

## Analysis of military landscapes in Lviv Region (Ukraine)

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The article analyzes the military landscapes, and a special role is given to the monuments of the military group of Lviv region. The role and significance of military landscapes in the formation of the historical and cultural heritage of Ukraine, which reflects the peculiarities of the formation of modern natural conditions of its specific regions, are considered. A chronological table is formed, their classification according to the time of origin, formation and origin of military landscapes of Lviv region.

**Key words:** military landscapes; fortifications; natural landscapes; defensive towers; defensive shafts; mounds; wall; Lviv region.

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### Introduction

Military landscapes include complexes of military origin - ancient fortified settlements and fortresses, ditches and ramparts, mounds and more. Over time, the number of landscapes of military origin becomes smaller, which gives fewer opportunities to study their impact on nature and assess their historical value (Antonyuk, 2010). It is in Ukraine that the densest network of long-term border fortifications (SFS) built between the First and Second World Wars, known as the "Stalin Line" (old border) and the "Molotov Line" (new border), has been preserved. Restoration of fortifications is quite difficult, as they were created in ancient times and were destroyed by natural factors and as a result of the First and Second World Wars.

Many fortifications, mounds, and ramparts from the First and Second World Wars have been preserved on the territory of Ukraine. Fortifications, which are well preserved to this day, are now being restored and belong to historical and cultural sites or used as museums. However, many military landscape complexes are abandoned: many defensive ramparts are often dug, excavated under roads, destroyed by rivers, complicated by landslides (Antonyuk, 2015).

### Materials and Methods

Among Ukrainian scientists who studied military landscapes, it is worth noting G. Denysyk, who studied the landscapes of Podillya and the Right Bank of Ukraine, L. Voropay, V. Korzhyk - Prut-Dniester interfluvium and Podillya, O.P. Semeryaga studied the military landscapes of Dnipropetrovsk region, O.O. Antonyuk studied the importance of military landscapes in the formation of the historical and cultural heritage of Ukraine (Denysyk, 2011-2012; Mudrak, 2013; Semeryhaga, 2014; Antonyuk, 2015).

Military landscapes as unique landscapes Middle Transnistria devoted to work (Denysyk, Mudrak, 2014). Protection and preservation military landscapes, which form the basis of the cultural landscapes of the ecological network of Podillya are devoted to works (Mudrak, Mokryy, 2008). Balanced nature management and protection military landscapes works are devoted to the foundations of ethnocultural landscapes of Podillya (Mudrak, 2018). Thanks to research in the late twentieth century, a classification of military landscapes was developed. F.M. Milkov identified landscapes of military origin, namely - shafts, mounds and settlements. In 1974 he developed a classification of military landscapes: military type of tract (natural and anthropogenic tracts), military terrain (caused by military activity), military type of landscape and class of military landscapes (Milkov, 1973).

The analysis of the oldest data on the history of Lviv, including military landscapes is contained in the first monographic studies of the XVII-XVIII centuries. V. Zimorovich and T. Yuzefovich. Researchers of the 19th century also raised the question of the city fortifications of Lviv at different times in their works. D. Zubrytsky, A. Prokhaska, 3. Radziminsky, K. Rasp, A. Cholovsky. Based on the analysis of the toponymy of medieval Lviv and archival sources, Archivist J. Gronsky gave his vision of the city's fortifications. V. Zymorovych provides information about the construction of the wall of the «new» city, the so-called

“Kazymyryvsky” or “High” in the 50-60s of the XVI century. Information on the construction of fortifications and reconstruction of the Low and High castles, city gates can be found in the works of Alnpnek and Gruneweg (Bilushchak, 2012).

A great contribution to these studies of the city of Lviv was made by the works of V. Tomkiewicz (1971), in particular the work “Dzieje obwarowań miejskich Lwowa” and I. Krypyakevych “Historical passages in Lviv”, where he wrote as fully as possible about strengthening, in particular, the provision of urban development based on natural obstacles - the river, swamps, hard-to-reach mountains and the division of the city into three parts: the castle - baby, fortified «posts» and suburbs (Krypyakevych, 2009).

## Results

Military landscapes are insufficiently studied in Ukraine. Because there is no exact classification, division by districts, structure and their role in the functioning of landscapes in general. Recently, the form of ownership of land resources, reserves and landscapes has changed, leading to the destruction of the memory of past times and the impact of historical events on the environment. Like all anthropogenic landscapes, military landscapes are formed in specific physical and geographical conditions, and therefore they also have regional differences. This can be seen in soil and vegetation, landscape structure, a manifestation of undesirable processes, etc. (Antonyuk, 2010).

Lviv is rich in its history since the twelfth century; so many remnants of fortifications have been preserved. Due to the relief of the city, fortifications were built. Among the main ones are the remains of the High and Low Castles, the fortifications of the Austrian times on the Citadel and the line of defence of F. Hetkant. A wall with six towers surrounded the high castle. However, at the beginning of the eighteenth century, people began to dismantle it, as a result of which the building was destroyed. In addition, in the middle of the walls, they began to build houses, and then added a new line of defensive fortifications, a moat and an embankment, and then another row of fortifications. However, over time, everything had to be destroyed. A park was planted on the site of this fortification and only a few towers and part of the wall have survived.

It is worth noting how the military landscape of Lviv is the territory of the Citadel. In the 19th century, the Citadel was fortified with ditches with counterparts, three forts were built 1 km south of the Citadel, and eventually nine more forts at a distance of 4 km and a few years later another 11 forts about 8 km from the Citadel. This is one of the military landscapes of Lviv, which has survived to our time.

Between Pidvalna and Vynnychenko streets, there is a square «On the ramparts». This park has existed for over 200 years. The length is about 40 m and the total area is 1.9 ha. The earthen rampart was registered as a historical monument in 1972. In the Middle Ages on the site of the current park were the most important defensive fortifications of the city. There was an outer wall along with the basement and behind it a moat filled with water. Behind the moat was a shaft, partly natural and partly artificial. There were four large towers on the shaft. The first, royal, stood at Vynnychenko and Valova streets. The second was opposite the main entrance to the former governorate. The third, a powder tower, was built in 1554-1556. The fourth tower was on the ramparts in front of the fire station and formed the centre of a whole system of earthworks. During the liquidation of the defensive fortifications, the ditch was filled with soil from the upper part of the shaft. Thus, in the late 18th century, a new street was formed in Na Vali, now Pidvalna. In 1821, the provincial councillor Reitzenheim submitted a project for the arrangement of the promenade on deserted ramparts; then these places were put in order, Italian poplars, chestnuts and other trees were planted, paths with benches were established. A suspension bridge was built over a large swamp ravine located here at that time. The perimeter of the square was framed by pyramidal poplars and pruned shrubs. This century-old park was significantly destroyed by a storm around 1900. Behind the embankment was a second ditch filled with water. In front of the building of the Shevchenko Scientific Society (26 Vinnychenko Street), there was a small pond (Tomkiewicz, 1971; Pshyk, 2008).

In the 1940s, a bomb shelter was dug under the square, and after the Second World War, trophy German military equipment was exhibited on the alleys of the northern part of the boulevard (from the Powder Tower to M. Krivonos Street) (Bilushchak, 2012). In wartime, cities were built mostly in river valleys. Such a city is Zhovkva. The city is located in the valley of the river Svinya on the border of Roztocze and Maly Polissya at the foot of Mount Garay. At the end of the 16th century, Stanislaw Zholkewski built a city according to the “ideal city” scheme.

The construction of this fortification was in a strategic place, on the right bank of the pond, which was surrounded by swamps and a ravine with a river. As a result, it was impossible to get around the city. The city itself was well planned and had beautiful defensive towers, a castle, a town hall and temples. During the reign of Jan Sobieski, park ensembles were built on the Zvirynka and on the hills of Mount Garay. Wetlands were drained and a garden and rare trees were planted in the Zoo. An alley was laid across the pond to Garay. Baths were built in the middle of the pond, and a summer palace was built in the park on the mountain. Under the kingdom of Jan Sobieski, Zhovkva became his private residence. At the end of the 17th century, there was a large fire in Zhovkva, which destroyed the city centre, including buildings; flora and fauna of the landscape, but the townspeople quickly restored everything. At that time, there were about 1.5 thousand soldiers in the city to ensure security and order. Unfortunately, in the 1750s the city fell into disrepair, as a result of which the fortifications were destroyed.

At the beginning of the twentieth century, the city began to rebuild, laid railways, sewers and water supply networks. The ponds located on the Pig River were drained and those areas were built up. During the First World War, the castle was burned down, which was eventually rebuilt by the Poles. Moreover, after the Second World War, most of the houses were destroyed, which were not rebuilt, but simply levelled the territory. The buildings built by the Soviet authorities were built without taking into account the style of the city. Restoration and preservation of historic buildings and the military landscape, in general, began in the late twentieth and early twenty-first century. Due to which Zhovkva has survived as an integral urban complex.

In the city of Sambir, Lviv region, many fortifications were built in different historical times. It is worth mentioning the wooden fortifications of the Galicia-Volyn fortification and the times of the Commonwealth, the defensive walls and Starostynsky Castle. Unfortunately, no information about the construction of this castle has been preserved, but it is known that the first mention dates back to 1390. The first mention of the city itself is in 1241 when the Mongol-Tatars destroyed the city and the inhabitants formed a settlement on the banks of the Dniester River in the position of Pohonych. Since this post was not destroyed, it can be concluded that there was a good fortification. Remains of fortifications and fortifications were found during the study of Sambor fortifications. Therefore, it should be noted that Pohonych was one of the objects of the military landscape of the city of Sambor (Oprysk V., 1996). The castle was located on the territory of the church of John the Baptist, as there are remains of a shaft. In 1390, a new owner, voivode Spitko from Melsztyn, appeared in the city, who began to build the city and change the landscape of the territory, as a rampart and a moat surrounded the city. However, the defence was weak at this time and in 1498 the Tatars burned the city. After that, in 1530 the construction of defensive walls began. After the walls were built, the Tatars no longer attacked the city. However, by the end of the XVIII century, the walls became abandoned and eventually dismantled. That is why to this day only the walls on the west side of the medical school and residential buildings on the street. Riflemen.

Another important beligrative landscape of Lviv region is the so-called Golden Horseshoe of castles (Bezv M., Lukomska Z., 2017). One of them is Pidhirtsi Castle, which is located on one of the spurs of the Podil Upland, on the northern side of which is a swampy part of Maly Polissya. In Pidhirtsi there is a watershed of the rivers Stryj and Svicha and many springs. The castle is surrounded by a park that was created in the «Italian style». Not far from the castle is the Plisne settlement, which we will consider later, and the ancient cemetery near St. Michael's Church, which has already burned down. Unfortunately, history has dealt harshly with this pearl of the Renaissance: the collection is scattered across museums and continents, part of it is fatally destroyed, and the building is ruthlessly destroyed. In particular, only monumental portals and a black marble fireplace have survived in the palace. Moreover, in the archives, they found old photos, where you can see the grandeur and beauty of the castle.

Zolochiv Castle is an example of a combination of a defensive and residential building. It is built at the crossroads of important trade routes, according to the Dutch system on the hill. This fortress was built so that it was bypassed by all troops, as it was difficult to capture. Stone ramparts, bastions of stone slabs and a drawbridge surround the castle. Under the building, there is a dungeon. It is worth mentioning the system of so-called «water closet», which was built as follows: the gutter from the roof was passed through the toilet, and all the waste went to the cesspool, which was a feature at the time, as this method was not common.

Olesky Castle was built more than 6 centuries ago. After the disintegration of Kievan Rus, the Mongol-Tatars destroyed the city of Plisnensk, which was located 10 kilometres from Olesk, and the fugitives from the city built a new settlement on a hill among the swamps. The basis of the fortress was the rise on which the castle was built. On the slope of the mountain was a shaft with a fence and behind it a shaft with a moat in which there was water. The areas adjacent to the fortification were swampy. The castle was located on the border of Poland and Lithuania, which led to constant hostilities in the surrounding areas. In the middle of the 16th century, the fortifications were completed and strengthened, so the means of defence were placed behind the castle walls, the ramparts were improved and bastion structures were erected. Olesky Castle attracts tourists, as the fortress is in good condition. Also near the castle, there are Capuchin monastery, park and pond formed on the site of a fortress moat.

Svirsky Castle is a castle in Ukraine, located in the village of Svirzh, Peremyshlyany district, Lviv region. Founded in the 15th century by Andriy and Martin Svirski, it was first mentioned in 1484. Initially, the castle was a purely defensive brick building, square in plan. It was repeatedly rebuilt, the year of completion of one of the stages of work is indicated directly on the walls - above the central gate on the inside, there is a carved number "1530". In 1672, during the Turkish campaign in Lviv, he withstood the Turkish siege. During the second campaign of the Turks in 1675, Svirsk Castle again withstood and defended in its walls the hostage of the Pomeranian Castle, which, not having enough strength for defence, went to the forest through a secret passage and fled to Svirzh. After the military damage, the walls were restored and strengthened, but in general, the castle gradually changed its purpose from a defensive to a purely residential one, becoming a ceremonial residence. If until now only two noble families stably owned the castle, now repeatedly passes from hand to hand. Frequent change of owners negatively affected the building, the estate was not taken care of - the descriptions of 1882 and 1892 mention the poor condition of the building, in particular the destruction of buildings from the north and east (Bilushchak, 2012; Krypyakevych, 2009; Pshyk, 2008).

There are many burial mounds in the Lviv region, which have changed natural landscapes for many years. Not far from Pidhirtsi Castle was a unique settlement Plisnetsk, which occupied an area of about 450 hectares. The settlement consisted of two parts - high and low and was protected by seven internal defensive lines. Nevertheless, during the Mongol-Tatar army raid was burned. There was a burial mound on the territory, which numbered about 300 mounds. Less than half of them have survived. There were both cremation burials and a body placed in a pit (Filipchuk, 2018).

In the village of Nyzhni Gai, Drohobych district, there is a cemetery, which includes 17 mounds from the time of string pottery. Smaller mounds were the burial places of children with various diseases. Above the children's burials were also created embankments of another mound, which was a feature of those times. At the beginning of the XXI century, there were archaeological excavations of these mounds and intervention was discovered in one of these cemeteries before the construction of an embankment over the grave pit. Continental clay was used for backfilling. It was also investigated that the mounds were filled with degraded chernozem, which predominates in deforested areas (Makhnik et al., 2012).

The most interesting settlement of the Middle Ages is the embankments between the villages of Kotoryna, Stare Selo, Lviv region. There are 6 embankments on an area of approximately 4 km<sup>2</sup>, 5 of which are located on the high bank of the Dniester River, and another on the opposite bank of the river. This settlement was built within the Precarpathian Depression. Characteristic of this massif is the average relief, formed of deep beams and ravines, through which flows many streams that

originate at the top of the plateau. The right bank of the Dniester is characterized by steep cliffs of sandy origin, and the left - low terraces. These areas are afforested with hornbeam-beech and beech virgin, which has survived to this day. According to previous studies, we can assume that this settlement is part of the defence system of Halych (Korchynsky, 2009).

The military landscapes of Lviv region include the International Center for Peacekeeping and Security of the Land Forces of Ukraine, often called the Yavoriv test site - the largest military facility in Europe and it occupies 36 thousand hectares of land, which is 24% of the Yavoriv district. During the expansion of the landfill, about 125,000 villagers in the area were forcibly deported, more than 170 villages and hamlets, 12 churches and chapels, 2 churches, 14 cemeteries, hundreds of cultural and historical monuments disappeared from the face of the earth. Fig. 1 shows the territory of the Yavoriv landfill, which stretches from west to east for 28 km along the Great European Watershed. From north to south in the widest place - 26 km, on average - 18. Part of the territory used for military expeditions - in common use with Yavoriv National Park, where impassable thickets grow. To the border with Poland from the landfill about 7 km. In the ArcGis software environment, the territory of the International Center for Peacekeeping and Security of the Land Forces of Ukraine was worked out and the forest areas that make up most of the military training ground were digitized.



Fig. 1. The territory of the Yavoriv landfill

On the territory of the landfill, even today, you can find equipment and ammunition from the Second World War. Today, the Yavoriv test site is one of two in Ukraine (along with Shirokolaniivsky) available for international military exercises. Since 1995, the Peace Shield international exercise has been held on the territory of the test site within the framework of the Partnership for Peace program, which is conducted jointly by Ukraine and NATO. In 1998, representatives of 18 countries took part in the exercises, and in 2000 - about 1,600 technicians from 26 countries. As the Yavoriv test site is constantly used in military exercises, both for the military of Ukraine and for foreign countries, it causes a negative impact on the environment and the landscape as a whole. The use of military ammunition, digging trenches that change the structure of the soil and cause its erosion, pollute water, destroy flora and fauna, and dangerous substances enter the atmosphere (<https://tv4.te.ua/yavorivskiy-poligon-odyn-z-najbilshy/>). Below we presented the chronology of military landscapes in the Lviv region

Table 1. Chronology of military landscapes

Object	Location	Year of foundation
The settlement	Kotorini, Stare Selo, Color	—
Plisne settlement	Pidhirtsi	VII-VIII.
Gravedigger	Lower Groves	XI-XIII
Sambir	Sambir	1241
High Castle	Lviv	1270
Olesky Castle	Olesko	1327
Svirsk Castle	Svirzh	1484
Zhovkva	Zhovkva	1597
Zolochiv Castle	Zolochiv	1634
Pidhirtsi Castle	Pidhirtsi	1635-1640
Square "On the shafts"	Lviv	1821
Citadel	Lviv	1850
International Center for Peacekeeping and Security of the Land Forces of Ukraine	Yavoriv district	1940

## Conclusion

We found that military objects should be studied comprehensively, as natural and historical monuments, because they have become part of natural landscapes and help to better study and understand environmental change over the centuries. Undoubtedly, their historical value is significant, and all directions and measures should be aimed at their protection and rational preservation, as military landscapes are an important part of the history of landscape formation and social development.

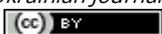
The current military landscape of the Yavoriv landfill needs more detailed study and restoration, thanks to which it is possible to assess its impact on the environment and landscape change in the region.

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