

## FOR IMMEDIATE RELEASE

### **Destruction of indigenous rock art site in Upper-Xingu (Mato Grosso, Brasil)**

**The cave of Kamukuwaká, an important sacred petroglyph site representing the cosmogony of the inhabitants of Upper-Xingu and registered national monument has been intentionally destroyed. Culture is under threat and digitisation of Cultural Heritage is the most effective way to monitor its condition. Following the recording of the vandalised sacred cave, Factum Foundation is now working on its digital reconstruction in virtual and physical form.**

The sacred landscape of Kamukuwaká, situated on the banks of the river Batovi (or 'Tamitatoala'), in the state of Mato Grosso, is one of the most important sites for the peoples of the Xingu region. In particular, the petroglyphs in the cave provide a vital insight into ancient Xinguan cosmogonic and ethnohistoric cartography. As the legendary site of the residency and reclusion of the mythical hero-ancestor Kamukuwaká and his people, it is a space that is associated with the origin of the initiation ritual of Xinguan communities' young leaders. Its engravings represent the source of much of the Xinguan traditional graphic repertoire, being widely reproduced in ritual body paintings, traditional pottery, and basketry.

In January 2018, during a visit to the area, the walls of the cave were untouched. In September 2018, an expedition to Kamukuwaká was organised as one of the first steps in a project to ensure the preservation of the listed cave. Collaborating with an independent team of Brazilian anthropologists, it aimed to document the site using high-resolution 3D-imaging technologies, including laser-scanning and photogrammetry: precautionary measures intended to safeguard against precisely such a disastrous event. Upon arrival at the site, it was revealed to have been devastated with the most important petroglyphs hacked away. Factum Foundation's team recorded the site in its vandalised state.



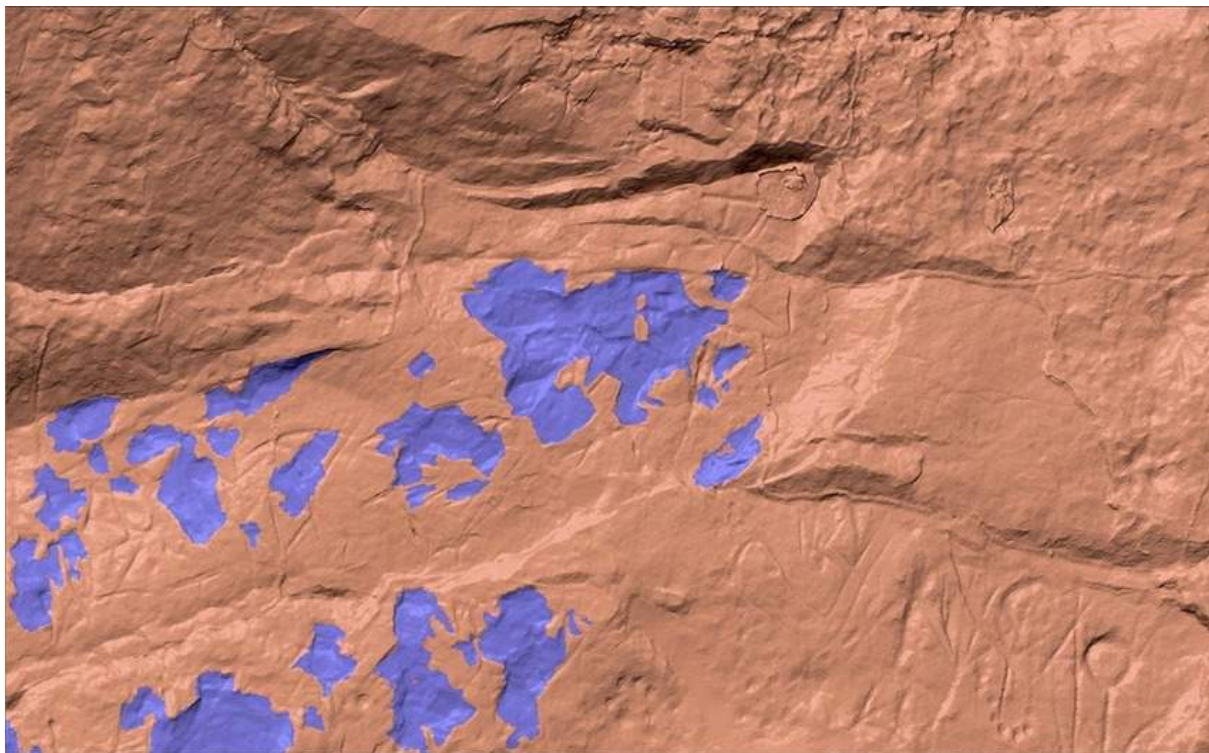
The engravings at Kamukuwaká serve a pedagogical function of transmitting the mythological narratives of the Wauja people



The exclusion of this important element of indigenous, national, and world heritage from the Xingu people's demarcated territory contributed to the tragedy that befell the site in 2018, when the engravings were systematically destroyed. Although the exact identity of the assailant is unknown, the destruction is representative of the tensions felt between indigenous and farming communities in Mato Grosso. In addition, deforestation at the headwaters upstream has resulted in increased sedimentation of the river and the rise of the water levels, aggravating the factors of erosion to which the rock art panels in the cave are directly exposed. Kamukuaká is a site that deeply resonates with the traditions of the inhabitants of Xingu, as well demonstrates the grave contemporary threats to their way of life.



Kamukuaká: damage to the rock art panel in September 2018 © Factum Foundation



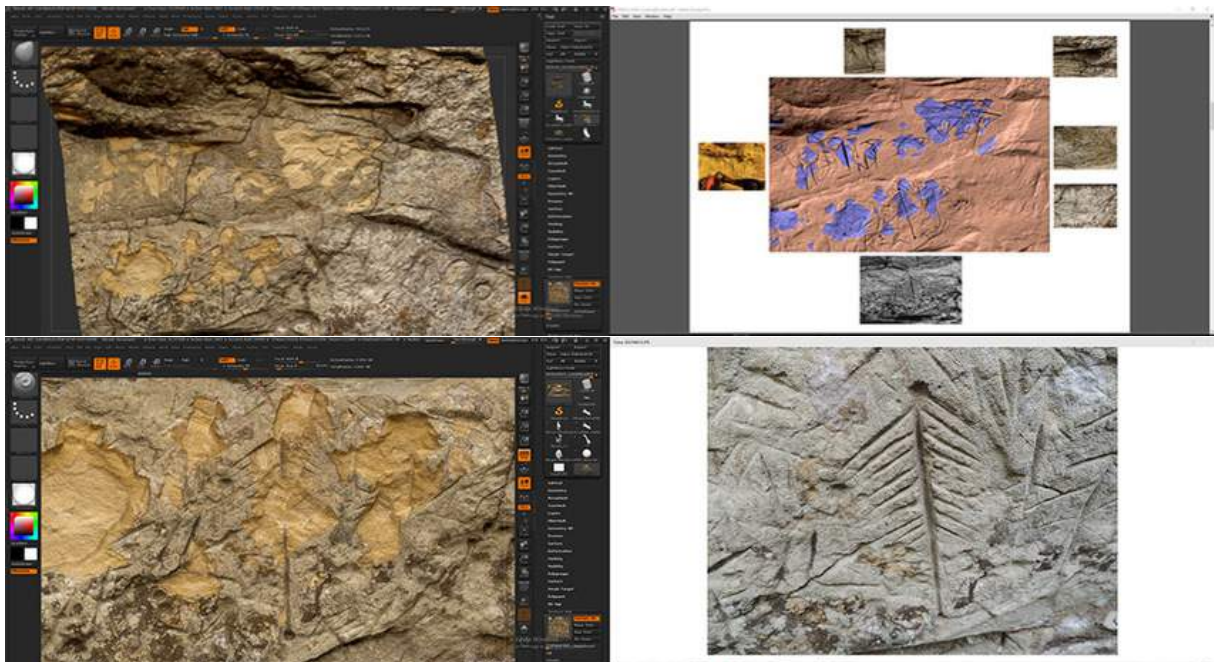
3D model of the sacred cave highlighting one of the vandalised areas (purple) © Factum Foundation



The mapping of the vandalised areas of the cave from the LiDAR and photogrammetry data will be used in combination with photographic documentation dating from before the attack to produce an accurate 3D restoration. This will lead to the creation of an exact physical facsimile of the cave, at a scale of 1:1, to be displayed at the first 'Pavilion of Indigenous People', at the garden of the Knights of Malta, during the 2019 Venice Biennale of Art. It is hoped that this forensically accurate technological statement will have a real-world impact, helping the Wauja with what they believe to be the only way to safeguard the knowledge incised into the sacred cave of Kamukuwaká. The long-term aim is to reclaim the sacred cave and its surroundings as indigenous lands and reinstate a village nearby. After the exhibition in Venice, the facsimile of the restored cave will be sent to the Wauja community. It will be able to continue its work of transmitting a sense of place and history from one generation to the next.



LiDAR laser-scan data of the vandalised cave © Factum Foundation



Screen captures documenting the 3D reconstruction of the vandalised cave © Factum Foundation



The engravings, restored through 3D-modelling from the historical photographs, will reinstate sections that have been removed by the iconoclasts. This is painstaking scientific work on local knowledge and documentary photographs. But this digital reconstruction can preserve the memories and creation myths of the Wauja people. In an unstable political situation, there are more and more examples of orchestrated destruction or mindless vandalism. It is increasingly urgent to demonstrate that technology can be used to help to face fundamentalist or commercially motivated destruction of cultural heritage. Preventative and post-damage digitisation, as well as 3D reconstruction, will never replace the value of at-risk or vandalised testimonies from the past. It is nonetheless becoming more and more urgent to demonstrate that there are ways to face those threats.



Preparing the creation of a new geometry of the vandalised areas by projecting 2D information into a new 3D mesh  
© Factum Foundation / Original image © Vilsondejesus

Widely reported in the Brazilian media, the tragedy highlights the importance of pre-emptive 3D recording. The data recorded by Factum from the site will form the basis of a digital restoration that will use 3D modelling to reinstate sections that have been destroyed. The restored rock art panel will then be produced as a physical facsimile that will form the centrepiece of Factum's forthcoming event in Venice in 2019. Preventative and post-damage digitisation, as well as 3D reconstruction will never replace the value of at-risk or vandalised testimonies from the past. It is nonetheless becoming more and more urgent to demonstrate that there are ways to face those threats.

Highlights from the Brazilian media:

Link to BBC Brasil: <https://www.bbc.com/portuguese/brasil-45660301>

Link to Estadão: <https://sustentabilidade.estadao.com.br/noticias/geral,gravuras>



### Summary

The process of digitally restoring the cave requires four stages:

- Mapping the vandalised areas of the cave from the LiDAR and photogrammetry data recorded
- Locating examples of the petroglyphs from earlier photographic documentation on the model of the scanned cave
- Creating a new geometry of the vandalised areas by projecting 2D information into a new 3D mesh. Height is determined by a software that converts images into depth maps
- Creating an exact physical facsimile at a scale of 1:1. Digital data can be studied and shared in virtual format and, if the resolution is sufficiently high, it can be made as a physical facsimile. The restored cave will be given to the Wauja people.

**Factum Foundation for Digital Technology in Conservation** is a not-for-profit organization founded by Adam Lowe in 2009. It is registered in Spain with 501(c)(3) status in the United States and outlets in London and Milan. It has been developing the application of digital technology and the creation of exact facsimiles within the arts and for cultural heritage preservation. Factum has demonstrated the success of this model in practice over the last ten years through completed and ongoing projects with major international institutions in conflict-affected regions such as the Middle East, Dagestan, Egypt, Nigeria and Chad. It is one of the leading organisations involved in this type of work with a proven track record and a network of partnerships with like-minded organisations and institutions devoted to high-resolution recording.

### Press enquiries

Nicolas Béliard – [nicolas.beliard@factum-arte.com](mailto:nicolas.beliard@factum-arte.com)



Image © Ferdinand Saumarez Smith for Factum Foundation