was aligned. This would have followed the edge of the Vilna–Grodno highway, the main rail track, the edge of the features of the evolving Soviet fuel depot and a series of paths around the site to the south that were enclosed by the surrounding inter-settlement roads but were far enough from the pits themselves to discourage the inquisitive. This line is marked on the plan in red. It encompasses around 70 ha, a much larger area than the 20 or so hectares presently under the custody of the Vilna Gaon Jewish State Museum, which excludes essential parts of the site. Given the perimeter, we are left with four logical entrance points into the camp, only one of which provides clear documentary

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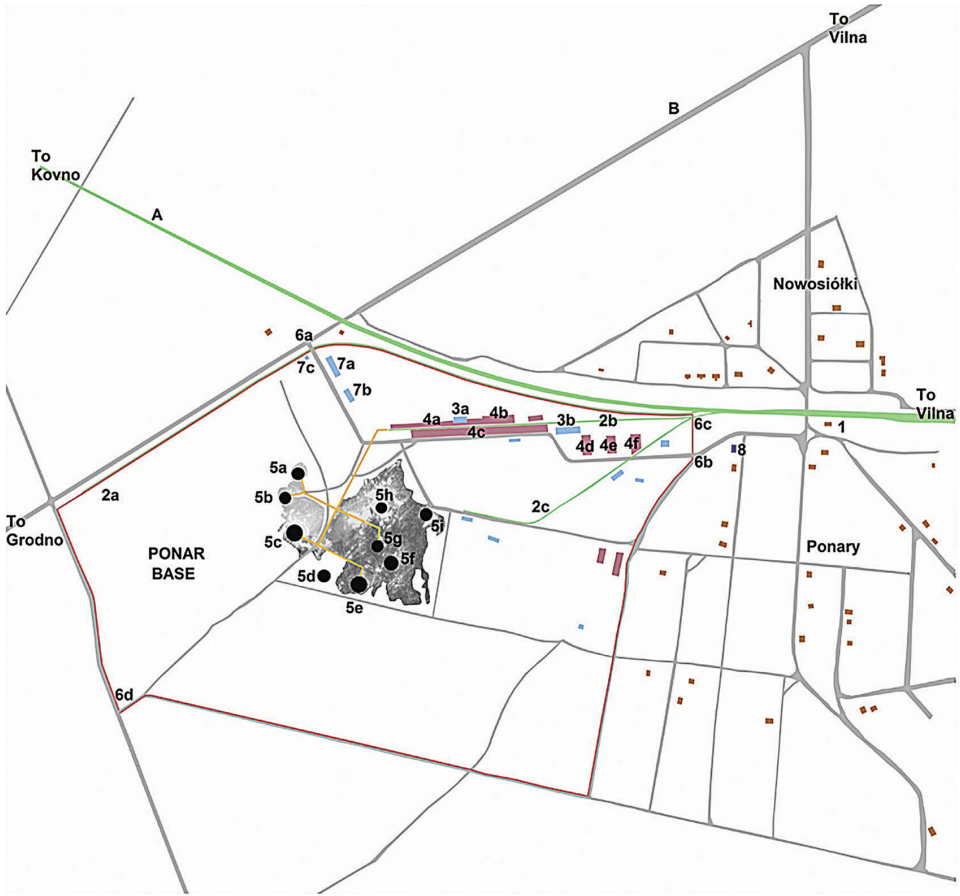


Figure 12 A plan of Ponar based on the aerial photographs. Key: Grey: Roads; Green: Railway lines; Brown: Houses; Light Blue: Structures in the Ponar base; Purple: Logistical platforms in the Ponar base; Yellow: Fuel/detention trenches; Red: Perimeter fence of the Ponar base; A – Vilna-Kovno railway; B – Vilna to Kovno Road; 1 – Ponary railway station ; 2a–c – Railway sidings into the Ponar base; 3a–b – Buildings adjacent to siding 2b; 4a–f – Railway logistical platforms; 5a–i – Execution pits surrounded by ash fields; 5h – The *Leichenkommando* detention pit; 6a – Main gate; 6b – Gate to Ponary village; 6c – Railway gate; 6d – South gate; 7a–b – Barracks ; 7c – Guard post; 8 – House of Kazimierz Sakowicz.

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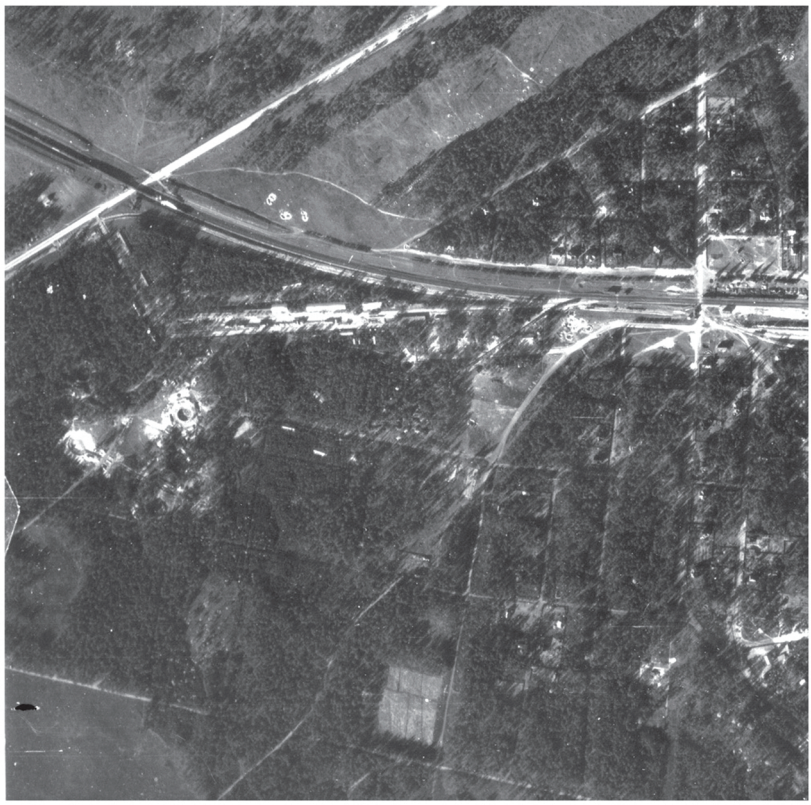


Figure 13 Aerial reconnaissance photograph of the Luftwaffe. A train can be seen on siding 2c inside the Ponar base. Credit: NARA, image RG 373-GX8207 3064SD-exp-272.

evidence. This would be the main gate (6a) from the Vilna–Grodno highway. Testimony shows that it was through this gate that many of the victims were marched to their deaths. Furthermore, a concrete gate-post at the entrance to the site still stands (Figure 15). The second road entrance (6b) would likely have stood on the eastern edge of the site, allowing access to the logistical area from the village. Just to its north, where the railway siding entered the site, an additional gate (6c) must have been located. The final gate is complete supposition. A gate (6d) blocking road entrance from the south-east to the paths around the site is likely also to have also existed.

We know that the henchmen of the *Einsatzgruppen* and the *Ypatingasis būrys* were usually barracked in Vilna and came to Ponar with the victims to murder them. Still, a small force was stationed to guard the site. They were housed in two

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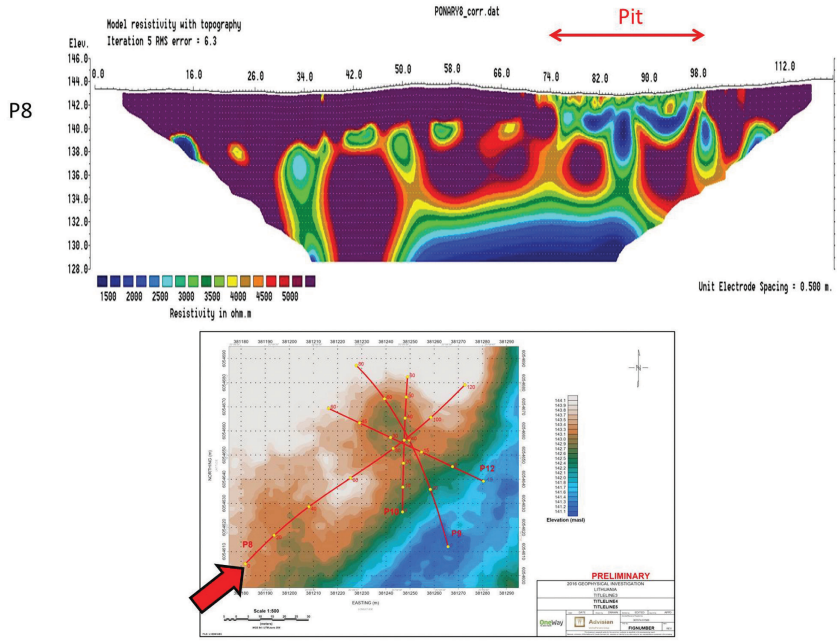


Figure 14 Geophysical analysis of pit 5c shows the outline of a pit that is no longer visible on the surface. The geophysical analysis was conducted by Paul Bauman and Alastair McClymont of Advisian, WorleyParsons. Credit: NARA, Creative Commons CC0 1.0.

hut barracks (7a–b) at the entrance to the site that are clearly visible in the aerial photographs. A small guard house (7c) was located at the gate.

Victims would have been led or driven through the gate (6a), past the barracks (7a–b) and led into the trench before being directed to the chosen execution pit. We know that some victims were brought to the site by train. Although we had always understood that they disembarked at the station and then walked, presumably through the eastern gate (6b) to the execution site, there is also a strong possibility that they were side-tracked directly into the Ponar base itself through gate 6c, leaving the train on sidings 2b or 2c. On some occasions, such as during the transport of Jews for extermination from the smaller Ghettos at Sol, Svintsyán and Oshmene in 1943, all the victims were brought to Ponar by train.

The final feature expressing itself though the aerial photographs is the result of the work of the *Leichenkommando*. The burning of the remains of the victims produced huge quantities of ash, which was distributed around the site. This presents itself as whitish areas on the images. This spread of ash is marked on the plan as an ash field around the extermination pits.

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Figure 15 The surviving gate-post at the entrance (gate 6a) to the Ponar base. Photograph credit: Jon Seligman, Israel Antiquities Authority.

The Ponar extermination site after the Second World War

After the Second World War the site at Ponar was investigated by the 'Soviet Extraordinary State Commission to Investigate and Establish War Crimes of the German-Fascist Invaders' and then basically abandoned. A Red Army base was established on the area of the platforms of the railway sidings, a number of memorials were established at the site itself, a small museum was built, the site was landscaped, and more. The major change would be the cutting up of the area through the expansion of the Paneriai station, which included a series of new railway lines. We have represented these changes on a Google Maps composite image. Clearly visible is the change to the railway lines (marked in red) that included the closing of the railway tunnel and the construction of cargo depots. One of these new lines would cut off the original main gate to the site from the extermination pits, passing within metres of the extermination pits themselves.

The road network also changed, as the Vilna–Grodno road was closed and shifted to a new highway system that drew traffic around Ponar. Access to Ponar was no longer possible from the north, all visitors approaching the site from the south-east. Long sections of the original road still exist as a high embankment that passes through the forest (Figure 17).

These changes reduced the perimeter area of the site to a quarter of its original and made proper understanding of the spatial layout difficult. A major expression of these changes is the statement of Mordechai (Mottke) Zeidel, one of the escapees from the *Leichenkommando*, who, on arriving at the site for the first time

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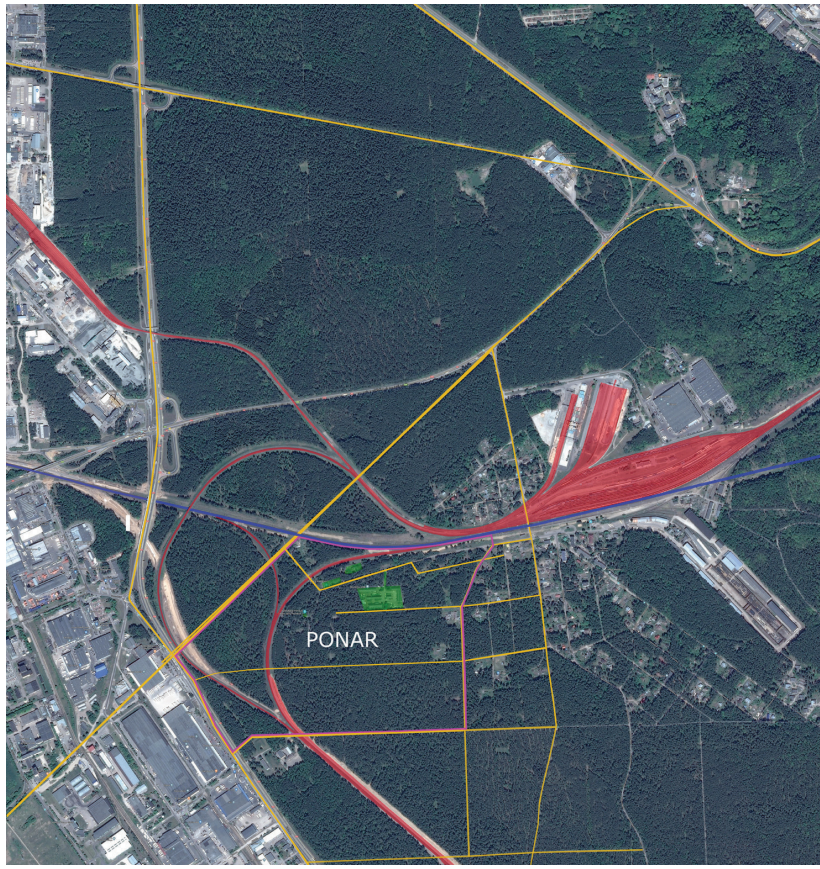


Figure 16 Changes at Ponar since the Second World War. Credit: Google, Maxar Technologies. Key: Yellow: Roads as they existed during the operation of Ponar; Blue: Railway line during the operation of Ponar; Red: Railway lines today; Green: Buildings and car park inside the perimeter of the Ponar base; Purple: The perimeter fence of the Ponar base.

after Lithuanian independence in 1990, told his daughter that he was having difficulty understanding the layout of the site, demonstrating to us the importance of its re-identification.

The extermination site at Ponar, probably the largest extermination site in the Baltic countries, was designated as a memorial after the Second World War. Although the central area of execution had been protected, the site was gradually reduced in size from 70 to around 2 ha, and central features, essential to understanding the operation of the site, were gradually removed. As the original layout of the Ponar base has been lost, visitors to the memorial find understanding of the site's

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Figure 17 The Final Path – remains of the Vilna–Grodno road today. Photograph credit: Jon Seligman, Israel Antiquities Authority

original topography difficult. Using contemporary maps and aerial photographs, we have been able to map out the site as it was left by the Nazis and the *Ypatingasis būrys*. This analysis displays the layout of Ponar, the external perimeter, points of access, the way in which railway sidings were an integral part of the site, the internal movement, the placing of the pits and the trench connections between them and the extent of the ash field after the incinerations of the human remains. It is hoped that this new comprehension of the site will facilitate a better appreciation of Ponar and serve as a tool for the custodians to explain the massacre to visitors.

Notes

1 P-P. de Ségur, *La Campagne de Russie* (Paris, Firmin-Didot, 1894), pp. 412–14.
2 Terminology of place and its associated national attributions is an emotive issue in Eastern Europe, no less so in Lithuania, where, prior to the Second World War, a multicultural society of Lithuanians, Jews, Poles, Russians, Belarusians and others lived side by side. Being no less attached to a specific terminology than anyone else, I have chosen to use Yiddish place names in this article. That choice does not indicate any lesser legitimacy for other names used by others for the same places. Thus Vilna (Vilne) is also known as Vilnius and Wilno; Kovno as Kaunas and Kowno; Grodno as Gardinas; Svintsyán as Švenčionys or Święcianyin; Oshmene as Oszmiana; and Ponar is denoted as Paneriai and Ponary.

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3 I. Klausner, *The History of the Hebrew Community in Vilna* (Vilna, Jewish Community of Vilna, 1934), (Hebrew); L. Ran, *Jerusalem of Lithuania: Illustrated and Documented* (New York, Vilner Farlag, 1974); A. Wajs and S. Spector, 'Vilna', in S. Spector and B. Freundlich (eds), *Encyclopaedia of Jewish Communities, Poland VIII: Vilna, Białystok and Nowogródek Districts* (Jerusalem, Yad Vashem, 2005), pp. 30–92, (Hebrew); V. Levin, 'Vilnius', in A. Cohen-Mushlin, S. Kravtsov, V. Levin, G. Mickunaite and J. Šiauciunaite-Verbickiene (eds), *Synagogues in Lithuania* II (Vilnius, Vilnius Academy of Arts Press, 2012), pp. 239–353.

4 Y. Arad, *Ghetto in Flames: The Struggle and Destruction of the Jews in Vilna in the Holocaust* (Jerusalem, Yad Vashem, 1980), p. 66; A.J. Kay, *The Making of an SS Killer: The Life of Colonel Alfred Filbert, 1905–1990* (Cambridge, Cambridge University Press, 2016), pp. 49–50.

5 J. Mackiewicz, 'Ponary – Baza', *Orzeł Biały*, 35:170 (1945), https://tadeuszczernik.wordpress.com/2011/02/10/jozef-mackiewicz-ponary-baza/ (accessed March 2018); Arad, *Ghetto in Flames*; K. Sakowicz, *Ponary Diary, 1941–1943: A Bystander's Account of a Mass Murder*, ed. Y. Arad (New Haven and London, Yale University Press, 2005) and notes by Y. Arad therein; A. Bubnys, 'The Sonderkommando of the German Security Police and Security Service in Vilnius (1941–1944)', in J. Levinson (ed.), *The Shoah (Holocaust) in Lithuania* (Vilnius, The Vilna Gaon Jewish State Museum, 2006), pp. 45–51; M. Jakulytė-Vasil, *Lithuanian Holocaust Atlas* (Vilnius, Vilna Gaon State Jewish Museum, 2011), pp. 292–5.

6 Bubnys, 'The Sondercommando', 49–50; M. Tomkiewicz, *Zbrodnia w Ponarach 1941–1944* (Warsaw, Instytut Pamięci Narodowej, 2008), pp. 179–207.

7 Sakowicz, *Ponary Diary*.

8 Sakowicz, *Ponary Diary*, p. 43.

9 Arad, *Ghetto in Flames*, pp. 66–79; A. Bubnys, 'Lietuvių policijos 2-asis (Vilniaus) ir 252-asis batalionai (1941–1944)', *Genocidas ir rezistencija*, 2:8 (2000), 44–5; Bubnys, 'The Sondercommando', 44–6; Jakulytė-Vasil, *Lithuanian Holocaust Atlas*, p. 292; Kay, *Making of an SS Killer*, pp. 49–56.

10 Y. Farber, 'Ponary', in I. Ehrenburg and V. Grossman (eds), *The Black Book: The Ruthless Murder of Jews by German-Fascist Invaders Throughout the Temporarily-Occupied Regions of the Soviet Union and in the German Nazi Death Camps established on occupied Polish soil during the War 1941–1945*, trans. 1981, from Russian, J. Glad and J. S. Levine (New York, Holocaust Library, 1945), pp. 455–75; A. Sutzkever, *The Vilna Ghetto* (Tel Aviv, Am Oved, 1947), pp. 235–46, (Hebrew. Trans. 2016, from Yiddish by V. Shifriss); S. Gol, 'Escape from Ponar', in Y. Zuckerman and M. Bassok (eds), *The Book of the Ghetto Wars* (Tel Aviv, Hakibutz HaMeukhad, 1954), pp. 566–70, (Hebrew); Z. Matzkin, 'Ponar', in S. Kanc (ed.), *Memorial Book of Twenty-three Destroyed Communities in the Svencionys (Svintzian) Region* (Tel Aviv, Association of Former Residents of Svintzian in Israel and the U.S., 1965), pp. 613–26, (Yiddish); S. Domba, *Escape from Ponar* (Rishon le-Zion, Private publication, 2002), (Hebrew).

11 State Archive of the Russian Federation, Moscow (hereafter GARF), 94-1-7021, 11572; A. Yakovlev, *Трагедия Литвы 1941–1944: годы. Сборник архивных*

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документов о преступлениях литовских коллаборационистов в годы Второй мировой войны (Moscow, Издательство «Европа», 2006), pp. 24–45.

12 Tomkiewicz, *Zbrodnia w Ponarach*, pp. 259–67.

13 Ibid.

14 Ibid, pp. 208–51, 379.

15 V. Urbanavičius, *Panerių memorialas: Buvusio Kalėjimo 2004 M. Tyrimų Ataskaita* (Vilnius, Pilių Tyrimu Centras 'Lietuvos pilys', 2004).

16 Electrical resistivity tomography (ERT) is a geophysical technique for mapping the distribution of electrical resistivity of materials below the surface based upon their reaction to the electrical charge sent into the ground through a linear array of surface electrodes. Data are collected through the electrodes coupled to a resistivity transmitter and receiver. The collected data is interpreted to create an image that is indicates the composition of the sub-surface, differentiation between soil types, layers, structures and materials many metres below the topsoil. For the archaeologist, the ERT predictive model provides essential information to guide subsequent excavation to a satisfactory result.

17 GARF 94-1-7021, 11572; Yakovlev, *Трагедия Литвы*, pp. 24–45.

18 E. Klee, W. Dressen and V. Riess, *'Those Were the Days': The Holocaust Through the Eyes of the Perpetrators and Bystanders* (London, Hamish Hamilton, 1991), pp. 38–42, and archival details on p. 283; Kay, *Making of an SS Killer*, p. 52 and archival details there.

19 ZSLA-NSA 207 AR-Z 14/58, p. 1683 ff.; LArch Berlin, B Rep. 058, Nr. 7167, fols. 225–35; LG Berlin vom 22.6.1962, 3 PKs 1/62; published in Justiz und NS-Verbrechen, Vol. XVIII, trial no. 540, Einsatzcommando 9.

20 Lithuanian Railways, www.litrail.lt/istorija (accessed March 2018).

21 Vilnius International Airport, www.vilnius-airport.lt/en/about-us/history/ (accessed March 2018).

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