Centre for Information Resilience

Endangered Species: The impact of war on Ukrainian zoos and captive animal welfare

By Sofia Santos

14 June 2022

Endangered species: The impact of war on Ukrainian zoos and captive animal welfare

By Sofia Santos

Executive Summary

Within days of the invasion of Ukraine by the Russian military on 24 February, zoos and wildlife parks across the country started reporting damage to their property, and the death of their animals due to shelling and fires caused by the bombing.

Over time, the disruption to the logistics of receiving food, medicine and fuel, coupled with the limited safe access to the parks by staff members, left the animals in precarious situations. Many faced starvation, injury and death due to the inability of zoos to heat enclosures, treat wounds or feed them. The lack of green corridors and the Russian military presence in the surrounding areas made evacuations either extremely dangerous or simply impossible.

The desperate situation at zoos led to human tragedy too. Feldman Ecopark in Kharkiv reported the death of several members of staff, including a 15-year-old volunteer. All of them perished whilst attempting to evacuate or feed the animals stranded at the park, sometimes allegedly under fire from Russian military forces.

The Centre for Information Resilience's Eyes on Russia (EoR) team analysed various photos and videos shared by zoos and members of staff across Ukraine. We identified the tail remains of cluster bombs at the sites; a type of munition that releases smaller explosives in the air, spreading the damage over a large area - causing indiscriminate damage.

The data gathered and analysed by EoR investigators provided clear evidence of the use of this type of explosive against the zoos, their inhabitants, and the staff members. Local and international aid groups coordinated a joint effort to tackle the problems caused by the conflict to save the animals' lives. Their work has been invaluable to help safeguard animal welfare.

This report continues to build on the body of evidence compiled by CIR and other justice and accountability organisations, providing verified and geolocated open-source evidence of Russia's targeting of civilians and civilian infrastructure, including zoos.

1. Introduction

This report provides an overview of the loss, damage and challenges faced by the various zoos and wildlife parks in Ukraine because of the ongoing war.

It covers the period starting with the invasion on 24 February, and ending on 4 June, at the time of writing.

All the collected and analysed data originated online and can be verified by the reader and the open source community; all claims, interviews, photos, videos, and articles used in the report have been properly linked to their original sources.

Figure 1 (below) is a map of all the zoos and wildlife parks mentioned in this report and their location on the map of Ukraine. This is not the extensive list of all animal centres in Ukraine but the ones that have reported and documented damage due to the Russian invasion.

Figure 1: Map of Ukraine displaying the location and name of all the zoos and wildlife parks analysed by EoR investigators.

2. Reported Damage to Zoos and Wildlife Parks

Family Ecopark Yasnohorodka (Сімейний екопарк Ясногородка)

Family Ecopark Yasnohorodka is a small family park in the outskirts of the small town of Yasnohorodka in Kyiv Oblast, just 36 Km from the centre of the Ukrainian capital.

Before the invasion they housed more than 300 ostriches, 220 birds, 26 species of ungulates, six species of primates, raccoons, meerkats, and porcupines.[1]

Within the first 4 weeks of the war, the Ecopark lost many of its animals and their property was destroyed by shelling and fire before they had an opportunity to safely evacuate some of their residents.

Figure 2 is the location of the Ecopark on a map.

[1] https://life.pravda.com.ua/society/2022/03/26/247986/.

Figure 2: Location of the Family Ecopark Yasnohorodka; geolocated to 50.368313, 30.032423.

Damage suffered by the Family Ecopark Yasnohorodka

On 26 March, Family Ecopark Yasnohorodka published several photos and videos on their social media page of widescale damage due to the fire and shelling to their property and animal enclosures.[2]

The park issued an urgent request to help evacuate and feed the surviving animals.

Without revenue and under attack, this family Ecopark was forced to ask people online for help as they were lacking funds after the whole park was bombed.

[2] https://www.instagram.com/p/Cbj9TNntH77/.

Figure 3: Photos shared by Family Ecopark Yasnohorodka's Instagram page depicting the damage done to their property in March 2022.[3]

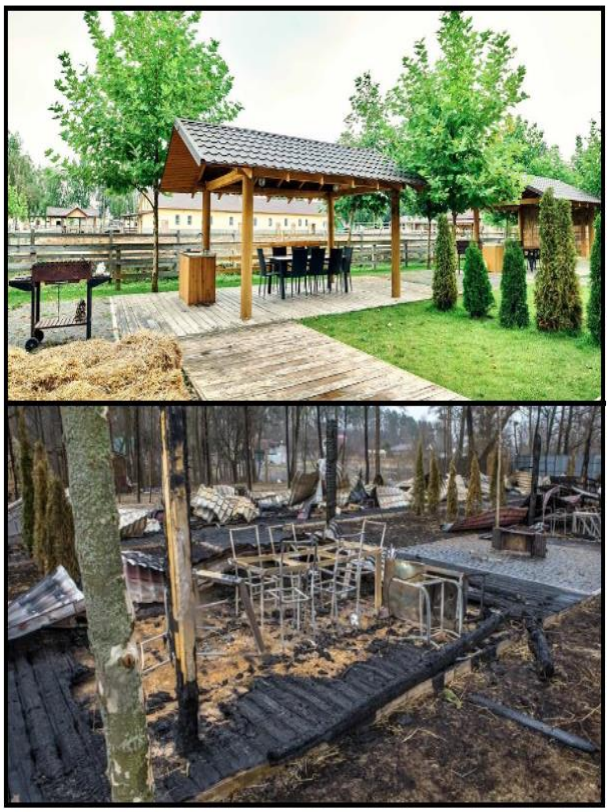

Figure 4: Before and after images of the area destroyed by the fire at the end of March 2022.[4]

[3] https://www.instagram.com/p/Cbj9TNntH77/.
[4] https://www.instagram.com/p/CcA6EuvNsGl/.

An evacuation of the animals from the Ecopark was broadcast on a Facebook post by UAnimals, a Ukrainian animal rights organisation on 30 March. They managed to rescue camels, buffaloes, and donkeys.[5]

Previous attempts at evacuating them safely were allegedly unsuccessful due to shelling.

In an article published online on the same day, Akim Akimenko, the owner of the Family Ecopark Yasnohorodka, claimed that they had already lost twenty ostriches, Highland and Hungarian Grey cattle, two llamas, and one alpaca due to the war.[6]

On the 1 and 2 of April, the Ecopark shared on their Facebook and Instagram page photos and a video of the animals being evacuated from the property.[7][8]

Figure 5: Animals being evacuated from the Family Ecopark Yasnohorodka.[9]

[5] https://www.facebook.com/UAnimals.official/posts/4799909390064242.
[6] https://life.pravda.com.ua/society/2022/03/30/248037/.
[7] https://www.facebook.com/yasnopark/posts/4979159318837076.
[8] https://www.instagram.com/p/Cb16fkDN2Pa/.
[9] https://www.facebook.com/yasnopark/posts/4979159318837076.

On 4 May a video was posted on Ecopark's Facebook page showing not only the damage caused by the shelling, but also sharing the news that they were in the process of rebuilding and restoring the property.[10]

Unfortunately, many of the animals didn't survive the initial attacks before evacuation was possible and the park lost several of its members.

Amongst the Ecopark casualties there were ostriches, llama, and oxen. Images and videos showed the deceased and injured animals.[11][12]

The Ecopark suffered significant loss due to shelling and fire on their property. This resulted in the injury and death of many of their animals before they were able to safely evacuate their residents with the help of volunteers and the Ukrainian military.

Family Ecopark Yasnohorodka is currently rebuilding and restoring their damaged and destroyed property.

[10] https://www.facebook.com/watch/?v=359417989514891.
[11] https://www.instagram.com/p/CcA6EuvNsGl/.
[12] https://www.facebook.com/watch/?v=371738481495904.

Feldman Ecopark (Фельдман ЕкоПарк)

Feldman Ecopark is a Zoological Park located 13 Km North of the centre of Kharkiv near a town named Lisne. With over three hundred species and five thousand animals, this Ecopark harbours one of the highest numbers of captive wildlife in Ukraine.[13]

Over the past months, it has suffered direct shelling, which caused the destruction of multiple animal enclosures, leading to the death of many of its residents and the escape of a few.

Multiple attempts were made at evacuating the animals, some more successful than others, and one that unfortunately led to the killing of a 15-year-old volunteer.

With limited access to supplies and food the staff was put in dangerous situations, while the animals faced starvation and uncertainty. Over the past months the Ecopark lost a total of six members of their team, some allegedly due to targeted killings by Russian soldiers.

Additionally, clear evidence of damage to the Feldman Ecopark is visible on the various videos and photos shared on social media. Analysis of the shelling remains provides ample evidence to the use of cluster munitions by the Russian military targeting the Ecopark.

Figure 5 is the location of the Feldman Ecopark on a map.

[13] https://www.facebook.com/pochta.feldman/posts/pfbid02SbfVT3WoCwXR4pzS8SDyHvbj6AwtkCQ2xm1LNKoTM62b92ZuyAjXfEsDTiMxACQLl.

Figure 5: The Location of the Feldman Ecopark on a map; geolocated to 50.101976, 36.280188.

Damage suffered by the Feldman Ecopark

On 24 February, the day Russia invaded Ukraine, Oleksander Feldman, owner of Feldman Ecopark shared a photo on his Facebook page.[14]

The footage showed widescale damage to the entrance of the Ecopark.

[14] https://www.facebook.com/photo/?fbid=7692245444122709.

Figure 6: Geolocation (left) of the damage to the entrance of Feldman Ecopark (top right). Comparison with how it was before (bottom right); geolocated to 50.101325, 36.279404.

In an update regarding the animals condition on 27 February, Mr. Feldman explained that Kharkiv residents offered to help evacuate and take care of some of the park's residents.[15]

As a result, the wildlife was supported by civilians and by releasing some animals, such as the bats to the wild.

On 31 March, Feldman Ecopark's Instagram Page, announced the death of several Bisons because of shelling. They left a ten-month old bison orphan.[16]

[15] https://www.facebook.com/pochta.feldman/posts/pfbid0qnokMm89CvB78gcRrZqqaMqRALvQxaHPF3ZgkLiFi3c5aYAKWSmwvemrTE7y2V4Pl.
[16] https://www.instagram.com/p/CbxT-ZSKAGK/.

The post added that park staff were unable to evacuate the orphaned baby safely without putting people's lives in extreme danger. This was due to the park being a target of the Russian military.

Between March and May the Ecopark shared several videos of their attempts to evacuate various animals,[17] some through secure crates in large trucks and vans such as lions,[18] a white tiger,[19] cheetahs,[20] silver boxes and a lynx.[21]

However, some were being transported unrestrained on the back of a small van, such as wallabies,[22] ibex,[23] tortoises with a duck,[24] and a female moose with her baby.[25]

On 6 March, an article published by the Kharkiv Times claimed that, at the time of publishing "*five lions, a jaguar, a panther and several other animals have already been evacuated*".[26]

[17] https://feldman.fund/en/rescue-team-of-feldman-ecopark-got-under-fire-again/.
[18] https://www.instagram.com/p/CcBIls5qDZ6/.
[19] https://www.facebook.com/watch/?v=1045855852997672.
[20] https://www.facebook.com/watch/?v=1124053608388348.
[21] https://www.facebook.com/watch/?v=457856102695106.
[22] https://t.me/swodki/51958.
[23] https://www.reddit.com/r/ukraine/comments/u31xgp/evacuation_of_animals_from_feldman_ecopark_in/.
[24] https://www.facebook.com/watch/?v=1284750505389395.
[25] https://www.facebook.com/FeldmanEcopark/posts/2519686841500078.
[26] https://times.kharkiv.ua/2022/04/06/harkivskij-zoopark-prosit-doviryati-lishe-perevirenij-informatsiyi/.

Figure 7: Images of a variety of Feldman Ecopark animals being evacuated unrestrained in the back of a small van, between March and May 2022.

Within a few days of the start of the invasion and due to heavy shelling of the Ecopark, several frightened animals escaped the zoo, among them a seven-month-old lion cub named Simba.

On 2 March the Moldova Humane Society shared a video on their Facebook page featuring Simba after he was found. He was later returned to the Ecopark.[27] The post added that unfortunately the red wolves, who had also escaped on the same day, were still missing somewhere in Kharkiv.

[27] https://www.facebook.com/watch/?v=630745801562161.

According to an article by *Kharkiv Today*, Feldman Ecopark reported several attempts at capturing the red wolves with the use of bait but they were unable to get close enough to tranquillize the animals.[28]

No further updates were released on this matter and it's likely that the animals are still on the loose.

On 5 April, the Kharkiv Times published an article claiming that several Ukrainian zoos had made themselves available to take animal refugees from Feldman Ecopark while their property was under intense shelling.[29]

According to the article, Odessa Zoo, Lutsk Zoo, Rivne Zoo, Kyiv Zoo and Limpopo Zoo all "*expressed readiness to accept animals from the Ecopark*".

On 12 April, Feldman Ecopark published a video of their lions, among other animals, being evacuated and on their way to safety at the Odessa Zoo.[30]

Throughout the last two months Feldman Ecopark has also published various photos and videos of the shelling damage to the animal enclosures around their park.

In one of those videos, shared on 5 April, there is clear evidence of the use of cluster munitions in the area.[31] The film features the remnants of an Uragan unguided rocket projectile that hit the corner of the large predators' enclosure.

[28] https://2day.kh.ua/ua/kharkow/z-kharkivskoho-ekoparku-vtekly-chervoni-vovky.
[29] https://times.kharkiv.ua/2022/04/05/u-dnipri-zayavili-shho-pitannya-evakuatsiyi-tvarin-z-ekoparku-virishene/.
[30] https://www.facebook.com/watch/?v=302501758628297.
[31] https://www.facebook.com/watch/?v=529674661907727.

Figure 8: Two frames from the video showing the remnants of one of the many rocket projectiles that hit the Feldman Ecopark between February and May 2022.[32]

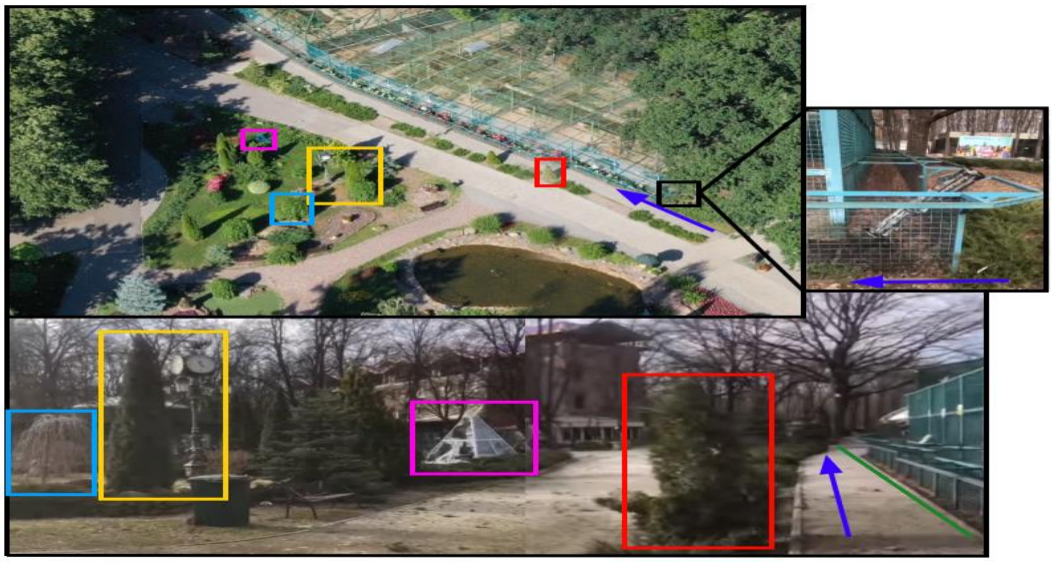

Figure 9: Geolocation of the video showing where the Uragan unguided rocket projectile landed on Feldman Ecopark, near the lions' enclosure; geolocated to 50.102369, 36.280200.

[32] https://www.facebook.com/watch/?v=529674661907727.

The cargo remnants of the projectile that landed near the lions' enclosure have been identified as the cargo section of a Uragan cluster rocket 9M27K series.

These types of cluster munitions have been previously used by the Russian army against Ukraine in 2014 as detailed by the Human Rights Watch report from June 2015 "*Technical Briefing Note: Cluster Munition Use in Ukraine*".[33]

An article by the Armament Research Services published in July 2014, provided detailed information on the 9M27K series cargo rockets used by the Russian military in Ukraine at the time.[34]

This rocket model can be seen in several photos in the article, some of which display the nose cone and cargo sections of these cluster munitions.

The photos below offer a comparison between the cargo rocket that hit the big predator enclosure at Feldman Ecopark in April 2022 (left), and the cargo remains of the Uragan cluster rockets of the 9M27K series used by the Russian military and recovered from Ukraine in 2014 (right).

There is ample evidence to establish that this is, in fact, the cargo section of a Uragan cluster rocket 9M27K series, fired by a BM-27 Uragan ("Hurricane") Multiple Launch Rocket System.

[33] https://www.hrw.org/sites/default/files/news_attachments/ukraine_clusters_briefing_note_final.pdf.
[34] https://armamentresearch.com/9m27k-series-cargo-rockets-used-in-ukraine/.

Figure 10: Comparison of the cargo rocket that landed at Feldman Ecopark (left) with the Uragan cluster munition rocket 9M27K series used in 2014 against Ukraine (right).

Unfortunately, the loss of animal life and the massive destruction of property was not the only reported damage in the zoo caused by the Russian military.[35][36]

On 5 May, Oleksander Feldman the founder of the Feldman Ecopark announced, that during an animal evacuation the staff and volunteers faced Russian strikes that led to the death of a 15-year-old volunteer.[37]

This was, according to the article on the Oleksander Feldman foundation website, the sixth victim among their team members.[38]

[35] https://www.facebook.com/watch/?v=706015240600265.
[36] https://www.facebook.com/watch/?v=513748196985058.
[37] https://www.facebook.com/watch/?v=671073550835978.
[38] https://feldman.fund/en/ecopark-rescue-team-volunteer-killed-under-shelling/.

Previously, Mr. Feldman had announced on 8 March, the killing of two people that had gone into the Ecopark to feed the starving animals.[39]

On 19 April, Feldman Ecopark published a video of an employee announcing two additional killings.[40]

The man on the video claimed that the bodies of the two staff members who had been missing since March, were found within the park premises. They were both shot in a room, whilst attempting to barricade themselves from the Russian military.

According to the post on Facebook, the two employees had volunteered to stay in the Ecopark and help feed the animals before going missing on 7 March.

Feldman Ecopark suffered extensive damage due to direct shelling by the Russian military.

A video displaying the remains of the cargo section of a projectile that hit an animal enclosure provides clear evidence of the use of the Uragan cluster munition rocket 9M27K series.

As a result of continuous attacks, the Ecopark was forced to evacuate the animals in a bid to save as many as possible from being killed.

Additionally, the Ecopark faced the loss of animal and human lives in several attacks over the span of the last months.

Although many animals were saved through evacuations, and the dedication of staff and volunteers, some of them were killed before being rescued, whilst others have escaped and have yet to be returned to the Ecopark.

[39] https://www.facebook.com/watch/?v=973279253329137.
[40] https://www.facebook.com/watch/?v=5004989366259693.

Mykolaiv Zoo (Миколаївський зоопарк)

Mykolaiv Zoo is a 121-year-old zoo, and one of the largest in Ukraine with around 400 animal species,[41] 211 of which are on the international red list of threatened species, with a total of over 4000 animals throughout the park's 20 hectares.[42][43]

The Zoo is located right in the centre of Mykolaiv, a city that suffered numerous attacks from the Russian military in the past months.[44] With ongoing Russian attacks, the zoo has suffered a number of strikes from cluster bombs, many of them documented and shared on social media.

EoR was able to analyse and identify the rocket remains to provide evidence of this type of indiscriminate strike on a clear non-military target.

An analysis of several photos and videos of the projectile remains that landed in the Zoo's property provided sufficient evidence to identify them as cluster munitions from a 9M27K series rocket, fired from a BM-27 Uragan Multiple Rocket Launcher.

Additional projectile remains included a 9M55K series rocket, fired from a BM-30 Smerch Multiple Rocket Launcher, and a 9M54 series rocket, fired from a Smerch Tornado-S Multiple Barrel Rocket Launcher.

In an interview with *HB*, a Ukrainian news company, Vladimir Topchiy, the president of the Association of Zoos and director of Mykolaiv Zoo, explained that the first weeks of the invasion were the most difficult.[45] The Zoo was left without electricity, shortage of food for the animals, and no money to buy the basic necessities.

[41] https://twitter.com/AFP/status/1506959008464207874.
[42] https://zoo.nikolaev.ua/.
[43] https://www.euronews.com/green/2022/03/27/ukraine-s-biggest-zoo-is-caught-in-the-crossfire-how-are-the-animals-coping.
[44] https://www.info-res.org/post/the-mykolaiv-rocket-strike-analysis-of-the-attack-and-the-kremlin-disinformation-around-it.
[45] https://nv.ua/ukr/odesa/vidkriyemos-koli-vidzhenemo-orkiv-direktor-mikolajivskogo-zooparku-pro-shchodenni-obstrili-50244671.html.

The staff was placed in a precarious situation, attempting to help the animals in very difficult conditions. The Zoo ended up having to turn to local citizens and European colleagues for help.

Below is the location of the Mykolaiv Zoo on a map.

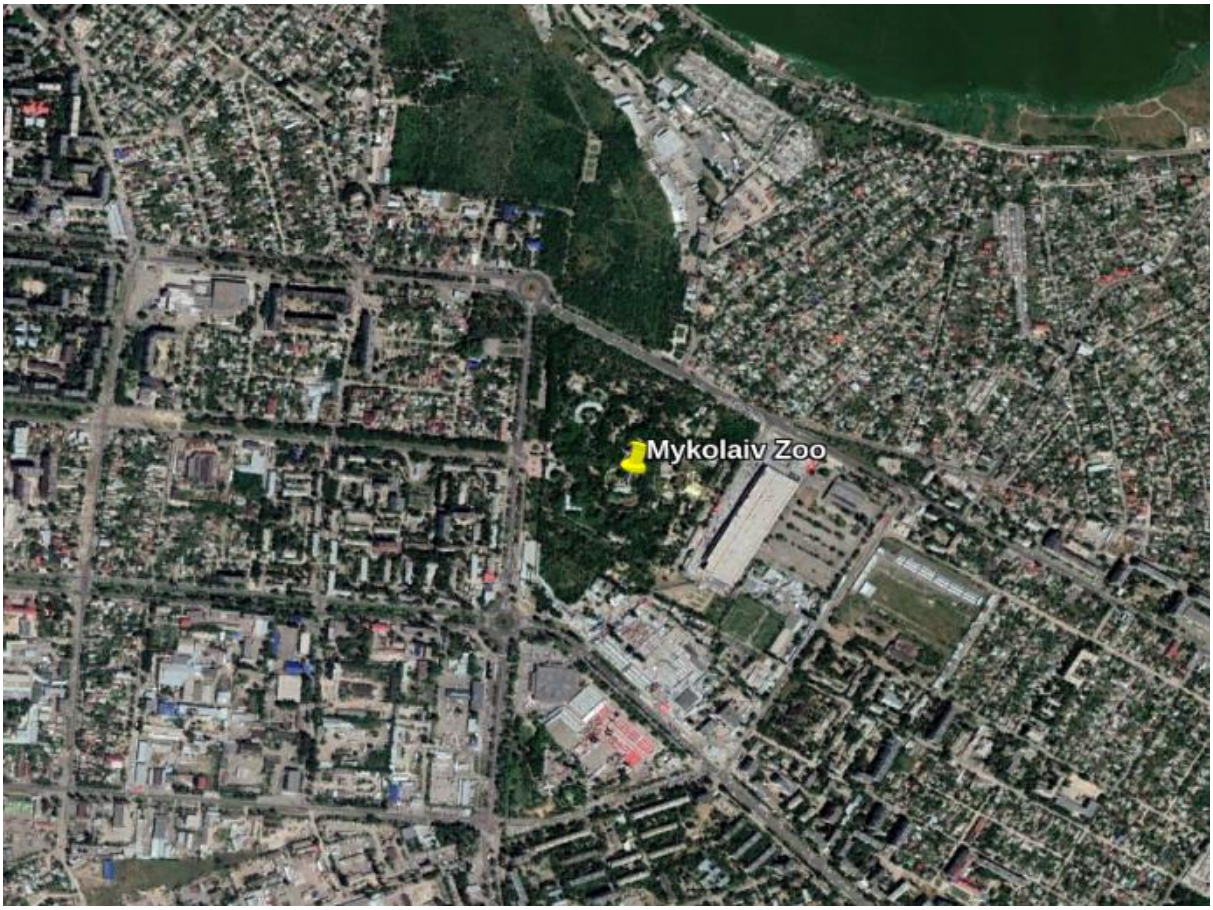

Figure 11: Location of the Mykolaiv Zoo on a map; geolocated to 46.959808, 32.036690.

Damage suffered by the Mykolaiv Zoo

On 7 March, Vladimir Topchiy, Mykolaiv's Zoo's owner and director, shared on his personal Facebook several photos of the tail section of a rocket that landed "*outside the tiger and polar bear enclosures*".[46]

According to an article by EuroNews, this first rocket landed on the Zoo on 27 February and is currently on display at the Mykolaiv Zoo Museum.[47]

The photos provide sufficient detail to identify it as the tail of a 9M27K series rocket, a type of cluster projectile fired from the BM-27 Uragan, a Multiple Rocket Launcher, designed in the Soviet Union.

Below is the comparison between the rocket tail that landed in Mykolaiv Zoo in front of the tiger enclosure (left), and a rocket tail identified by the Human Rights Watch as belonging to a 9M27K series that landed in a cemetery in Mykolaiv on March 21 (right).[48]

At the bottom, is a photo of the same rocket that landed near the tiger enclosure, currently on display at the Mykolaiv Zoo Museum.[49]

[46] https://www.facebook.com/topchy.zoo/posts/pfbid0r4rvW2MDMbuFgmUBW3enkZjse1xwsiGaNnrjy3vkSRuv5GS1psT29kmVshtNYdbGl.
[47] https://www.euronews.com/green/2022/03/27/ukraine-s-biggest-zoo-is-caught-in-the-crossfire-how-are-the-animals-coping.
[48] https://www.hrw.org/report/2022/05/11/intense-and-lasting-harm/cluster-munition-attacks-ukraine.
[49] https://www.facebook.com/topchy.zoo/posts/pfbid0GGsLBDQBb1jpGhDNU6aS166ZSsPQLcs1Nqq9ixMkJ1d3hsFkBju2nk39nRYi7pHLl.

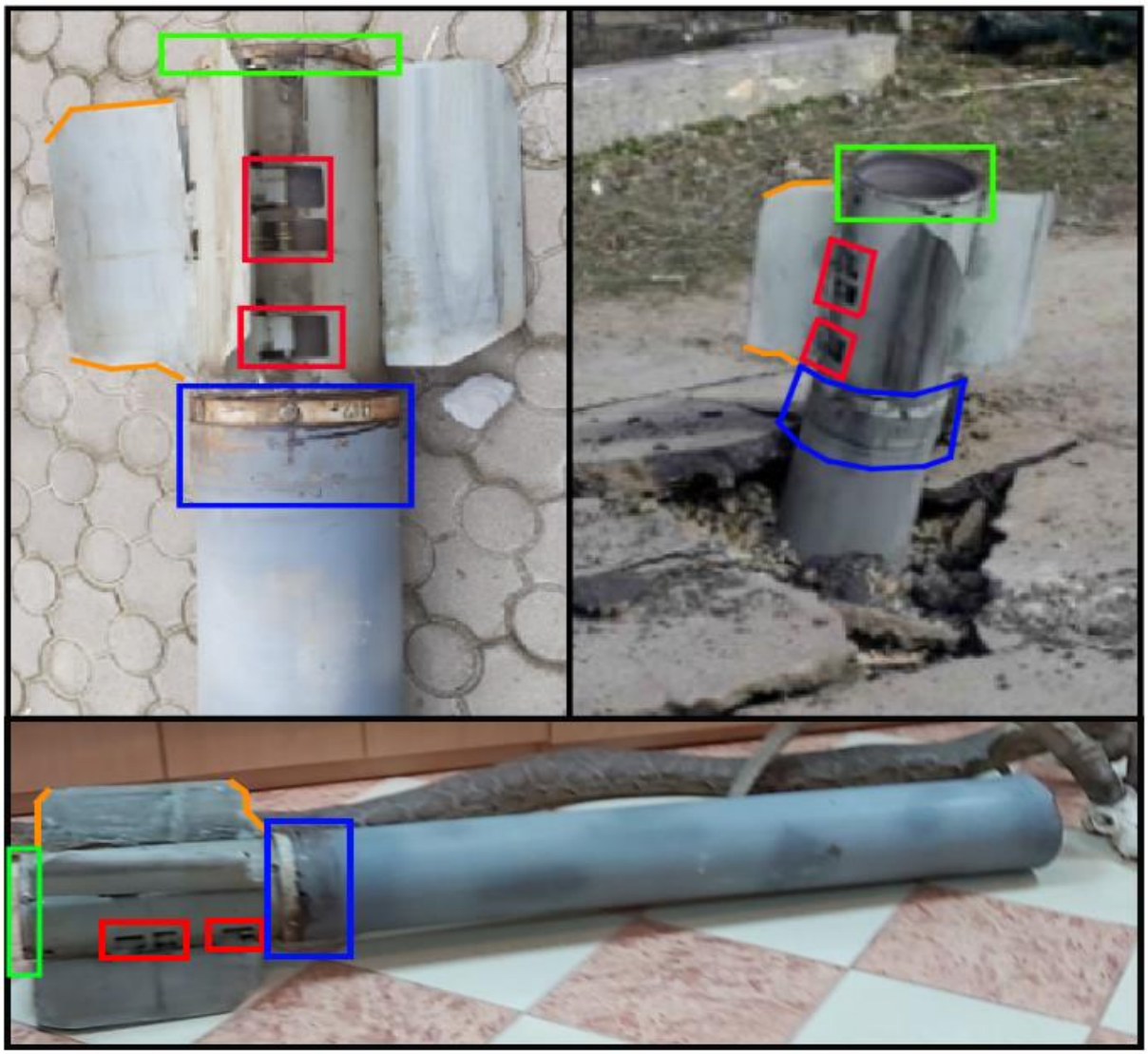

Figure 12 (above): A comparison of the tail section of the rocket that landed at the Mykolaiv Zoo on 27 February (left) with a rocket tail identified by Human Rights Watch as belonging to a 9M27K series (right).[50] At the bottom the same rocket, currently on display at the Mykolaiv Zoo Museum.[51]

On 12 March, the owner of Mykolaiv Zoo documented two more rocket remains that had landed on their property overnight.[52]

[50] https://www.hrw.org/report/2022/05/11/intense-and-lasting-harm/cluster-munition-attacks-ukraine.
[51] https://www.facebook.com/topchy.zoo/posts/pfbid0GGsLBDQBb1jpGhDNU6aS166ZSsPQLcs1Nqq9ixMkJ1d3hsFkBju2nk39nRYi7pHLl.
[52] https://www.facebook.com/topchy.zoo/posts/pfbid0qYijiZKcobDwhgDFkAode8g1Nt67ak2soAkTiJ3CuoF3ANYRTqUwVREM58LrA45ol.

After careful examination, EoR investigators can conclude that the remains belong to the cargo section of a cluster rocket 9M55K series. Similar to the ones launched by the Russian military into Kharkiv neighbourhoods in February 2022.[53]

A photo, shared by Human Rights Watch in their article offers enough detail to establish a clear match between the cargo section of a 9M55K rocket that hit Kharkiv in February, and the one that landed on the Mykolaiv Zoo in March.[54]

These would have been launched by a BM-30 Smerch, a Multiple Rocket Launcher designed in the Soviet Union.

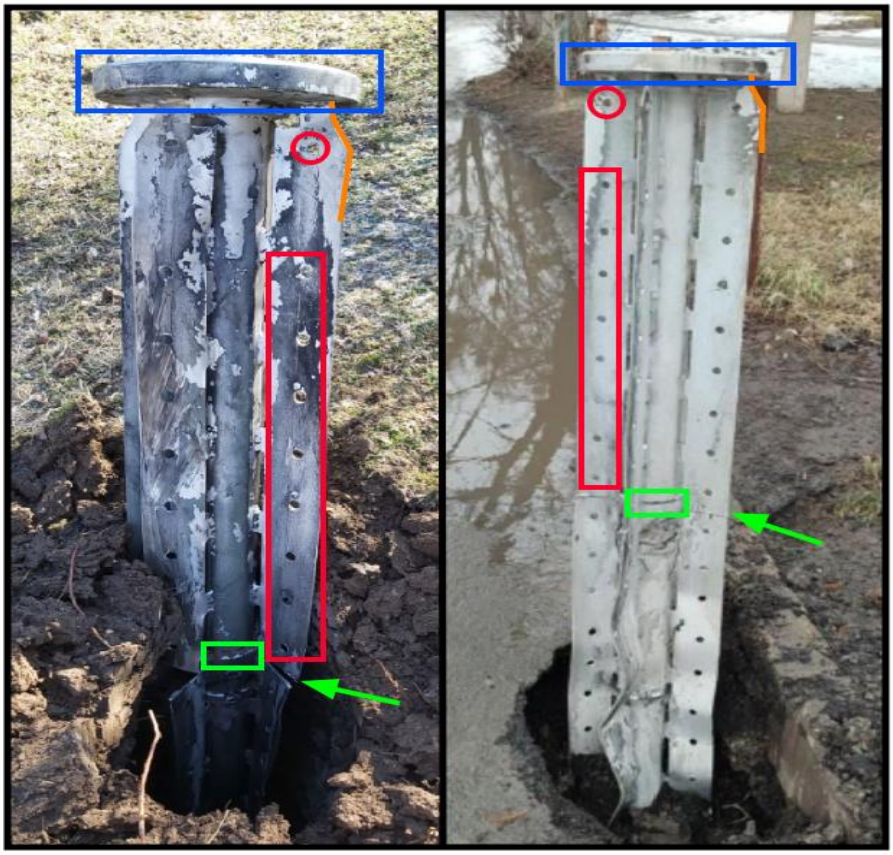

Figure 13: A comparison of the cargo section of a 9M55K that landed on Mykolaiv Zoo on the night of 11 March, and the one that landed in a Kharkiv neighbourhood in February.

[53] https://www.hrw.org/news/2022/03/04/ukraine-cluster-munitions-launched-kharkiv-neighborhoods.
[54] https://www.hrw.org/news/2022/03/04/ukraine-cluster-munitions-launched-kharkiv-neighborhoods.

This was not the only strike of a 9M55K series rocket documented by EoR in Mykolaiv, as evidence from a strike on 15 April presented similar conclusions.[55]

On 23 March, Vladimir Topchiy published photos of additional remains of cluster munition that landed on Mykolaiv Zoo.[56]

This time the remnants were identified as belonging to a Russian 9M54 series guided missile, similar to the one documented in Pokrovsk, Donetsk Oblast, on 4 March.[57]

Figure 14 is a comparison between the two missiles' cargo remains.

On the left are the remains of the rocket cargo that hit Mykolaiv Zoo, and on the right is the photo of a 9K64 series rocket documented in Pokrosvk.[58]

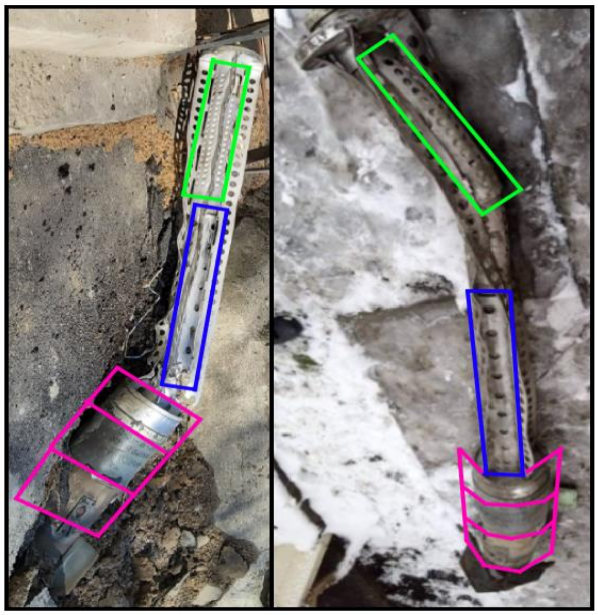

Figure 14: A comparison of the remains of the missile that landed on Mykolaiv Zoo on 23 March (left), and the missile remains identified as belonging to the Russian 9M54 series (right).[59][60]

[55] https://www.info-res.org/post/the-mykolaiv-rocket-strike-analysis-of-the-attack-and-the-kremlin-disinformation-around-it.
[56]https://www.facebook.com/topchy.zoo/posts/pfbid02q8h8bWjwHsHAHmzRSZSq7gbnCAh9CZBKB2urFRSAWX59jGSFLa29hS8JqvZTDgxal.
[57] https://armamentresearch.com/russian-9m54-series-cargo-missile-documented-in-ukraine-2022/.
[58] https://armamentresearch.com/russian-9m54-series-cargo-missile-documented-in-ukraine-2022/.
[59]https://www.facebook.com/topchy.zoo/posts/pfbid02q8h8bWjwHsHAHmzRSZSq7gbnCAh9CZBKB2urFRSAWX59jGSFLa29hS8JqvZTDgxal
[60] https://armamentresearch.com/russian-9m54-series-cargo-missile-documented-in-ukraine-2022/.

The presence of the 9M54 series guided-missile suggests that Russian forces were using the 9K515 Tornado-S Multiple Barrel Rocket Launcher to fire against non-military targets.[61]

On 19 April, Vladimir Topchiy published four photos showing the landing locations of several rockets that landed on the property during the night.[62]

One of the photos shows the cargo section of the cluster rocket where the submunitions would have been stored before being released over the Zoo.[63]

The other three photos focus on the tail section of a cluster rocket.[64]

EoR investigators carried out a comparative analysis in *figure 15* between the photo of the rocket that landed at the Mykolaiv Zoo, and previous investigations that analysed similar munition types.[65]

There was clear indication that the munition was a a 9M55K cargo rocket.

[61] https://armamentresearch.com/russian-9m54-series-cargo-missile-documented-in-ukraine-2022/.
[62]https://www.facebook.com/topchy.zoo/posts/pfbid02Gei4Q4Ak9e6pmfMb6KcTHPHJ1muCJhgp3QSPUipDZoCTceMwoEMRTMNYdFjiX782l.
[63] https://www.facebook.com/photo/?fbid=5118361291572746&set=pcb.5118361894906019.
[64] https://www.facebook.com/photo?fbid=5118361361572739&set=pcb.5118361894906019
[65] https://www.facebook.com/photo/?fbid=5118361361572739&set=pcb.5118361894906019

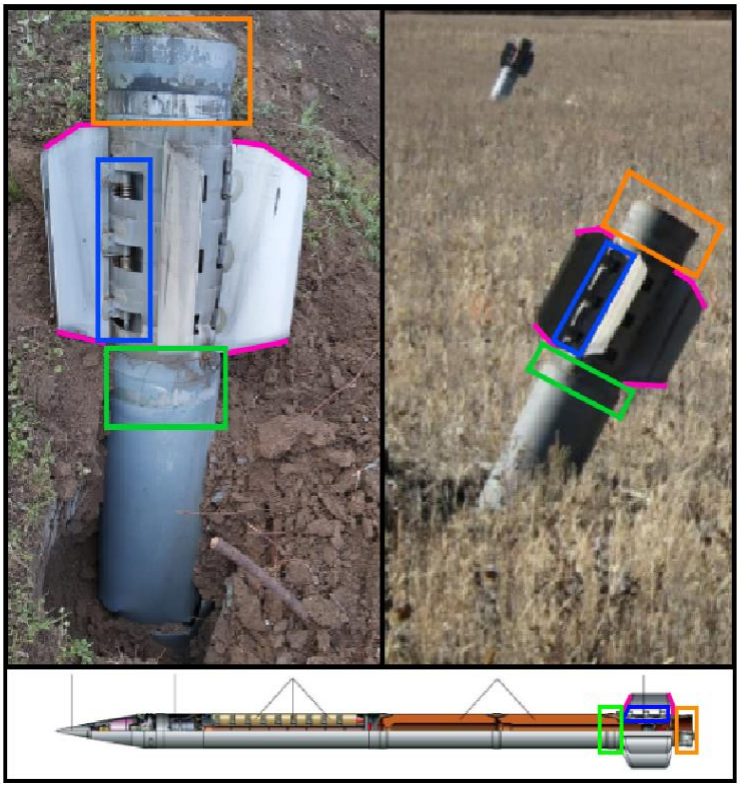

Figure 15: A tail section of the rocket that landed at the Mykolaiv Zoo on the night of 18 April 2022 (left), and a similar rocket that landed in a field near Novosvitlivka in Ukraine on 13 October, 2014 (right). At the bottom is an illustration of a 9M55K cargo rocket.[66]

The cargo rocket tail that landed in Mykolaiv Zoo on the night of 18 April, has therefore been identified by EoR investigators as a 9M55K type cluster munition, likely launched by a BM-30 Smerch.

This Multiple Rocket Launcher was designed in the Soviet Union and has been previously observed by Bellingcat as being used by Russian forces in Ukraine during the ongoing conflict.

This was not the first time that Mykolaiv Zoo was hit by a 9M55K series cluster rocket.

EoR investigators previously observed and analysed, a 9M55K cargo section that hit the Zoo on 12 March.

[66] https://armamentresearch.com/9m55k-cargo-rockets-and-9n235-submunitions-in-ukraine/

Overall Mykolaiv Zoo has reported and documented a significant amount of cluster bomb strikes in the past months.

Evidence of several different types of cluster munitions was found on the Zoo's property and shared on social media.

EoR investigators verified at least 3 different munitions targeting the Zoo and its inhabitants.

The first was a 9M27K series rocket, the second was a 9M55K series rocket, and the third was a 9M54 series rocket. All these projectiles targeted and damaged Mykolaiv Zoo, a non-military target.

Kharkiv Zoological Park (Харківський зоологічний парк)

The Kharkiv Zoo was founded in 1895 and, at 127 years old, it is the oldest Zoo in Ukraine.

According to Kharkov Info, this zoological park extends over 22 hectares and harbours 6810 animals of 385 different species, from which 103 of those are rare and under protection.[67]

The Zoo is located at the centre of Kharkiv, a few hundred metres from Freedom Square, an area that was extensively shelled by Russian forces in the first weeks of the invasion.

Although the Kharkiv Zoo reported significantly less damage than other nearby Zoos, it was of critical importance in the attempts of saving and harbouring evacuated animals from other nearby parks.

Below is the location of the Kharkiv Zoo on a map.

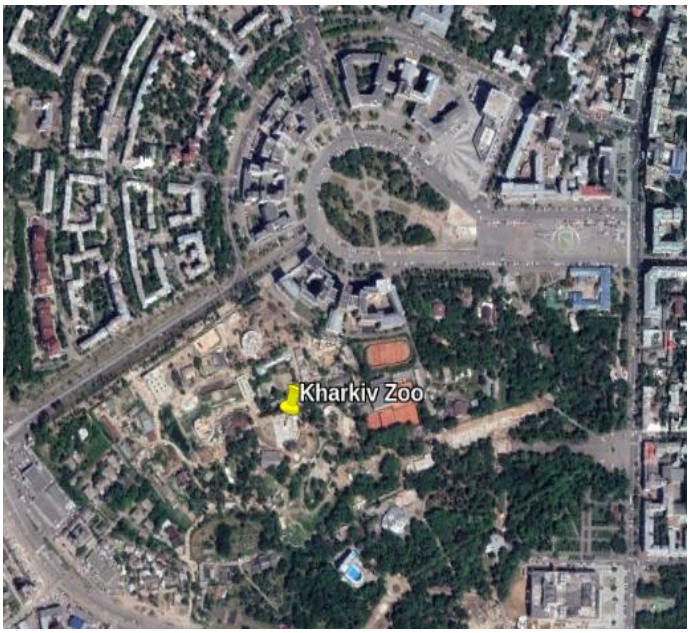

Figure 16: The location of the Kharkiv Zoo on a map; geolocated to: 50.002598, 36.225915.

[67] http://www.kharkovinfo.com/zoo-in-kharkov.html

Damage suffered by the Kharkiv Zoo

On 14 March and 26 March, the Kharkiv Zoo announced on their Facebook page that they have suffered from the bombing of Kharkiv.[68][69]

Although they did not share any videos or photos of the damage to their property, EoR investigators have documented shelling of civilian buildings within the vicinity of the Zoo in the days prior to both announcements.[70][71][72][73]

This highlights the possibility of damage within the Zoo walls although none was reported on social media. Below is the map of the geolocated attacks on civilian targets within the vicinity of the Kharkiv Zoo, between 9 March and 26 March.[74]

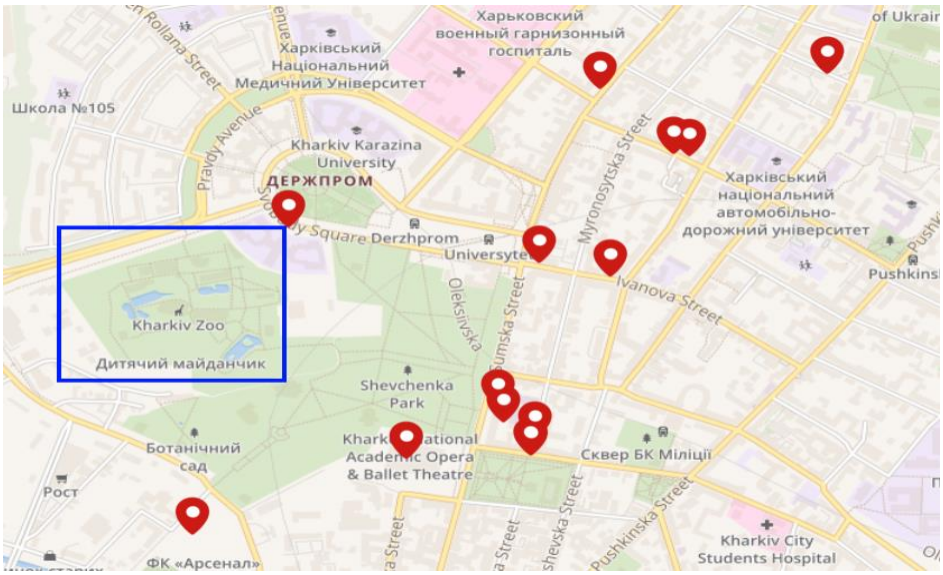

Figure 17: The location of the reported and geolocated civilian infrastructure damage due to shelling by the Russian military within the vicinity of the Kharkiv Zoo (highlighted in dark blue), between 9 March and 26 March.[75]

[68] https://www.facebook.com/zookharkov1895/posts/pfbid0xSDEtPRQTY8LmBRA1Q6Etb3oVNopY3ok9vixYwhLVVWo8gDYmifwfANeC5caoDv9l
[69] https://www.facebook.com/zookharkov1895/posts/pfbid02VxHBeqvtSHQKKzb1iXaSErJux8YNHbGFaLtqZb1L8Zca3LPbMUqYg81Ai5B4RKBCl
[70] https://t.me/informatsia_obstanovka/4629?single
[71] https://t.me/truexanewsua/31289
[72] https://t.me/truexanewsua/32711
[73] https://t.me/informatsia_obstanovka/9282
[74] https://maphub.net/Cen4infoRes/russian-ukraine-monitor
[75] https://maphub.net/Cen4infoRes/russian-ukraine-monitor

According to an online article published 14 March on *Kharkiv Today*, a news website focused on local issues, Kateryna Detyuk, Kharkiv Zoo's Deputy Director, described the challenging situation faced by the Zoo.[76]

In a statement, she said that "*Many Kharkiv residents have left the city, but the bravest are still trying to feed and protect animals. Some defenders have even brought their families to the zoo, saving animals' lives and risking their own.*

A Facebook post on the same day adds that the animals are showing signs of fear and anguish.[77]

On 22 March, an article on the City Council website claimed the Zoo had managed to receive evacuated animals from Feldman Ecopark, a Wildlife Park located around 13 Km North of the centre of Kharkiv.[78]

According to the article, Kharkiv Zoo was able to provide shelter to four orangutans and nine chimpanzees after their enclosure at the Ecopark was recently bombed.

On 6 April, an online article by the *Kharkiv Times* published a statement by the City Council clarifying that the Kharkiv Zoo animals were not being evacuated.[79] Instead, the Zoo has been accepting animals from Feldman Ecopark, having already received five lions, a jaguar, and a panther, among many others.

On 7 April, the owner of Feldman Ecopark published a video on his personal Facebook page showing the transportation of the evacuated big cats to the Kharkiv Zoo.[80] According to a video

[76] https://2day.kh.ua/ua/kharkow/tvarynam-kharkivskoho-zooparku-potribni-frukty-i-myaso
[77]https://www.facebook.com/zookharkov1895/posts/pfbid0xSDEtPRQTY8LmBRA1Q6Etb3oVNopY3ok9vixYwhLVVWo8gDYmifwfANeC5caoDv9l
[78] https://city.kharkov.ua/uk/news/orangutani-z-ekoparku-teper-zhivut-u-kharkivskomu-zooparku-50144.html
[79] https://times.kharkiv.ua/2022/04/06/harkivskij-zoopark-prosit-doviryati-lishe-perevirenij-informatsiyi/
[80] https://www.facebook.com/pochta.feldman/videos/314585770776539/

from Karina Detiuk, the Kharkiv Zoo Deputy Director, the animals safely arrived at their Zoo and were recovering from the stress they suffered.[81][82]

Overall Kharkiv Zoo did not document or report as much damage as Feldman Ecopark or Mykolaiv Zoo, however it was clearly in an area surrounded by intense shelling during the first months of invasion as many shelled residential and government buildings reported significant damage near its vicinity.

Remains of the cargo of a 9M55K series cluster bomb were identified on a street of Kharkiv on 2 March, around 150 meters from the Zoo grounds.[83] This type of rocket releases smaller submunitions that spread and explode over a large area therefore it is very likely that, due its proximity, the Zoo also suffered damage.

Although Kharkiv Zoo did not endure as many losses or damage as other nearby parks, it was of utmost importance for the survival of many animals as it provided safety for many of the evacuated inhabitants from other zoos.

XII Months (XII Місяців)

XII Months is a small Zoo located near the town of Demydiv, about 35 Km North of the centre of Kyiv. It spans over 16 hectares of land and houses over 100 species of animals.

According to their website, they house several big cats, many primates, a couple of giraffes, a rhino, and zebras.[84]

Over the past months, the Zoo has suffered from the loss of access to fuel for generators necessary to keep the animals warm, and food for their inhabitants. They lost several of their animals due to the cold and Russian shelling that targeted their property.

[81] https://www.facebook.com/100012271930361/videos/pcb.1440050149747369/3113237922275305
[82]https://www.facebook.com/permalink.php?story_fbid=pfbid02R2NLLjK7eU4Xd7BHbm6ZJ3YZrQC11gTLQLkS6DEn7uhrfGFtwwBBz21YARzBorJyl&id=100012271930361
[83] https://t.me/truexanewsua/27768
[84] https://12.org.ua/XIIMonths/

With their animals facing starvation and living in a dangerous environment, the staff organised the evacuation of several of its residents.

Figure 18 presents the location of the XII Months Zoo on a map.

Figure 18: Location of the XII Months Zoo on a map; geolocated to 50.737089, 30.297453.

Damage suffered by the XII Months Zoo

On 15 March, a local news website published an article claiming the animals at the XII Months Zoo were on the verge of starvation.[85] According to Mikhail Pinchuk, the park owner, "*animals have so far died from bombings and shelling, mostly from panic or death from fear. Those cold-resistant animals in outdoor enclosures are now dying of hunger. Exotic animals that need heat are dying of hunger and cold.*"

[85] https://kyiv.comments.ua/ua/news/society/developments/8428-pid-kievom-tvarini-u-zooparku-12-misyaciv-na-mezhi-golodnoi-smerti.html

Mr. Pinchuk added that, at the time of writing, the Zoo had no electricity or gas supply and that their diesel fuel to run the generators had run out. He attributed the survival of their animals to dedicated zookeepers that have been feeding them with leftovers delivered to the park.

The owner described the dramatic situation by emphasising that they didn't even have the necessary medicine to put the animals out of their misery.

On 19 March, XII Months Zoo published a photo of a dead hyena attributing her demise to the lack of green corridors.[86] Zhukha was born on 21 March, 2010 and was the mate of Skewers, a male striped hyena, also born in 2010.[87]

On 30 March, the Zoo shared a video of their primates being evacuated.[88] According to their post, they were able to remove almost all of them but had to leave a chimpanzee behind as they did not have the necessary time to prepare him for transportation.

On 6 April, Mikhail Pinchuk shared on his Facebook page a video of several of the Zoo animals in their enclosures.[89] Mr. Pinchuk describes how some of them were not in good condition due to the lack of food suffered because of the disrupted logistics, and lack of access to supplies.

The video provides clear evidence of the state of the animals with many of them presenting clear signs of emaciation.

[86] https://www.instagram.com/p/CbSRgWxNLg9/
[87] https://12.org.ua/animals/smugasta_giena/
[88] https://www.instagram.com/p/CbvDwOulqaB/
[89] https://www.facebook.com/100010059671632/videos/731335178025896/

Figure 19: Animals at XII Months Zoo showing signs of emaciation due to the lack of access to food caused by the ongoing war.

Overall, XII Months Zoo suffered from the death of several of their animals due to direct shelling, hunger and cold, as their situation worsened by the lack of green corridors necessary to deliver fuel to power their generators, and provisions to feed their animals.

They were one of the beneficiaries of international aid as they were able to eventually arrange to receive supplies delivered by members of the European Association of Zoos and Aquaria.

3. International Aid

Although not all Ukrainian zoos reported direct shelling damage and destruction of their property, many wildlife parks around the country suffered from the trickle effect of the disrupted logistics which impacted the easy access to food and medicine for the animals.

Additionally, zoos reported a lack of staff able to work as a result of people escaping the war, joining the Ukrainian military, a lack of safe access to the zoo or, in some cases, the loss of human life.

According to EAZA, the European Association of Zoos and Aquaria, several zoos requested funding in order to feed their animals. On 3 June, EAZA published a statement with an update on the funding and overall situation of Ukraine zoos.[90]

According to their report: "*The EAZA Emergency Fund for Ukrainian Zoos continues to help zoos and aquariums in the country to cover their expenses, which are primarily in animal feed and utility costs such as electricity, fuel and water. The total collected so far from over 130 institutional and 11,000 private donors now stands at €1,324,884, and funds have been provided to nearly 20 institutions."*

EAZA also provided a full list of the Ukrainian zoos: Askania Nova Nature Reserve, Berdyansk Zoo, Feldman Ecopark, Kharkiv Zoo, Kyiv Zoo, Mena Zoo, Mykolaiv Zoo, Odessa Biopark, Rivne Zoo and Bilytske Zoo.[91]

In addition to financial aid, several Ukrainian Zoos also received supplies from other European Zoos. The Panda Foundation of Warsaw, the Łódź Zoo, the Berlin Zoo and Tierpark, the Prague Zoo, the Wrocław Zoo, the Košice Zoo, the Gdansk Zoo, several Tallinn Zoos, and other EAZA Members arranged for trucks to deliver supplies to XII Months Zoo. Bilytske Zoo, Cherkasy Zoo, Feldman Ecopark, Kharkiv Zoo, Limpopo Zoo, Lutsk Zoo, Mykolaiv Zoo, Odessa Biopark, Odessa State Zoo, Poltava Zoo, Rivne Zoo, and Vinnytsia Zoo.

[90] https://www.eaza.net/assets/Uploads/EAZA-Documents-Other/Ukraine/2022-06-03-Ukraine-statement.pdf
[91] https://www.eaza.net/emergency-appeal-for-ukrainian-zoos/

4. Conclusion

Wildlife parks and zoos all over Ukraine suffered from the effects of the Russian invasion of their territory.

Some parks merely reported loss of income due to the forced closure of their premises. Others suffered disruption in logistics, limiting their ability to receive food for their animals and fuel to keep generators running. Others were not so lucky.

Family Ecopark Yasnohorodka, Feldman Ecopark, and Mykolaiv Zoo, all reported and published evidence of shelling and the use of cluster munitions against their property resulting in indiscriminate damage to the animal enclosures and other buildings.

Many of the zoos suffered from an inability to safely evacuate their animals and, in the case of Feldman Ecopark, one of the attempts resulted in the death of a child volunteering for the task. Dozens of animals were reportedly killed or wounded by bombings, shock, fires, cold weather, and starvation as zookeepers and volunteers risked their lives attempting to help them.

Feldman Ecopark has, until this date, recorded 6 deaths among their team, some allegedly, direct targeted killings by the Russian military.

In an international effort to help the animals in their desperate situation, the European Association of Zoos and Aquaria, organised the distribution of direct financial assistance to various parks, whilst a variety of European zoos and foundations planned and provided the delivery of supplies to Ukrainian zoos affected by the ongoing war.

Below is a table detailing the type of damage reported and documented from each zoo or wildlife park in Ukraine, and the aid that was offered to them to assist in the maintenance and care of their animals.

This is a table showcasing only open-source data found online; therefore the zoos and arks listed below could have suffered additional damage that was not reported.

	Damage to Property		Loss of Animals		Loss of Life		International Aid	
Zoos & Wildlife Parks	Shelling	Fire	Evacuated	Escaped	Human Life	Animal Life	Financial	Supplies
Askania Nova Nature Reserve							x	
Berdyansk Zoo							x	
Bilytske Zoo			x				x	x
Cherkasy Zoo								x
Family Ecopark Yasnohorodka	x	x	x					
Feldman Ecopark	x		x	x	x	x	x	x
Kharkiv Zoo	x						x	x
Kyiv Zoo							x	
Lutsk Zoo								x
Mena Zoo							x	
Mykolaiv Zoo	x						x	x
Odesa Biopark							x	x
Odesa State Zoo								x
Rivne Zoo							x	x
XII months	x					x		x

Figure 20: Table showcasing the type of damage suffered by a list of Ukrainian zoo and wildlife parks due to the Russian invasion.


Centre for
Information
Resilience