Institution: University of Birmingham

Unit of Assessment: UoA29 – Classics

Title of case study: Changing how wetland, peatland and waterlogged archaeologies are managed and understood

Period when the underpinning research was undertaken: 2000–2020

Details of staff conducting the underpinning research from the submitting unit:

Name(s):	Role(s) (e.g. job title):	Period(s) employed by submitting HEI:
Dr David Smith	Senior Lecturer in Environmental Archaeology	1992–present
Professor Henry Chapman	Professor of Archaeology	2005–present
Dr Benjamin Gearey	Lecturer in Environmental Archaeology	2005–2011
Dr Andy Howard	Senior Lecturer in Geoarchaeology and Remote Sensing	2004–2013

Period when the claimed impact occurred: 1 August 2014–31 July 2020

Is this case study continued from a case study submitted in 2014? No

1. Summary of the impact

This case study details benefits to national and regional heritage organisations, heritage professionals and a variety of publics in two principal areas. First, **changes to policy and management** at both site and landscape scales have been implemented through significant *in situ* protection, specifically through scheduling and landscape management plans, and by continued consultation and knowledge exchange with national and international bodies. Second, **changes in public understanding** have resulted in pronounced changes to public perception of the issues surrounding wetland archaeology. This was achieved through extensive collaborative work with a range of external bodies, public volunteers and museums, and the media in the UK and Denmark.

2. Underpinning research

The underpinning research centres on wetland and waterlogged archaeology and its exceptional cultural value resulting from the preservation that these environments present. Its importance lies in understanding not just how landscapes and settlements of the wetlands changed but also how people used and perceived these changing environments. This research continues to build on a long history of cross-sector research and engagement led by University of Birmingham academics. A combination of new approaches to the excavation, palaeoecological analysis and digital modelling of this archaeology and landscape has resulted in new knowledge and methodologies.

Key findings (KF) from site-level research have included:

1) Chapman and Gearey's excavation of a later Neolithic trackway and platform on Hatfield Moors, South Yorkshire (funded by Historic England and Natural England, R1) resulted in the recognition of the **earliest corduroy structure in the UK**. Digital modelling of the site within its reconstructed environment highlighted the unique ceremonial architecture of the site.
2) Gearey and Chapman's excavation of Iron Age timber alignments within the Waveney valley on the Suffolk/Norfolk border (funded by Historic England and Halcrow/Broadlands Environmental Services Ltd., R2) resulted in the identification of a **new category of Iron**

Age site (including the longest prehistoric post alignment in the country), in addition to the development of new remote sensing approaches for wetlands.

3) Chapman and Gearey's research into the Iron Age site of Sutton Common in South Yorkshire (funded by Historic England, R3) included **pioneering work on the *in situ* monitoring of waterlogged deposits** (R4), and provided **the only extensive excavation of a 'marsh-fort'**, in addition to challenging previous assumptions within wider hillfort studies.
4) Smith's palaeoentomological research across an extensive range of sites and deposits resulted in the **development of interpretative insect 'indicator groups'** for a range of archaeological contexts (R5, R6, R7, R8).

This research has led to new insights and methodologies at the landscape scale. This has included the development of a **new methodology for the digital modelling of the formation and expansion of wetlands**, enabling deeper understanding of the relationship between cultural activity and environmental change. This methodology has now been applied to:

5) Hatfield Moors and Thorne Moors in Yorkshire, by Chapman and Gearey (funded by Historic England), resulting in the creation of new models of environmental change to contextualise and interpret known sites and inform the future heritage and environmental management of these sites (R1), in addition to a new way of approaching peatlands more broadly. The *Wildscapes* project (funded by the National Lottery Heritage Fund), a collaboration between the Universities of Plymouth, Cork and Birmingham (Chapman), with numerous non-HEI partners, extends this research across the whole of the Humberhead Levels region.
6) The landscape context of bog bodies — preserved human remains, often associated with sacrifice in later prehistory, by Chapman and Smith (R9). Key insights from this work in the UK (Lindow Moss) and Denmark (Bjældskovdal and Borremose) include observations relating to accessibility to deposition sites and the implications for Iron Age ceremonial activities, in addition to new methodological guidance (R10).

3. References to the research

R1 Chapman, H.P. and B.R. Gearey. 2013. *Modelling archaeology and palaeoenvironments in wetlands: the hidden landscape archaeology of Hatfield and Thorne Moors, eastern England*. Oxford: Oxbow. ISBN: 9781782971740

R2 Gearey, B.R., H.P. Chapman and A.J. Howard. 2016. *Down by the river: archaeological, palaeoenvironmental and geoarchaeological investigations of the Suffolk river valleys*. Oxford: Oxbow. DOI: 10.2307/j.ctvh1dtkq

R3 Van de Noort, R., H. Chapman and J. Collis. 2007. *Sutton Common. The excavation of an Iron Age 'marsh-fort'*. York: Council for British Archaeology. DOI: 10.5284/1081803

R4 Wagstaff, S., S. Bishop, J. Cheetham, A. Davis, J. Williams, Z. Outram, D. Priddy and H. Chapman. 2016. Hydrological modelling water-level changes in an area of archaeological significance: a case study from Flag Fen, Cambridgeshire, UK. *Conservation and Management of Archaeological Sites* 18(1–3): 156–169. DOI: 10.1080/13505033.2016.1182753

R5 Smith, D.N. 2012. *Insects in the city*. Oxford: Oxbow Books. ISBN: 9781407309866

R6 Smith, D.N., G. Hill and H.K. Kenward. 2019. The development of late-Holocene farmed landscapes: analysis of insect assemblages using a multi-period dataset. *The Holocene* 29: 45–63. DOI: 10.1177%2F0959683618804645

R7 Smith, D.N. 2013. Defining an 'indicator package' to allow identification of 'cess pits' in the archaeological record. *Journal of Archaeological Science* 40: 526–43. DOI:

10.1016/j.jas.2012.06.014

R8 Smith, D.N., F. Hill, H.K. Kenward and E. Allison. 2020. Development of synathropic beetle faunas over the last 9000 years in the British Isles. *Journal of Archaeological Science* 115: 105075 (epub ahead of publication). DOI: 10.1016/j.jas.2020.105075

R9 Chapman, H. 2015. The landscape archaeology of bog bodies. *Journal of Wetland Archaeology* 15(1): 109–121. DOI: 10.1080/14732971.2015.1112592

R10 Chapman, H., R. van Beek, B. Gearey, B. Jennings, D. Smith, N.H. Nielsen and Z. Zein Elabdin. 2020. Bog bodies in context: developing a best practice approach. *European Journal of Archaeology* 23(2): 227–249 (published online 29 August 2019). DOI: 10.1017/eaa.2019.54

4. Details of the impact

Impacts centre around two principal strands, **changes to policy and management** and **changes in public understanding** of wetland archaeology.

A. Changes to policy and management of wetland, peatland and waterlogged heritage sites

Taken together the impacts are **changes to the heritage management** of a number of fragile archaeological sites and landscapes, with the following specific impacts:

1. That Hatfield Trackway has been recognised as an important and unique ceremonial centre arising directly from Chapman's research and subsequent recommendations made to Historic England and Natural England (R1, KF1). This recognition is shown by receipt of **new statutory protection** as a Scheduled Ancient Monument in 2017 (S1). Further, it is now listed on the 'Heritage at Risk' register (S1).

2. The need for long-term preservation through engineered water management *in situ* (R1, R3) has been recognised and delivered. This is evidenced by the adoption of **new site management policies** for the Neolithic trackway and platform by Natural England on Hatfield Moors (R1) and at the Iron Age marsh-fort site of Sutton Common (S2), which included the expansion of the Water Level Management Plan for neighbouring Shirley Pool (S3) (KF1, KF3). These research outcomes, in addition to those from the Waveney valley, led to Chapman being commissioned by Historic England in 2015 to advise on the potential for *in situ* hydrological preservation and management at the Bronze Age site of Flag Fen, Cambridgeshire (R4; S4, S5).

3. **Changes to professional practice** have been achieved through cross-sector discussions led by Smith with HEIs, Historic England advisors and commercial environmental archaeologists. These discussions have highlighted a growing skills shortage in wetland archaeology. To address this shortage, Smith engaged in a series of knowledge transfer and skill development training, including on-site training to staff of Vest-Himmerlands Museum (Denmark), and hosting an Association for Environmental Archaeology Conference on *pests of society*, incorporating a one-day archaeobotany workshop (the former attended by 84 and the latter by 27, including 7 as CPD training). Feedback highlighted the benefit of this training and evidenced the need for continuing CPD for curatorial and heritage providers (S6). One issue identified was a lack of standardised criteria for the professional analysis of mineralised material leading to the production of the e-book resource *Mineralised Plant and Invertebrate Remains* (English Heritage funded, S7) (KF4).

4. The model of wetland evolution of Hatfield and Thorne Moors (R1) was the first of its kind and has been used as an exemplar to strengthen the **advice to practitioners and heritage agencies on preservation strategies for wetland archaeology** with resulting models available both **regionally** (South Yorkshire Archaeology Service) and **nationally** (Historic

England, S5) (KF1, KF5). The application of these models for other sectors, such as addressing the challenges of climate change, is now being considered by Natural England. In 2017, Chapman consulted on the IUCN draft plan for peatland heritage that acknowledges the importance of archaeology within their new vision and strategy (S8), impacting on UK **national policy regarding wetland archaeology** as recognised in *A Secure Peatland Future* (2016) (S8). This has led to continued engagement with the IUCN policy statements on peatland heritage for over a decade (Gearey *et al*. 2010).

B. Changes in public understanding of wetland archaeology

The impact of our research on public understanding is demonstrated by:

1. Public interest and engagement in research have been stimulated through **changes in the ways public bodies engage audiences**, including through the enhancement of displays and exhibitions by museums and visitors' centres. Natural England chose to showcase our research on the Neolithic trackway and platform (R1) as the central theme for the opening of the new visitors' centre on Hatfield Moors, incorporating research into displays and information boards on site, (S1) (KF1). The opening itself attracted over 100 community visitors to a remote location. The research on the post-alignment at Beccles resulted in an ongoing display in Beccles Museum and the commissioning of an on-site information board outlining both the process and outcomes of the research to the general public (S5). Our findings have refocused bog body research onto their associated landscapes (KF6). This is feeding into a new permanent exhibition being developed by the internationally significant Museum Silkeborg (Denmark) (S9).

2. The research on Hatfield and Thorne Moors (R1) has resulted in the establishment of new projects with public groups. This resulted in significant **changes in public awareness and understanding for participating volunteers within a marginalised area** (the ward and large parts of the wider local authority are in the top two deciles for most deprived areas in the UK (Gov Indices of Deprivation 2019). This area has one of the lowest levels of GCSE success, and engagement with Higher Education, by both young people and adults (as defined by the Office for Students). Because of our research, Natural England and the Isle of Axholme and Hatfield Chase Landscape Partnership invited Chapman to lead a new community project focused on the creation of a full-scale reconstruction of the archaeological site which was opened on 20 July 2019 (S1). With a core group of 20 volunteers, the feedback has evidenced significant changes in individuals' understanding. Volunteers described the experience as "informative, stimulating and inspirational", and as a "fantastic opportunity which has enabled me to re-think about key concepts of the Neolithic period, how they connected with their landscape, how and why they constructed the trackway and their cultural heritage". Preconceived understandings changed through the experimental work, with volunteers saying that they were "surprised how well the flint axes cut the trees". The success of this project has led to an additional year's funding from the National Lottery Heritage Fund for a new Neolithic-themed reconstruction project with Natural England that will complement the trackway, including a later Neolithic house near the visitors' centre.

3. **A change in the nature of public awareness and the ability of the public to make informed decisions about research into wetlands** has resulted from the excavations of the trackway on Hatfield Moors and the subsequent establishment of the collaborative *Wildscapes* project on the Humberhead levels (e.g., R1, KF1, KF5). Events have centred on public engagement with local communities, heritage organisations and nature conservation groups (including project partners Thorne and Hatfield Moors Conservation Forum and the Isle of Axholme and Hatfield Chase Landscape Partnership). This has raised awareness of the importance of these archaeological sites and landscapes to the wider community. Activities have included collaborative fieldwork and CPD training for volunteers, three public outreach events for over 150 members and have resulted in significant volunteer participation in a range of projects (amounting to over 1000 volunteer hours annually). Volunteers wrote blogs outlining their experience and CPD training resulted in employment

within the sector for one volunteer and enrolment on a degree programme by another. The nature of the collaborative methods of the *Wildscapes* project was outlined in *The Conversation*, which was subsequently redistributed via *Yahoo! News* and *The Independent*, and other media (S10).

4. **Increased *international* public understanding and awareness of wetland archaeology** was achieved by **extensive media reach** consisting of expert contributions to television productions focusing on Chapman and Smith's research into the environmental archaeology of bog bodies (S10, KF6). In addition to reaching international audiences, this also demonstrates the economic impact of the work through the commissioning and re-selling of these programmes. Examples have included PBS's *Ghosts of murdered kings* and the Smithsonian Channel's *Secrets: Season 4, Episode 7: Bog Bodies*. As a direct result of our research into the landscape archaeology of bog bodies in the UK and Denmark (e.g., R9), a US programme, *Mummies Unwrapped*, was developed for the Discovery Channel that focuses on our new approach and key findings.

5. Sources to corroborate the impact

S1 Hatfield Moors/Neolithic Trackway evidence pack, including a) Scheduling of the Neolithic Trackway and Platform, Hatfield Moors, b) Inclusion of Neolithic Trackway and Platform on Heritage at Risk register, c) IoAHC Trackway Reconstruction Report to National Lottery Heritage Fund.
S2 Management of Sutton Common, South Yorkshire, by the Carstairs Countryside Trust.
S3 Water Level Management Plan for Shirley Pool, adjacent to Sutton Common.
S4 Flag Fen hydrological management report (referencing Chapman's contribution).
S5 Testimonial from Historic England (Inspector of Ancient Monuments for Norfolk, Suffolk and Bedfordshire, Historic England).
S6 Testimonial from Historic England (Head of Environmental Studies, Historic England).
S7 Caruthers, W. and Smith, D.N. 2019. *A photographic guide to the identification of mineralised plant and invertebrate remains from archaeological deposits* — a guide for non-specialists, available via the Historic England website (over 500 downloads).
S8 IUCN draft '*A secure peatland future – a vision and strategy for the protection, restoration and sustainable management of UK peatlands'* which references research undertaken at the University of Birmingham (Gearey, B., N. Bermingham, H. Chapman, D. Charman, W. Fletcher, R. Fyfe, J. Quatermaine and R. Van de Noort. 2010. *Peatlands and the historic environment: Scientific Review*. English Heritage and International Union for the Conservation of Nature, commissioned by IUCN UK Peatland Programme's Commission of Inquiry into Peatland Restoration).
S9 Testimonial from Silkeborg Museum.
S10 Media coverage: *The Conversation* Bogs are unique records of history – here's why; For peat's sake, *The Independent Daily Edition,* Main, p. 41, 13/09/18. **Television programmes**: PBS, *Ghosts of murdered kings*, first broadcast 29/01/14 in the US; Smithsonian Channel's *Secrets: Season 4, Episode 7: Bog Bodies*, first broadcast 05/06/17 in the US; Smithsonian Channel's *Mystic Britain*, first broadcast 14/05/19; Discovery Channel's *Mummies Unwrapped, episode 6, The Trail of the Murdered Mummies*, first broadcast 09/10/19.