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Documenting Russian Military Activity in the Vicinity of Ancient Ukrainian Burial Mounds:

Fortification, Destruction, and Possible Looting

A Conflict Observatory Report

Compiled by: CURIA Lab

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Executive Summary

Analysis of publicly available geospatial data since February 24, 2022, including very high resolution (VHR) commercial satellite imagery and open source information on Russian fortification building, has revealed damage to Ukrainian archaeological sites under the territorial control of the Russian Federation Armed Forces in two locations in Vasylivka Raion, Zaporizhzhia Oblast. The damage includes the construction of military infrastructure at the archaeological sites and the creation of a large, lewd geoglyph in the shape of a phallus in an adjacent field. In addition to the impacts documented in this report, use of the sites for military purposes places heritage at risk of incurring additional damage from the conflict. These activities are a potential violation of customary international humanitarian law and the Hague and Geneva Conventions.

Introduction

Physical damage to Ukraine's archaeological sites is a pervasive consequence of Russia's full-scale invasion.^{1,2} Trenching, mining, kinetic attacks, and troop movements can severely damage or even wholly destroy sites. Ukraine boasts abundant and important archaeological heritage in the so-called *Wild Fields*, an area in the east and south which contains thousands of ancient burial mounds, or kurgans (курган in both Ukrainian and Russian), also referred to as *mohyly* (могили) in Ukrainian and *mogily* in Russian. At up to 20 meters tall, kurgans act as landmarks in the otherwise flat landscape of the Ukrainian steppe. Kurgans are significant archaeologically because they provide some of the best evidence of prehistoric life in Ukraine, with burial mounds dating as far back as 3000 BCE. Kurgans are associated with multiple cultural eras and past groups living in Ukraine and therefore represent diverse ancient practices and origins. Due to their specific archaeological features, kurgans are packed with historical information and require careful documentation to preserve the information contained within each stratigraphic layer.

Since Russia's full-scale invasion of Ukraine on February 24, 2022, the Russian Forward Line of Troops (FLOT) has cut through the Wild Fields, bisecting an archaeologically and ecologically rich area.³ For this report, we assessed the areas of impacts of Russian FLOT activities using geospatial analysis which were then verified using satellite imagery. Four locations with kurgans in southern Ukraine were located within 500 meters of large Russian fortifications, of which two sites, both in Vasylivka

¹ Shydlovskiy, P., Kuijt, I., Skorokhod, V., Zotsenko, I., Ivakin, V., Donaruma, W., & Field, S. (2023). The tools of war: conflict and the destruction of Ukrainian cultural heritage. *Antiquity*, 97(396), e36. doi:10.15184/aqy.2023.159

² Shydlovskiy, P. S., Telizhenko, S. A., & Ivakin, V. H. (2024). Archaeological monitoring in war-torn Ukraine. *War and the Historic Environment*. <https://doi.org/10.4324/9781003461425-7>

³ Doyle, G., Kawoosa, V. M., & Arranz, A. (2023). *Digging In: How Russia Has Fortified Swathes of Ukraine*. Reuters. <http://www.reuters.com/graphics/UKRAINE-CRISIS/COUNTEROFFENSIVE/mopakddwbp/>



Raion, Zaporizhzhia Oblast, were visibly impacted. Analysis of satellite imagery indicates a direct impact on kurgans through the construction of fortifications and/or damaging excavations, including possible archaeological looting.

The Significance of Ancient Burial Mounds in Ukraine

Kurgans as a monument type typically contain one or more burials of human remains with associated artifacts. In most recorded kurgans, grave goods are located beneath the soil mound. The initial burial constitutes the lowest stratigraphic level, while subsequent decedents were interred by adding new shafts in different areas of the mound.⁴ Because kurgans were built by various cultural groups across multiple temporal periods, there is no single type of artifact that archaeologists associate with them. One of the most representative cultural profiles, however, is that of the Scythians. The Scythians were ancient nomadic inhabitants of the Ukrainian steppe from the 7th century BCE to the 3rd century BCE. Some of the best evidence about life in this ancient culture has been found within their burial mounds, making the mounds extremely significant to historians and archaeologists. Scythian kurgans have been described as containing “a wealth of both gold and information,”⁵ meaning that the burial gifts, including weaponry, armor, dress ornaments, and vessels, are also highly prized by collectors. Kurgans throughout Ukraine have been illegally excavated by looters.⁶ Kurgans have also historically been targeted by official Russian-sponsored archaeological expeditions seeking the appropriation of archaeological material. Russian expeditions of this nature are documented in Ukraine from the 18th century⁷ to present day excavations in Russian-occupied Crimea.⁸ In online discussions about illicit activity, looters have specifically referenced targeting kurgans since the conflict began in Ukraine in 2014.⁹

In addition to their historical significance, these burial mounds also offer small, wild spaces in which native flora can thrive. This fact is especially important as more of the flat, rich steppe land has come under agricultural cultivation. Botanists from

⁴ Onyshkevych, L. (1999). Scythia and the Scythians. In E. D. Reeder (Ed.), *Scythian Gold* (pp. 23–36). Harry N. Abrams, Inc.

⁵ Onyshkevych, L. (1999). Scythia and the Scythians. In E. D. Reeder (Ed.), *Scythian Gold* (pp. 23–36). Harry N. Abrams, Inc.

⁶ Varenikova, M., & Kramer, A. E. (2021). *Ukraine’s Burial Mounds Offer Meaning in a Heap of History*. The New York Times. <https://www.nytimes.com/2021/05/09/world/europe/ukraine-burial-mounds.html>

⁷ Gadzynsk, I., Romanenko, N., Kelm, N., & Drozdova, Y. (2023). *The Stolen Treasures - The 110,000 Artifacts from Ukraine Found in Two Russian Museums*. texty.org.ua. https://texty.org.ua/d/2023/stolen_heritage/en/

⁸ Scollon, M. (2021). *From Scythians to Goths: “looting” Russia strikes gold digging up Crimean antiquities*. RadioFreeEurope/RadioLiberty. <https://www.rferl.org/a/crimea-archaeological-treasures-russia/31339510.html>

⁹ Hardy, S., & Telizhenko, S. (2023). Russia was ‘doomed to expand [its] aggression’ against Ukraine: Cultural property criminals’ responses to the invasion and occupation of the Donbas since 20th February 2014. *War and the Historic Environment*, 14(3), 286–307. doi:10.4324/9781003461425-5.



Kherson State University have identified a number of rare plant species growing on kurgans that are listed as valuable in Ukraine's Red Data Book,¹⁰ which make kurgans doubly significant as islands of ecological diversity and historical preservation. Species listed in the Red Data Book are protected from damage or destruction under Ukrainian law.¹¹

Methodology

For this report we analyzed open source geospatial data and correlated specific windows of military activity with publicly available open source intelligence about Russian troop positions in order to document the impact of Russian military activities on kurgans. Using the "Russian Field Fortification Polylines" dataset published by the Institute for the Study of War,¹² we correlated 1,835 fortification features¹³ within 500 meters of archaeological sites recorded in OpenStreetMap (OSM).¹⁴ 500 meters is consistent with the Russian fortification system's layering of defensive barriers. At Mykhailivka, Vasylivka Raion, the distance from the outermost anti-mobility trench line to densely packed concrete dragon's teeth is 500 meters.¹⁵ Infantry ditches are a further 250m from the dragon's teeth. We selected an upper bound that contained a modal spatial distance for fortification construction as a localized form of damaging activity. Features in the terrain are considered in the development of fortifications, and kurgans offer high points as tall, earthen mounds.¹⁶ We identified four sites containing kurgans that fit these criteria. Next, we examined the sites using very high resolution (VHR) commercial satellite imagery provided by Maxar. The timeframe of imagery assessed for this study is February 2022 through July 2024, at intervals ranging from one week to three months. The analytical objective of this work is to identify and document physical changes to the sites.

The first imagery analyst identified indications of damage to the burial mounds, including the displacement of soil, changes in vegetation, and changes in the form/footprint of the mounds, as well as evidence of activity associated with these

¹⁰ Moysiienko I., Sudnik-Wójcikowska B., Dembicz I., Zachwatowicz M., & Skobel N. (2023). Flora of kurgans in the "Wild Fields" (Ukraine). Version 1.3. Kherson State University. Occurrence dataset <https://doi.org/10.15468/x4drnu> accessed via GBIF.org on 2024-07-30.

¹¹ Ukraine, Verkhovna Rada of Ukraine. No. 3055-III, On the Red Book of Ukraine. *The Law of Ukraine*, 2002. <https://zakon.rada.gov.ua/laws/show/en/3055-14>

¹² Institute for the Study of War. (2023). *Russian Field Fortification Polylines*. Arcgis.com.

<http://www.arcgis.com/home/item.html?id=b400044751124f8bbe9c11f614782c09> After Africk, B (2023). *Russian field fortifications in Ukraine*. <https://read.bradyafrick.com/p/russian-field-fortifications-in-ukraine>

¹³ Note that this dataset does not distinguish among fences, trenches, or other types of fortifications.

¹⁴ OpenStreetMap. (2024). <https://www.openstreetmap.org/>.

¹⁵ Jones, S. G., Palmer, A., & Bermudez Jr, J. S. (2023). *Ukraine's Offensive Operations: Shifting the Offense-Defense Balance*. Center for Strategic and International Studies (CSIS).

<https://www.csis.org/analysis/ukraines-offensive-operations-shifting-offense-defense-balance>

¹⁶ Shydlovskiy, P. S., Telizhenko, S. A., & Ivakin, V. H. (2024). Archaeological monitoring in war-torn Ukraine. *War and the Historic Environment*. <https://doi.org/10.4324/9781003461425-7>.



changes, such as military fortification construction. A second analyst independently reviewed the satellite imagery to verify these indicators. Based on these analyses, we determined that two of the four kurgan locations in the vicinity of new Russian fortifications had not sustained visible damage, while the other two locations have been visibly impacted by entrenchment. We then correlated both locations against assessments regarding the territorial control of specific Russian units provided by Janes,¹⁷ an open source military intelligence firm. The objective of this step was to determine which Russian units were likely occupying the area during the windows of fortification building marked by changes in the satellite imagery of the archaeological sites.

Janes was our primary source of military intelligence and analysis. Their research methodology includes open source and imagery intelligence in combination with proprietary data and the analysis of military subject matter experts. Janes starts by identifying and locating units on the ground and linking these military assets to orders of battle, and then observes the effects delivered in a given area to reverse engineer the most likely delivery platforms, artillery maneuver areas, and priorities of fire. Janes combines open source research and analysis techniques with a reverse engineering process based on military doctrines to identify the scheme of maneuver, fire support, targeting, and sustainment.

Limitations

We note two main limitations in our analysis, each of which leads us to infer that the actual number of archaeological sites impacted by Russian fortification building is likely far higher than what is documented in this report. First, our datasets are limited. OpenStreetMap does not provide a complete inventory of archaeological sites in Ukraine; there are thousands of ancient burial mounds that do not appear in OSM. Moreover, our primary source of information for Russian fortifications is the “Russian Field Fortifications Polylines” dataset published by the Institute for the Study of War, which was last updated in October 2023;¹⁸ it is therefore possible that additional fortifications have been constructed at archaeological sites since that time.

Second, our ability to detect impacts in the imagery is affected by the various limitations of satellites as a collection platform. These limitations include the fact that on average, our sites of interest are imaged about once, sometimes twice, per month, at approximately the same time in the morning, and only during daylight hours. The consistent but relatively rare periodicity of collection is designed for documenting change detection of the wider landscape, not for obtaining imagery of individuals in the

¹⁷ Janes. (2024). <https://www.janes.com/>.

¹⁸ Institute for the Study of War. (2023). *Russian Field Fortification Polylines*. Arcgis.com. <http://www.arcgis.com/home/item.html?id=b400044751124f8bbe9c11f614782c09> After Africk, B (2023). *Russian field fortifications in Ukraine*. <https://read.bradyafrick.com/p/russian-field-fortifications-in-ukraine>



act of entrenching. Similarly, satellite imagery, even at very high resolution, is more reliable for observing large, static Russian military construction than smaller, temporary defenses. As a result, we cannot rule out the possibility that mobile and short-term Russian military activities have also impacted other archaeological sites. Moreover, not every image available provides a clear shot of the site of interest; at times, generally in the autumn and winter months, Ukrainian skies are cloudy or other technical conditions of the satellite sensors affect the quality of the resolution. The RFAF, aware of the overhead surveillance threat from satellites and the kinetic threat of UAV, make use of any overhead cover, such as a line of trees, when they select sites for entrenchment; that is, they are keen to hide their entrenchment activities from overhead view.¹⁹ Troop movements are similarly carried out to minimize overhead detection. Due to the nature of the satellite imagery and the types of activities visible in the imagery, our analysis for this report focused on change detection over time of the burial mounds within their wider landscapes. Additional remote analysis of the type conducted here, as well as on-the-ground surveys, must be undertaken to document the full impact of Russian military activity on Ukraine's archaeological sites.

Chronology

Janes' analysis of open source information indicates that both locations in Vasylivka Raion, described below as Locations A and B, fell under the territorial control of the 19th Motor Rifle Division of the RFAF on March 13, 2022, and remained under their control as late as May 10, 2024. Janes identified a subordinate unit, the 429th Motor Rifle Regiment, operating in the area in March 2022. According to Janes' analysis, the 429th Motor Rifle Regiment continued to hold tactical responsibility for one of the locations, as described below.²⁰ Territorial control data from the Institute for the Study of War indicate that Russian control over both locations has continued into July 2024.^{21,22}

Location A

The first site, which we identify as Location A, is approximately 6km from Vasylivka along the Karachekrak River (Figure 1). Location A is within an agricultural area. This

¹⁹ Kagan, F.W., Kagan, K., with Clark, M., Hird, K., Bugayova, N., Stepanenko, K., Bailey, R., & Barros, G. (2024). *Ukraine and the Problem of Restoring Maneuver in Contemporary War*. Institute for the Study of War, p. 51.

https://www.understandingwar.org/sites/default/files/Ukraine%20and%20the%20Problem%20of%20Restoring%20Maneuver%20in%20Contemporary%20War_final.pdf

²⁰ Janes. (2024). *Assessment provided to CURIA Lab*.

²¹ Barros, G., Stepanenko, K., Mikkelsen, N., & Mealie, D. (2024). *Interactive Time-lapse: Russia's War in Ukraine*. Institute for the Study of War and AEI's Critical Threats Project.

<https://storymaps.arcgis.com/stories/733fe90805894bfc8562d90b106aa895>

²² Barros, G., Stepanenko, K., Bergeron, T., Mikkelsen, N., Mealie, D., Belcher, M., & Thacker, T. (2024). *Interactive Map: Russia's Invasion of Ukraine*. Institute for the Study of War and AEI's Critical Threats Project. <https://storymaps.arcgis.com/stories/36a7f6a6f5a9448496de641cf64bd375>



site is composed of a small group of three visible kurgans within 500m of one another (within 18,500m²) that form the larger Mohyla Lysovaska barrow group (No. 157) (Figure 2). The kurgans were officially surveyed in 1950, when a fourth kurgan—not visible in satellite imagery—was also recorded. Additional archaeological fieldwork was conducted in 2016 by the Ukrainian Department of Monuments and Monuments Protection.²³ The dates of the kurgans’ construction and associated cultural period(s) are unknown. The northernmost and largest mound is 50m in diameter, while the western and southern mounds are approximately 30m and 28m in diameter, respectively. Based on satellite imagery analysis, this site appears to have been subjected to repeated military fortification building beginning in March 2022 and continuing through 2024.



Figure 1: Map of Locations A and B in Vasylivka Raion, Zaporizhzhia Oblast (CURIA Lab)

Satellite imagery from March 31, 2022, indicates that the construction of military trenches began approximately 950m south of the largest mound. Janes’ analysis identifies this location as a possible position for “troops in reserve.”²⁴ An apparent path connects the trenches in the reserve location to the top of the largest mound. By April 26, satellite imagery shows that this apparent path leads directly to what appears to be

²³ Crimean Institute for Strategic Studies. *Mohyla Lysovaska Barrow Group (No. 157)*. ciss.org.ua/en/sk_page.html?object_code=354e6a60a81e4ea46c11c01dd11e3d6f

²⁴ Janes. (2024). *Assessment provided to CURIA Lab*.



at least one new pit in the center of the mound. Significantly, the new pit is surrounded by piles of displaced soil, a feature consistent with digging activity (Figure 3). Based on the central position of the pit, it is likely that archaeological contexts were damaged and artifactual material may have been removed.



Figure 2: Satellite imagery of Location A, two years prior to occupation by the Russian Federation Armed Forces (19 MARCH 2020)

By December 19, 2022, imagery indicates that a long fortification line was under construction approximately 120m north of the largest mound. By January 3, 2023, both the long trench line in the north and an additional substantial fortification line south of Location A appear complete. Further activity directly tied to the kurgans is visible beginning on April 26, when a new road leading from the northern line of trenches to the largest mound appears.

By May 15, a circular trench in the form of a fighting position for military personnel is visible on top of the largest mound, while a second line of trenches had been constructed along the path to the western barrow. Imagery from June 28 shows a substantial new network of earthworks connecting the kurgans to the western edge of the field, which includes new damage to the surfaces of the main and western mounds. The construction of additional fortifications is visible along the paths between the mounds by July 18 (Figure 4), which may have exposed archaeological contexts to damage or removal. Furthermore, using the burial mounds as military positions risks exposing them to additional conflict-related damage, such as kinetic impacts or fire.



Figure 3: New pathway leading directly from trenches under construction to new excavation activity in the center of the main mound at Location A (26 APRIL 2022)



Figure 4: Constructed network between kurgans containing covered fortifications in the center (18 JULY 2023)



Impacts to the wider landscape are also visible in satellite imagery. In imagery from September 2023, vegetation appears to have been mowed along the north-south axis of trenches in the treeline. The mowing of vegetation in front of an entrenched position to aid visibility was noted in a separate study at other locations occupied by the RFAF and is part of Soviet and modern military engineering instructions.²⁵ On October 15, 2023, a large, graphic geoglyph is visible approximately 270m directly east of the largest mound and 70m from the trench line intersecting the area between the mound and geoglyph (Figure 5). The geoglyph is approximately 58m long and 39m wide at its maximum extent. It appears to have been mowed into the vegetation. The geoglyph remains visible in satellite imagery through July 2024. In imagery dating to June 7, 2024, six new military installations are visible between the geoglyph and the treeline east of the kurgans (Figure 6), indicating continued activity at the site.



Figure 5: Large, graphic geoglyph visible within sight of Location A trench lines (9 MAY 2024)

Beginning in summer 2024, the new impact of fire damage is visible. In imagery from July 15, 2024, evidence points to recent burning as well as active fires in the fields surrounding the military installations and the kurgans (Figure 6). The burned areas reach as close as approximately 80m to the southern kurgan and 110m to the main mound. At least two vehicles are visible approximately 300m east of the southern kurgan, on the dirt road running parallel to the treeline. In the period between available, electro-optical, cloudless images of Location A (June 13, 2024, to July 15, 2024), active fire data from NASA FIRMS indicates that fires occurred in the vicinity of Location A on

²⁵ Hubashov, D., & Kelm, N. (2023). *The Path to the Sea*. texty.org.ua. https://texty.org.ua/d/2023/way_to_sea_eng/



June 29 and July 15, 2024.²⁶ Fires risk damaging archaeological material present at or just below the surface of an archaeological site and may cause deeper impacts into the soil where vegetation roots are present.²⁷ Fire not only damages the plant species that are burned on the surface of the mound; the subsequent lack of an organic plant layer exposes burned areas of the mound to soil erosion, which could further damage the mounds and the associated archaeological material.

According to the territorial control analysis conducted by Janes, Russian troops from the 19th Motor Rifle Division were likely responsible for the construction of the military fortifications in Location A, which is in a rear position from the Russian line of control. Additionally, other units under the command of the 58th Combined Arms Army, of which the 19th Motor Rifle Division is a part, have been identified by Janes as operating in the areas surrounding the kurgans from early 2022 to as late as March 2024.²⁸



Figure 6: New military installations and evidence of active fires and burned vegetation (15 JULY 2024)

²⁶ National Aeronautics and Space Administration (NASA). *Fire Information for Resource Management System*. NASA. <https://firms.modaps.eosdis.nasa.gov/>

²⁷ Oster, E. A., Rusavage-Barz, S., & Elliott, M. L. (2012). The effects of fire on subsurface archaeological materials. In K. C. Ryan, A. T. Jones, C. L. Koerner, & K. M. Lee (Eds.), *Wildland Fire in Ecosystems: Effects of Fire on Cultural Resources and Archaeology* (pp. 143–156). Department of Agriculture, Forest Service, Rocky Mountain Research Station. Retrieved from <https://research.fs.usda.gov/treesearch/40432>

²⁸ Janes. (2024). *Assessment provided to CURIA Lab*.



Location B

The second site, which we identify as Location B, is located approximately 2.5 kilometers southwest of Kamianske (Figure 1). The impacted mounds are part of the Mohyla Hrechana barrow group (No. 1773), which is a large complex of 17 barrows cataloged by archaeologists from the Zaporizhzhia Regional Museum of Local Lore in 1985.²⁹ One mound is located beside a dirt road at the eastern edge of an agricultural field some 700m west of the M18 motorway, which runs northeast to southwest connecting Kamianske and Vasylivka. A group of three further mounds (within 400m of each other, 6,200m²) are visible approximately 400m northwest of the southern mound in the uncultivated land near the banks of the Kakhovka Reservoir. The dates of the kurgans' construction and associated cultural period are unknown.

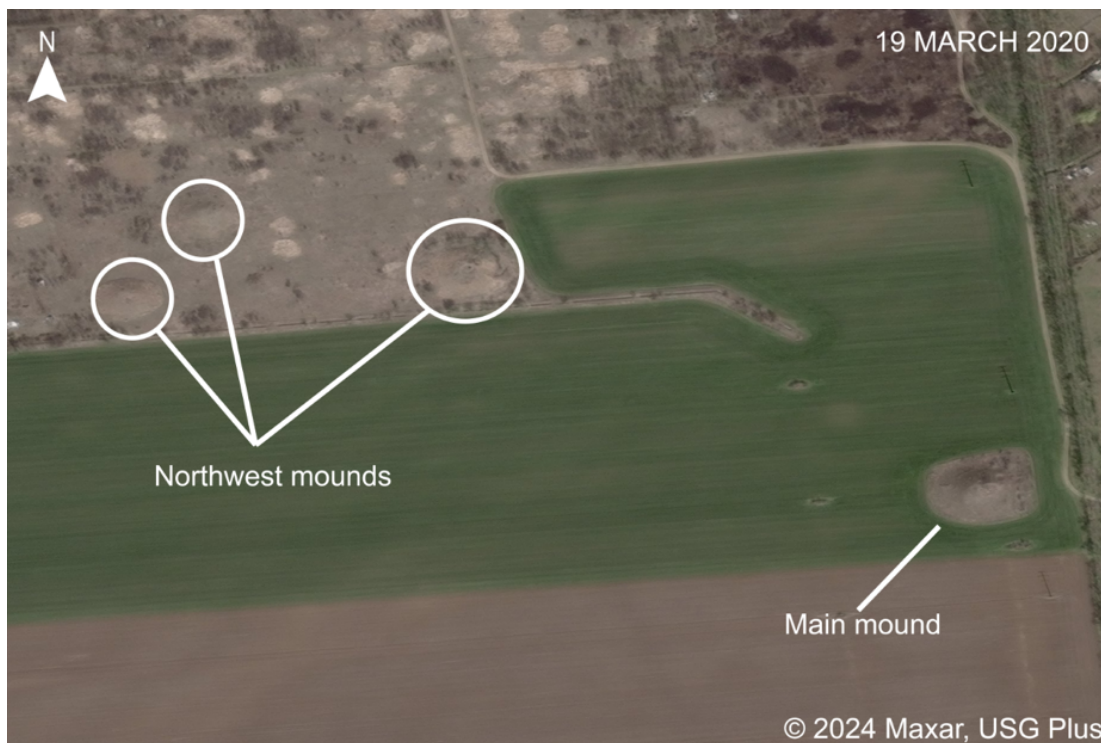


Figure 7: Satellite imagery of Location B, two years prior to occupation by the Russian Federation Armed Forces (19 MARCH 2020)

No impacts to the kurgans are visible in available imagery from March 23, 2022, through August 13, 2022. The first visible activity after the location came under Russian military control was identified in synthetic aperture radar imagery dating to November 28, 2022, in which a path is visible circling the southern mound and cutting over to the group of three mounds in the northwest. Within a week, by December 4, new military

²⁹ Crimean Institute for Strategic Studies. *Mohyla Hrechana Barrow Group (No. 1773)*. ciss.org.ua/en/sk_page.html?object_code=08ef8fdff39b29f168fa92a2f62cd538



fortifications are present approximately 240m south of the southern mound. By February 24, 2023, the construction of a larger series of fortifications is visible within 200m of the southern mound, and new, irregular pits and displacement of soil consistent with digging are identifiable on top of the main mound. On March 4, new fortifications are present directly east, and within 50m, of the main mound. An additional fortification appears to have been installed directly on the northeast side of the main mound (Figure 8). Further excavation on top of the main mound is visible in imagery dating to April 16. By June 3, a new dugout is visible on the eastern side of the main mound. Janes' analysis describes this feature as "suitable for the emplacement of a firing position or an armoured vehicle."³⁰



Figure 8: Excavation on top of the main mound at Location B, with additional trenching present on the northeastern edge (4 MARCH 2023)

Imagery dating to July 8, 2023, shows a path leading directly from the main mound to a new excavation of a mound in the northwest group. Excavation of a third mound is visible on August 4, and by August 21 there is a southwest-northeast trench running through the center of the mound (Figure 9). At a minimum, this excavation activity has impacted the top layers of the mound. Based on the position of the excavations at the center, it is possible that significant archaeological contexts, such as burials, may have been damaged by these excavations. Moreover, professional archaeological practice is to backfill the trenches, or fill them with topsoil, when excavation has concluded, since leaving the trenches open, as appears to be the case here, exposes the interior of the mound and any associated archaeological material to weathering and erosion.

³⁰ Janes. (2024). *Assessment provided to CURIA Lab.*



Fire impacts during summer 2024 have affected Location B as well. Between June 26 and July 6, synthetic aperture radar imagery indicates a change in vegetation occurred across a large area (approximately 0.3 km²) encompassing Location B. Active fire data from NASA FIRMS indicates that fires occurred in the area on July 2 and July 3. Another fire was recorded in the vicinity on July 11. By July 15, electro-optical satellite imagery indicates that the main mound and the northwest group of mounds were burned across most of their surfaces in the context of larger burning in the surrounding area (Figure 10). As discussed for Location A, fires risk damaging the archaeological material and further exposes the mounds to additional erosion due to the burning of the protective vegetation layer.



Figure 9: Damage to the kurgans in the northwest of Location B in the form of linear trenches, as well as a new firing position on the main mound (4 SEP 2023)

Janes assesses that the 429th Motor Rifle Regiment has been continually present in the area encompassing Location B and further concludes that subordinate units are likely responsible for constructing the fortifications at Location B,³¹ which is within 4km of the line of confrontation as of July 25, 2024.

The cause of the fires at Locations A and B is likely due to kinetic activity in the area between the Ukrainian Armed Forces (UAF) and the RFAF. We have ruled out the possibility that the fields containing the kurgans are undergoing controlled agricultural burns that are typical in the summer months in the south of the country,³² as these fields do not appear to be under active cultivation. Moreover, comparative analysis of

³¹ Janes. (2024). *Assessment provided to CURIA Lab.*

³² Skakun, S., & Haynes, K. (2021). *NASA Harvest Partner Investigates Underestimated Cropland Burning in Ukraine.* NASA Harvest. <https://nasaharvest.org/news/nasa-harvest-partner-investigates-underestimated-cropland-burning-ukraine>



Sentinel-2 data from previous summers (2019 to 2023)³³ further suggests that the 2024 burn patterns at Locations A and B do not resemble controlled agricultural burns. Active fire data from NASA FIRMS for the entire month of July 2024 indicates that fires have been concentrated on either side of the line of confrontation, where the fighting between the RFAF and the UAF is on-going and large amounts of agricultural land have been abandoned.³⁴

In light of these conditions,³⁵ the uncontrolled fires in Locations A and B may have erupted after Ukrainian kinetic attacks targeting Russian forces staffing the positions in the vicinity, as CURIA Lab has been able to document approximately 58km further east of Location A in Zaporizhzhia Oblast. With the assistance of unmanned aerial vehicle (UAV, i.e., drone) footage of a UAF strike on a RFAF vehicle in late July 2024 that was posted to social media,³⁶ CURIA Lab was able to confirm the geolocation of the strike. Next, we examined satellite imagery of the same area, in which uncontrolled burning was widely visible. Finally, this burning was also detected by sensors utilized by NASA FIRMS, similar to the patterns observed at Locations A and B.



Figure 10: Evidence of burned vegetation across the surfaces of the mounds in Location B (15 JULY 2024)

³³ Copernicus Sentinel-2 (processed by ESA), 2021, MSI Level-2A BOA Reflectance Product. Collection 1. European Space Agency. https://doi.org/10.5270/S2_znk9xsj

³⁴ NASA Harvest. (2023). *Farming Amidst a War: Satellite Data Reveals Productive yet Challenging Season for Ukraine*. NASA Harvest. <https://nasaharvest.org/news/farming-amidst-war-satellite-data-reveals-productive-yet-challenging-season-ukraine>

³⁵ EDO European Drought Observatory. (2024). *Current Drought Situation in Europe*. EU Science Hub. https://joint-research-centre.ec.europa.eu/european-and-global-drought-observatories/current-drought-situation-europe_en

³⁶ 108 окрема бригада Сил територіальної оборони ЗСУ. (2024). *У смузі відповідальності 108-ї бригади ТРО «зацвіла» ворожа «Акація». Майже 2 місяці пілоти групи SkyForce полювали за...[Video]*. Facebook. <https://www.facebook.com/100083010146725/videos/1173208617270985>



Conclusion: Possible Legal Implications

Both Locations A and B, in the vicinity of Vasylivka, were assessed by Janes to have fallen under the operational control of the RFAF 19th Motor Rifle Division and its subordinate units by March 12, 2022. Beginning in March 2022, permanent and substantial military infrastructure appears to have been installed within the immediate surroundings of, and even directly on, the kurgans at Locations A and B, and this activity intensified throughout the rest of 2022 and through 2023. The construction of the military fortifications has impacted the burial mounds at both locations, damaging archaeological material and increasing the risk of additional future damage to the sites from environmental factors like erosion and burning.

Cultural heritage, including cultural property, is entitled to protections under international law. The International Criminal Court (ICC) Office of the Prosecutor has recognized cultural heritage as including both “physical forms of heritage, such as material objects and artefacts”³⁷ as well as “the practices and attributes of a group or society that are inherited from past generations, maintained in the present, and bestowed upon future generations for benefit and continuity.”³⁸ Relevant legal frameworks include the 1954 Hague Convention for the Protection of Cultural Property, the Additional Protocols to the Geneva Convention, and customary international law.³⁹ Damage to burial mounds separately from, or in addition to, the construction of military installations, may indicate looting or destruction of the mound’s associated artifacts and ancient remains. Such acts are similarly prohibited by the 1954 Hague Convention for the Protection of Cultural Property and customary international law. Moreover, appropriating Ukraine’s archaeological sites within military positions puts sites at risk of further damage from conflict-related damage while they remain occupied by the Russian Federation Armed Forces.

³⁷ International Criminal Court Office of the Prosecutor. (2021). *Policy on Cultural Heritage* (p. 7).

³⁸ International Criminal Court Office of the Prosecutor. (2021). *Policy on Cultural Heritage* (p. 7).

³⁹ The protections afforded to cultural property are discussed in the *Manual on International Humanitarian Law for the Armed Forces of the Russian Federation*, approved by the Minister of Defense of the Russian Federation in 2001. <https://digital-commons.usnwc.edu/cgi/viewcontent.cgi?article=3029&context=ils>