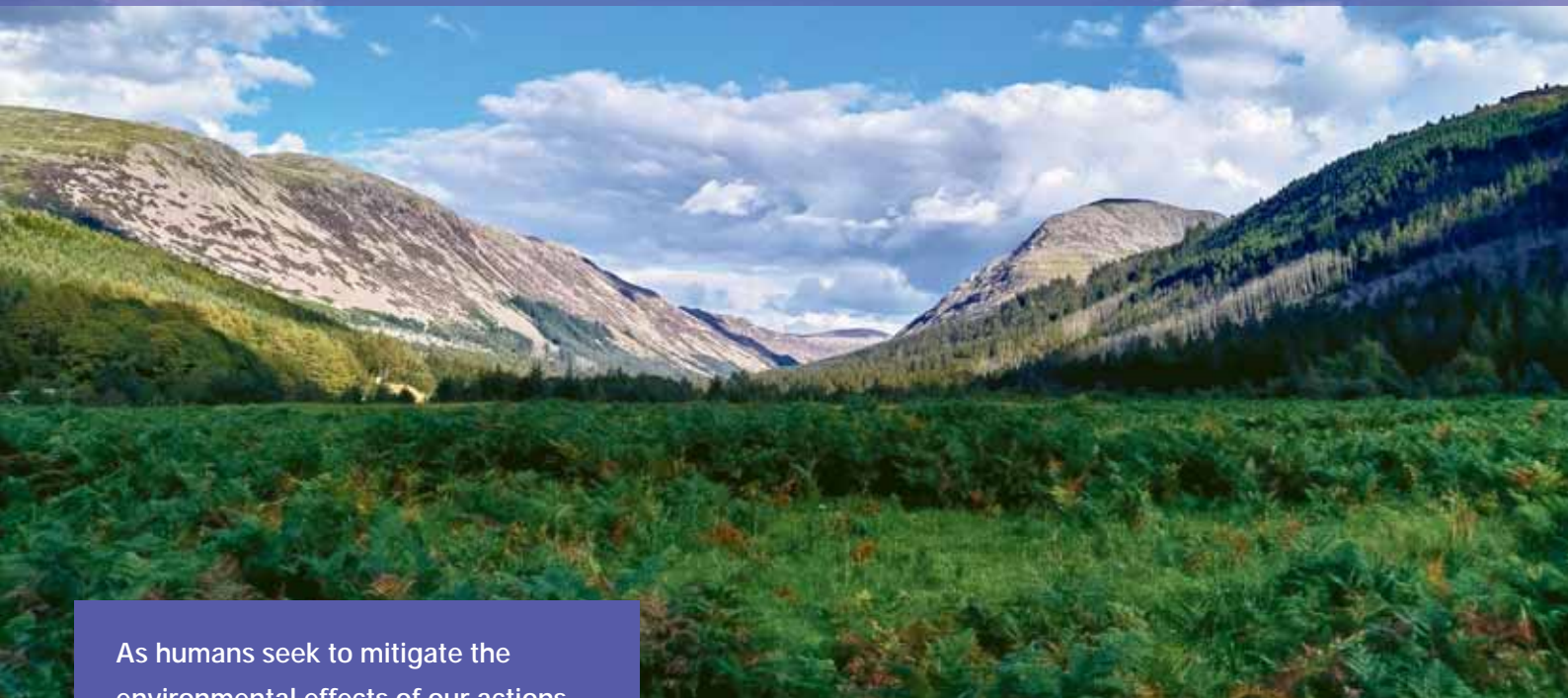# Environmental archaeology in the wild:
making space for the past in the new conservation movement

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As humans seek to mitigate the environmental effects of our actions, intentional and unintentional, nature-based solutions are being looked to for answers. Rewilding has become an increasingly popular option and, though definitions and principles are varied, it tends to follow a future-focused framework. Thus, despite the 're' prefix, it is often future action and not the past that informs intervention; a belief that 'unleashing' natural processes now will inherently bring about desirable results. However, like our current difficulties with human-made environments, the potential for unintended results is ever present.

Humans have been eco-engineering for millennia, and in the UK there is no part of the landscape that has not been affected. From niche construction in the Mesolithic, through to agriculture and urbanisation, people have always intervened to shape the environment. Each of these impacted the environment at different spatial and temporal scales with compounding and overlapping effects, driving constantly shifting baseline conditions in which further new impacts take place. This is still true today, where interventions are too often based on temporary contemporary conditions.

Successful approaches to these problems require a deeper understanding of humans as integral to the environment, as only the most misanthropic conservationist looks forward to a future without people. It is here that the past could and should have a role in these debates and the decisions taken to tackle present and future environmental problems. Environmental archaeology is well placed to contribute, as it encompasses the skills and techniques to access and interpret records of long-term human–environment interactions.

These records can come from deposits preserved over millennia in caves, peat bogs or lakes, enabling, for example, the detailed reconstruction of landscape change from pollen or identifying the presence of plants and animals from sedimentary ancient DNA. Environmental archaeology allows us to examine how

Bracken-covered cairnfield in a project study area of the Cumbria. Credit: Philip Barratt

Drone landing after high resolution surface survey in bad weather. Credit: Philip Barratt

environmental interdependencies develop over different temporal scales, observing periods of environmental resilience and crossings of ecological thresholds. It also enables us to engage with and communicate a narrative of a shared past to communities whose involvement and support is vital for successful future solutions.

Unusually, environmental archaeology was incorporated from the start of the multi-disciplinary UKRI-funded Creative Adaptive Solutions for Treescapes of Rivers (CASTOR) project. CASTOR is looking at the modern socio-economic complexities of riparian woodland expansion in the UK. This is an example of contemporary rewilding-related research, leveraging our knowledge of the past. The work of the environmental archaeologists involved in the project is to integrate faunal, vegetation and archaeological records from key study regions in Yorkshire and the Lake District, and use them to infer likely historic and prehistoric processes to better inform modelling and future management.

For example, pollen datasets have been collated, digitised, and new Bayesian chronologies created to improve cross-site correlations. These are being used, in tandem with data collated from HER records, to develop landscape scenarios for hydrological models looking at changing run-off and flooding through time. A targeted programme of coring will refine these models by detailing the transition of wetland environments in the study area. In addition, the rich data provided through all archaeological sources, such as cores, bones and monuments, are being used to develop local landscape scenarios from the Neolithic

Drone survey of stone circle and adjacent peatland (centre) prior to coring for environmental evidence. Credit: Dr Mark Smith, University of Leeds

onwards. These are the foundation for new virtual reality interventions that will allow local communities to experience site-specific human and environmental change through time.

Through this work, we have found that different research partners have varied expectations of archaeological data, and vice-versa. Taphonomic challenges can limit the regions available for study, and regions suitable for modelling may not be archaeologically rich. In these situations, compromise is necessary, a process useful in identifying where to focus resources to meet research priorities. It also challenges assumptions about the extent and quality of existing archaeological and palaeoenvironmental data. For

example, when scrutinised, an apparent wealth of 20th-century pollen data may dwindle to a few sites suitable for contemporary analysis. Continued development of these foundational datasets is often neglected by funding programmes, a situation that would benefit from reviewing. However, it is unquestionably an interdisciplinary approach that is required to meet the challenges presented by climate change, and environmental archaeology deserves a seat at the table.

The CASTOR project is led by Dr M Dennis, University of Manchester. Prof H O'Regan, University of Nottingham, is a co-investigator for the environmental archaeology element of the project. https://www.uktreescapes.org/projects/castor/

Ring cairn in archaeological landscape to be used for hydrological modelling. Credit: Philip Barratt

Dr Phil Barratt

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Hannah O'Regan

Hannah O'Regan is Professor of Archaeology and Palaeoecology at the University of Nottingham. She is particularly interested in relationships between humans and other animals, and has worked with bones from Palaeolithic to post-medieval sites in the UK and South Africa. She is currently researching the history of bears in Britain, and her role in CASTOR is to advise on zooarchaeology and palaeoecology in upland England.