Recording flood damage

Results from the "Flood Damage Register 2021" project on the archaeological heritage of the Rhineland region

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Abstract

The "Flood Damage Register 2021" project (“Schadenskataster Hochwasser 2021”) was launched in 2022 to assess the damage to archaeological heritage after the devastating floods in the Rhineland region. The prolonged heavy rains on July 14 and 15, 2021, claimed about 180 lives and caused extensive damage to buildings, infrastructure, and the landscape. As a consequence, the LVR-State Service for Archaeological Heritage (LVR-ABR) and its sister commission for the eastern parts of North Rhine-Westphalia, the LWL- Archäologie für Westfalen (LWL-AfW), has initiated two independent prospection projects to record the destruction of archaeological sites. The aim of the LVR-ABR project was, on the one hand, to assess, document, and map these damages. On the other hand, the results were submitted to the affected municipalities in the form of reports, which provide an overview of the extent of the damage as well as recommendations for action, thus facilitating the application process for reconstruction funds.

A GIS-based approach and a time-efficient procedure were developed to identify potentially damaged heritage sites. Given the lack of comprehensive mapping of the affected areas, the official flood hazard maps of the HQextreme scenario were supplemented in the uncovered areas with a reasonably buffered version of the official watercourse stations data. These digital topographic datasets were matched with site records in the LVR-ABR in-house BODEON database. For each municipality in the target region, customized digital maps were created, and relevant queries of the datasets were executed. Additionally, aerial photographs and loss reports were used to pre-assess the condition of the areas. Eventually, all sites identified as potentially affected were visited in the field, and all damage was consistently documented.

So far, the project has surveyed 17 municipalities which were severely affected by the floods. 443 archaeological sites were visited. Of these, 63 sites showed damage that can be clearly associated with the 2021 flood event, and 16 previously unknown sites were recorded for the first time. The project’s results show that the flood affected a wide range of different types of sites. However, most damages occurred to water mill facilities (weirs, headraces, millponds) and relicts of the mining and metallurgical industries. While some sites date back to Roman and Medieval times, the majority dates to more recent, modern times. Both flooding and slope water caused specific damage patterns.

The “Flood Damage Register 2021” project compiled important insights into the extent of damage to the archaeological heritage in the Rhineland in 2021. It documents the impact of an extreme flooding event on cultural heritage from a small to medium-scale, local to regional perspective. Superregional comparisons to data from other areas, such as the Sauerland covered by the above-mentioned project of the LWL-AfW, improve our understanding of the influence of specific regional characteristics such as topography, land use, historically grown cultural landscapes and archaeological heritage on the manifestations of the observed damages. Results can be used to prioritize restoration processes and help affected municipalities raise funds for reconstruction. In addition, the project's work addresses questions regarding the future management of monuments potentially threatened by natural disasters. It also supports efforts to assess and reconstruct damaged cultural landscapes, providing a comprehensive repository and on-site guidance for future preservation strategies.

References

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