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# Unlocking Designation through a collaborative ‘ecosystem’: Secrets from Ipswich Museums’ application and Ice Age story

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## Abstract

Designated status from the Arts Council England has been awarded to Ipswich Museums for their Post-Cretaceous Geology Collection. This accolade recognises the collection as an internationally important, essential research resource for understanding this period of earth history in Britain. This paper reveals the focus of our application on Suffolk’s ice age story, and concentrates particularly on how collaboration throughout our Designation journey has been so critical to its success. Internally, this has included the development of a cross-disciplinary Designation team to specifically develop and complete the bid. Externally it has included collaboration with previous Ipswich curators, a local geological conservation organisation, curators and collections managers and academic researchers in the field of Plio-Pleistocene palaeontological research. This process led to the capturing of critical data for the applications in the two-stage process, whilst helping us to meet the three key Designation criteria. Although the Designation award was the key goal Ipswich Museums sought, the strengthened relationships with our collaborative network of academics, museum professionals and local community have been a major outcome.

**Keywords:** Designation; Ipswich Museums; Plio-Pleistocene; geology; ice age; collection

## Introduction

In January 2023, Ipswich Museums were awarded Designated status by the Arts Council England (ACE) for their Post-Cretaceous (Cenozoic) Geology Collection. In achieving this prestigious accolade, Ipswich Museums have gained a number of additional benefits including the stronger networks we developed. The main purpose of this paper is to highlight how we went about the Designation bid, but concentrating particularly on how collaboration was its greatest strength, shaping the applications, and meeting the key criteria. Whereas Jackson (2020) focused on how Tullie House Museum and Art Gallery met the

Designation criteria in its bid, this paper will concentrate around developing Ipswich Museums’ collaborative network, and in so doing, it will reveal some of the key research projects on the collection at Ipswich which have been taking place.

### *Introducing the Designation scheme*

The founding principles of the Designation scheme were to raise the profile of collections and to promote their safeguarding (Arts Council England, 2014). The award is a mark of distinction demonstrating that an institution’s Designated collection is amongst the best in England. It also



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creates a sense of pride for a collection's stakeholders, providing a badge of excellence that can be proudly wielded in funding applications (although unfortunately the Designation Development Fund is now closed, which, in its third and final round of funding (2019-2022), granted £2.1 million to 28 successful museums and libraries (Arts Council England, 2023a)).

Until 2011 the scheme was administered by the Museums, Libraries and Archives Council, and is now administrated by the Arts Council England (ACE). The Designation scheme is established for non-national, Accredited, English museums, libraries and archives and a Designated collection can be furthermore defined as "a nationally significant, coherent assemblage of items; held in trust in the long-term for public benefit... [and]...is an essential research resource for its subject" (Arts Council England, 2015). There are three criteria which underpin a two-stage process, and which are formally assessed by the ACE Panel: National Significance, Outstanding Quality and Research Value – these are more explicit in the Stage 2 application. For more specific information about the Designation process the ACE guidelines (2015) should be considered (see also Jackson, 2020 for a review of the process).

There are currently 163 museums, libraries and archives with Designated collections (Arts Council England, 2023b). Whilst historically, before the change in administration, entire holdings of museum collections, sometimes across several disciplines, could be Designated as part of a single application, the current scheme only recognises applications for single collections or sub-collections. Each application undoubtedly needs to be more focused on a collection's strengths, and how a collection meets the criteria in question. This paper focuses on Ipswich Museums' bid concerning its Post-Cretaceous Geology Collection and hopefully provides some useful insights into how a successful bid can be developed. As discussed in more detail below, collaboration has been absolutely key.

#### *The Ipswich Museums' Post-Cretaceous Geology Collection and context of the application*

The Ipswich Museums' natural science collection contains at least 340,000 specimens including most notably: pinned entomology, mollusc shells, other dry invertebrates (e.g. corals, sponges), fluid invertebrates (e.g. arachnid collections), vertebrate zoology (taxidermy mounts and dioramas, skins, skeletal and fluid specimens), botany and mycology (pressed plants, dried lichens and fungi, fungi models and watercolour illustrations) and geology (rocks, minerals and especially fossils). The

collection dates back to the mid-1800s and some of these earlier collections document a time when collections were brought back from across the world to inspire the people of Ipswich reflecting the Victorian Era of exploration and colonisation (for an excellent history of the Museum and its collections see Markham, 1990, and for history of the geology collection see Markham, 2012).

The different natural science sub-collections are very different to one another in their overall scope, reflecting the interests of their original collectors. For instance, whereas much of the botanical collection is focused on documenting Suffolk's floral changes, the zoological collection is more international with taxidermy from across much of the world – although it does have a strong Suffolk and wider British component too, for instance, the Fergus Menteith Ogilvie (1862-1918) collection of birds (Frost, 1989). The geological collection is also international with more than 40,000 specimens from across the world, ranging in age from the Precambrian up to the present day. However, about 30,000 of these are Post-Cretaceous in age, containing a good range of material from all Cenozoic epochs, but especially the Plio-Pleistocene of Suffolk – it was this sizeable and coherent assemblage that became the focus of Ipswich Museums' Designation application.

This focus and unique story of Suffolk's Plio-Pleistocene was key to our Designation bid, with Suffolk arguably charting the best British record for the last few million years of earth history (Harper, 2020; Harper 2021) This includes the East Anglian Crag deposits which illustrate the cooling conditions from the Late Miocene, through the Pliocene and into the Pleistocene ice age (which started 2.6 million years ago). Whilst all four of the East Anglian Crag units (in chronological order: Coralline Crag, Red Crag, Norwich Crag and Wroxham Crag) are exposed in Suffolk, Suffolk contains the only exposures of the Coralline Crag (Lower Pliocene) and has the most extensive exposures of the Red Crag (see Wood *et al.*, 2009, Fig. 1) – the only exposures in Britain to document the very start of the Pleistocene ice age. Suffolk also contains an extensive record of the fluctuating colder (glacial) and warmer (interglacial) deposits and their characteristic fauna through key internationally important sites, which are represented in the collections at Ipswich Museums. Suffolk contains four type sites for the British Quaternary stratigraphy – Easton Bavents (Baventian), Corton (Anglian), Hoxne (Hoxnian), and Bobbitshole (Ipswichian: named after Ipswich). Suffolk and the Ipswich collection also contain

internationally significant material from key sites from an interglacial dating to around 200,000 years ago, most significantly at Stoke Tunnel (Ipswich) and Brundon.

Much of the natural science collection including the geology was on display at Ipswich Museum (one of Ipswich Museums' three sites) until 2022 (Figure 1). The Museum is now undertaking an exciting £8.7 million redevelopment project which will encourage a wider audience to engage with the natural science collection and connect with globally important issues including climate change and biodiversity loss. For example, the *Worlds* gallery will take visitors on a journey back in time to understand how environments and their fauna and flora have changed dramatically due to climate change – informing visitors that such fossil assemblages can provide insights into our current global crisis.

### Collaboration is key

Both internal and external team working and collaboration was key to the success of our application and meeting the Designation criteria.

### The Ipswich Designation team

Throughout our Designation journey, there was a specific team in place to help with the development and submission of the Stage 1 and 2 applications. This helped with the distribution of workload, objectivity of the applications, challenging the relevance of examples and support for the lead. In the final stages of the applications, the team reviewed drafts to provide helpful comments. The team was cross-disciplinary – including two archaeologists – which fostered a more objective perspective on the palaeontological examples included and helped to ensure the application would be engaging, clear and concise.

The Ipswich team increased to 6 staff including four senior members of staff (including the Head of Colchester and Ipswich Museums), the curator of natural science (a specialist Collections and Learning Curator) and a temporary Assistant Curator of Natural Sciences. The Collections and Learning Curator coordinated the process, undertaking necessary research and writing the application and was assisted at times by the (short-term contract) Assistant Curator. The curator



Figure 1. Photograph of our Woolly Mammoth (*Mammuthus primigenius* Blumenbach, 1799) model (IPSMG:R.1993.61) with a selection of Pleistocene fossils in Ipswich Museum before its temporary closure in 2022. Many of these exhibits including the model will go on display in our new redeveloped *Worlds* gallery in 2025, taking the visitor on a journey back through time including Suffolk's unique ice age story. ©Colchester and Ipswich Museums.

would then answer to the senior members of staff of the team at regular meetings, taking a steer from them. The senior members of staff also reviewed the drafts, and as each deadline approached, the curator worked more closely with the Heritage Manager.

The former Collections and Learning Curator responsible for natural sciences led the Stage 1 application and the author, the Stage 2 application – so there was one natural science curator in post for each stage of the application.

*The Arts Council England guidance and direction*  
Throughout the development of the bid, the ACE guidelines (Arts Council England, 2015) were frequently consulted – in our bid, a copy was printed out and available at all times for consultation. Indeed, the criteria and many of the prompts therein were committed to memory.

It proved invaluable, if not critical, to take on board the advice from the Arts Council. For example, after our successful Stage 1 application we were provided with written feedback on how Stage 2 should be developed. This was followed up at an early stage of the Stage 2 application with a virtual meeting to clarify their advice further and to make sure that our current thinking was focused in the right direction. Specifically, our application needed to focus more on the research activity at Ipswich Museums that was taking place, including examples of high-level research.

*Expertise at hand: insights from a former curator*  
Ipswich Museums are very fortunate to still have regular involvement from a former geological

curator: Bob Markham. Retired from Ipswich Museums in 1995, Bob Markham has continued to work tirelessly as a volunteer curating his collection for the Museums. This collection of well-sorted and catalogued East Anglian Crag mollusc material represents local Suffolk sites, some of which are no longer accessible (or require special permission to access them) and contains excellent geological provenance data (Harper, 2020). For example, the collection includes material from Sites of Special Scientific Interest (SSSIs) such as Sudbourne Park, which includes excellent exposures of the Coralline Crag. This contemporary collection (Figure 2) complements the more historical specimens which include many type and figured specimens (Harper, 2020).

Bob Markham acted as an adviser for both stages of the bid, providing invaluable expertise with regard to the significance and history of the collection, the geological sites from where specimens have been recovered, and the underlying subject matter itself.

Another benefit of a former geological curator was that he had worked as a curator of geology at Norfolk Museums Service before he came to Ipswich in 1965. This gave him valuable knowledge of both collections, how they related to one another and the complex geology upon which they are based across East Anglia. This helped to identify relative strengths and weaknesses of the collections and how they complement each other.

*Expertise from other museums – putting the collection into context*

Relating the collection upon which the application is based to other relevant collections, and



Figure 2. A selection of East Anglian Crag bivalve specimens collected by former curator, Bob Markham. Two Coralline Crag specimens are shown on the left; two Red Crag specimens are shown on the right. ©Colchester and Ipswich Museums.

particularly to those recognised by the Designation scheme, was a key part of our bid (and a necessary requirement of the application – most specifically the Outstanding Quality criterion). Our application also included recognising any unique aspects of the collection and subject areas upon which it was based, which had a bearing on all three criteria. For instance, for the Research Value criterion the (Arts Council England, 2015) guidance states, “We are looking for evidence that the collection is used to support primary research that would not otherwise be possible”. Understanding how the collection fits in with the context of others, and also understanding how its underlying subject matter relates to the broader context, is key to framing the response to the National Significance criterion.

Before the application began, the former Collections and Learning Curator of natural sciences visited many different museums with natural science collections to speak with respective curators and to see their collections. This subsequent data informed the underlying focus of the application and the need to frame our bid specifically around a particularly comprehensive and coherent assemblage – our Post-Cretaceous Geology Collection, particularly emphasising the Plio-Pleistocene.

Whilst information and data critically informed the Stage 1 application, this focus and comparative investigation was developed further by the author when in post for the Stage 2 bid. Consequently, a large comprehensive Excel spreadsheet was created for the Stage 2 bid, incorporating data from other museum curators and collections managers about their respective collections.

This dataset included information about the number of Miocene boxstones, Red Crag specimens and specimens from key Pleistocene sites including Stoke Tunnel and Brunton. In many instances specimen level data and records were kindly provided by museum staff, and when this was not possible, more generalised estimates of certain sub-collections proved invaluable. This process was determined by how much each museum had digitised their collections.

Alongside the quantitative data, qualitative comparisons also proved to be critical to the application. For instance, the Sedgwick Museum of Earth Sciences at the University of Cambridge is a close Designated museum comparator, also with excellent collections of Red Crag molluscs (for a list of museums with Red Crag collections, see Larkin and Norton, 2010). Professor Elizabeth Harper kindly provided comments on the relative strengths and weaknesses of the Ipswich Museums’ collection and what, in her opinion, we should emphasise in the bid, for example, the unique Suffolk boxstones (Figure 3). An analysis of our collections firstly came through a commissioned report of our palaeontology collections (Harper, 2020) but then additional data was gathered through virtual meetings, in-person meetings and visits to the collection for her own research and frequent email correspondence. This advice also helped to improve the collections: for example, through one of her report recommendations, a geological specialist freelancer was recruited to undertake detailed documentation and digitisation of our Plio-Pleistocene type and figured specimen collection. This digital catalogue was made accessible through our Colchester and Ipswich Museums’ online portal (Colchester and Ipswich Museums Collections Online).



Figure 3. Photograph of a Miocene boxstone, *Cardium subdecorticatum* Bell 1917 (IPSMG:R.1933.119.A7). Suffolk boxstones provide a unique glimpse into the British marine Miocene around 8 million years ago. ©Colchester and Ipswich Museums.



Figure 4. Photograph of the type specimen of Red Crag gastropod, *Murex canhami* Wood 1872 (IPSMG:R.1870.76N.225) in the Ipswich Museums collections. ©Colchester and Ipswich Museums. Photograph by Douglas Atfield.

Type specimens were also made available on the GB3D website (GB3D Type Fossils), which included high resolution images taken by a specialist photographer (Figure 4).

Identifying our closest comparators proved to be a critical part of our applications. Not only were we able to obtain excellent information from Professor Liz Harper from the Sedgwick Museum of Earth Sciences to underpin comparisons between our collections, and identify areas in which our collection was unique, but we formed a stronger working relationship with this museum. Specifically, this included working with Professor Liz Harper and Director, Dr Liz Hide to develop and deliver a “Virtual Meeting on Plio-Pleistocene Palaeontology Collections” in November 2022. This online conference brought together academic researchers, museum staff including curators and collections managers, our local geological conservation group (GeoSuffolk) and enthusiasts

for an afternoon of oral presentations and discussions. The inclusion of this project within the bid strengthened the application by demonstrating how we were striving to work with our close comparators – for example, also reaching out to other museums in the region such as Norfolk Museums Service to include a talk. It also demonstrated how we were developing our research network and establishing networks with international research, as well as contributing to the public understanding of the subject.

#### *Expertise from researchers – demonstrating Research Value*

Demonstrating that the applicant’s collection is or has the potential to be an essential research collection for its subject is one of the main criteria which needs to be met in a Designation bid (Arts Council England, 2015). Furthermore, detailing our research activity was an area which ACE specifically requested in our Stage 2 application. The research element of our bid can be subdivided broadly into historical and new research.

#### **Historical research**

In order to identify previous researchers that had worked on our collection a variety of different resources were consulted.

This included museum documentation and records of specimens used in research, correspondence with researchers, scientific literature which cited specimens and the specially commissioned palaeontology report of Professor Liz Harper (Harper, 2020). For example, during the mid-1800s there was a wealth of fossil discoveries in the East Anglian Craggs resulting from the new ‘coprolite’ fertiliser industry – many of these finds came to Ipswich Museums. Thanks to detailed work of researchers at the time including renowned anatomist Sir Richard Owen (e.g. Owen, 1846: Figure 5) and prominent naturalist and geologist, Richard Lydekker (e.g. Lydekker, 1886: Figure 6), we have a much better idea about the ancient species diversity, both marine and terrestrial, which existed at the dawn of the ice age, as revealed from the internationally significant Red Crag. Furthermore, the later detailed mollusc monographs of Wood (e.g. Wood, 1848) and Harmer (e.g. Harmer, 1914), featuring many of our type and figured specimens (Figure 4) are still key references for workers wishing to study the taxonomy of Plio-Pleistocene molluscs. The collections research continued through the 1900s with the work of former Ipswich curator HEP Spencer (e.g. Spencer, 1964).



Figure 5. Photograph of the holotype specimen of *Puma pardoides* (Owen, 1846), a molar from the Red Crag of Newbourne, Suffolk (IPSMG:R.1951.28.21.2) in the Ipswich Museums' collections. ©Colchester and Ipswich Museums. Photograph by Douglas Atfield.

For more recent research in addition to the above resources mentioned, a Microsoft Excel dataset included lists of recent researchers, when they came to the collection, and what they studied. Additional resources included collection reviews, and previous letters of support for an older Designation bid.

Studying the archival records, the specimen records and the scientific literature provided invaluable information. However, at an early stage of our Stage 2 application, the Designation team agreed that one-to-one, virtual interviews with key researchers would help us to understand the exact role our collection had in their research projects, why they came to our collection (was there anything unique about it?), and what the current and future potential of the collection is. It helped us to identify what the barriers to using our collection are and if they had any suggestions for overcoming them.

For example, the discussion with Professor Adrian Lister, Research Leader, at the Natural History Museum, London helped us to understand the uniqueness of our collection. In a one-to-one virtual interview he emphasised the importance of the Red Crag as the only exposed deposit in Britain to record the start of the Pleistocene ice age and furthermore that we had the majority of the fossil vertebrate material from this deposit at Ipswich Museums. That is what drew him to our collection for some of his research projects studying mammal evolution and ecology. For



Figure 6. Photograph of the holotype specimen of a tarsometatarsus of the Red Crag albatross *Phoebastria anglica* (Lydekker, 1891) (IPSMG:R.1951.28.31) ©Colchester and Ipswich Museums. Photograph by Douglas Atfield.

example, Ipswich Museums possess the only UK specimens (a pair of molars) (Figure 7) of the earliest European mammoths (*Mammuthus rumanus* Stefanescu, 1924) and is one of only a few sites across the whole of Europe with this species (Lister and Essen, 2003). These specimens have helped to understand this early period of mammoth evolution (e.g. Lister and Sher, 2001). His research on scratch patterns, or microwear, on these teeth (Rivals *et al.*, 2015) have permitted key insights into mammoth diet and ecology, showing that these very early mammoths, at the start of the ice age, were browsers not grazers, with a high proportion of large pits in the teeth indicating that they often lived in habitats which may have consisted of a mixture of woodlands and more open areas. Lister also verbally highlighted the importance of some of our interglacial material from key Suffolk sites dating to 200,000 years ago including most significantly Stoke Tunnel and Brunton. A subsequent set of data compiled by Rivals and Lister, for use in their 2016 publication (Rivals and Lister, 2016), allowed us to more



Figure 7. Photograph of a Romanian mammoth (*M. rumanus*) molar (IPSMG.R.1955.12.10.1), from the Red Crag, in the Ipswich Museums collection. ©Colchester and Ipswich Museums.

specifically delve into how our collection contributed to his work: for example, 46 of our wild horse (*Equus ferus* (Boddaert, 1785)) teeth from these sites (in addition to Stutton, Suffolk) indicated that even at this time, this species was predominantly a grazer. However, the pattern of scratches on the teeth indicated a, “frequent browsing element” a short time (perhaps weeks) before their owners’ death – therefore, the study showed a complex pattern of diet.

Further research interviews were also conducted with Dr Juha Saarinen from the University of Helsinki, examining the ecometric work looking at relationships between mammal body size, tooth wear patterns and environmental reconstructions (e.g. Saarinen *et al.*, 2016), Professor Danielle Schreve (Royal Holloway University of London) discovering her use of collections in mammalian biostratigraphy (e.g. Schreve, 1998) and Professor Elizabeth Harper (University of Cambridge) learning about her East Anglian Crag mollusc research and discussed above in relation to collections comparisons.

However, in addition to one-to-one interviews, email correspondence also proved a useful insight into how researchers have used our collections. For instance, email correspondence with Dr Andrew Johnson from the University of Derby, highlighted the importance of our Coralline Crag mollusc collection and its past and present contribution to his research. Dr Martin Pickford from the Muséum national d'histoire naturelle, Paris provided key data about the importance of the Red Crag to his research and specifically how specimens contributed to his work on Miocene

suids (pigs). Suids are excellent for biostratigraphic correlations and they help to tie down the ages of the Red Crag faunas. They also yield important information concerning palaeoenvironments and palaeoclimate, revealing that at times Suffolk enjoyed a subtropical climate (Pickford Pers Comm, 2023).

### **New research projects**

A number of new research projects began during our Designation process. These can be broadly subdivided into: new projects for which Ipswich had already been suggested, new projects for which Ipswich had not been included yet, and new projects or investigations which were conceived during the Designation bid.

With regard to the first category, Ipswich Museum became involved in a new palaeoclimate project, led by the University of Derby. Dr Johnson had examined the Ipswich collection in 2012 as part of his ongoing research project using Coralline Crag mollusc shell chemistry to investigate Pliocene climates – this research questions the historical contention based on the fossil assemblage (see Long and Zalasiewicz, 2012) that the mid-Pliocene North Sea was 2 to 3°C warmer than the present day, and therefore its value as an analogue for a potentially warmer world by 2100. This work therefore has major implications for determining palaeoclimate from fossil assemblages in general. Johnson’s most recent paper on the Coralline Crag (Johnson *et al.*, 2021), helped to provide a foundation for a successful bid to the Leverhulme Trust for a three-year project to extend this palaeoclimate research. The further use of the Ipswich collection had already been specifically

identified within the application for support of this research, which involves collaboration from scientists from the UK, Germany and the USA. Our involvement in this international project was confirmed through email correspondence and a preliminary research visit from Dr Johnson, a new University of Derby postdoctoral researcher and University of Cambridge Professor Liz Harper. The research on Ipswich material was undertaken in 2022 and we currently await the results (Jackson, 2022a).

With regard to the second category, in 2021 we became involved in a new research project for which Ipswich Museum had not yet been considered. In our interview with Dr Juha Saarinen (University of Helsinki) we learnt of a new project proposal. This was a five-year international project reconstructing past ecosystems by studying mammal teeth and skeletal measurements to model climate change of the past. The project would work internationally with colleagues across Europe (e.g. the Natural History Museum (London), Natural History Museum of Madrid), the USA (e.g. American Museum of Natural History), Africa (e.g. National Museums of Kenya) and South America (e.g. Natural History Museum Buenos Aires). The conclusion from our interview discussion was that Ipswich Museum would be a valuable partner, making a unique contribution with its comprehensive Red Crag mammal material, for which the researcher was well acquainted with, having studied it before. Specifically, the Red Crag mammal material could provide insights into the changing fauna as the environment cooled into the Pleistocene. Consequently, Ipswich Museums were included in the list of potential partner museums, and after funding had been secured later in 2021, Ipswich Museum was able to participate in the study facilitating research in November that year (Jackson, 2021). Ipswich Museums continue to support the project.

During our Designation application we also helped to instigate a new line of research investigation. The interview with Professor Lister (detailed above) led to a discussion around his ongoing collaboration with the Centre for Palaeogenetics at the Swedish Museum of Natural History and Stockholm University, in their search for the oldest mammoth DNA. In 2021, the team reported the preservation of DNA in mammoth teeth dating to more than a million years old from a frozen environment, which revealed much of the species' genome (der Valk *et al.*, 2021). However, the preservation of DNA from a warm, temperate context at a 240,000 year old site from Germany (Meyer *et al.*, 2017) indicates DNA might be

preserved at European latitudes even in warmer interglacials. From our discussion around the Designation bid and increasing the research value of our collection, came a research proposal to search for ancient DNA in Suffolk interglacial sites, more specifically in 200,000 year old steppe mammoth (*Mammuthus trogontherii* [Pohlig, 1885]) teeth – if found this would be the oldest mammoth DNA from Europe. The collaboration continued with the author's role in photographing a selection of specimens and assisting with the submission of the destructive sampling request put together by the research team. The sampling took place in 2022 (Jackson, 2022b) and the results are eagerly awaited.

#### *Expertise from local societies*

In addition to academic research, the collection is also used for more local research including, for instance, members of local geological conservation group, GeoSuffolk. This includes the ongoing research volunteer work of Bob Markham, but also facilitating research interests of other members.

Their collective expertise also proved invaluable to the curation of a partial steppe mammoth skeleton excavated from Maidenhall, Ipswich in 1975 and 1976 (Figure 8). During our Designation journey, we discovered just how important the specimen was to Plio-Pleistocene palaeontology learning from academics including Professor Lister (NHM) and Professor Katharine Scott (University of Oxford). For instance, the specimen demonstrates unusually small body size of the steppe mammoth in this time interval (Lister and Scott Pers Comm, 2021). Given its importance, the Museum has been exploring the possibility of displaying this specimen in one of the new galleries as part of its redevelopment project. In the summer and autumn of 2022 the GeoSuffolk team helped the Museum to more completely catalogue the material in the store, whilst identifying fossil material which could belong to our Maidenhall mammoth individual. This collaborative effort between curator and specialist society led to the identification of further bones including ankle elements which may belong to the same individual.

GeoSuffolk also helped with the delivery of our 'Ice Age Festival' in April 2022. We presented a range of stalls with specimens on display combined with talks, an under-fives zone, and arts and crafts activities. Additionally, other volunteers from the community also helped to support the delivery of the event. Without a doubt, the support of these volunteers proved invaluable to the smooth running of the event.



Figure 8. Previous display at Ipswich Museum of the Maidenhall steppe mammoth (*M. trogontherii*) on the bottom right hand side of the display case. This specimen will be a key feature in the redeveloped Worlds gallery.  
©Colchester and Ipswich Museums.

#### Reflections on Covid-challenges

One of the biggest challenges on our Designation journey was working with the constraints of 'Covid-lockdown'. The author began working on the Stage 2 application in February 2021 at the start of his new post as a Collections and Learning Curator. This meant learning about the Post-Cretaceous Collection (and wider natural science collection) for about three months solely from digital resources including Microsoft Excel spreadsheets, the collections management system, published literature and the collaborations discussed above. This was only possible because the digital infrastructure was in place which facilitated remote working including virtual one-to-one or group meetings via Microsoft Teams or Zoom.

These limitations could have potentially created a major setback as collections access was not possible until April, and remained limited until June 2021. This also created a challenge with the digitisation of the type and figured specimen project limiting the access the freelancer had to the collection. However, flexible working was key to overcoming this challenge, focusing on tasks which could be done remotely such as literature research or work with datasets. By the time collections access was less constrained, there were

still several months to study the collection in person before the deadline.

The reduced access to the collection also obviously impacted the research work which could take place – precisely at the time we were trying to increase access to our collection. It should be noted that the Museum had also been closed to researchers for much of 2020 during 'Covid-lockdown' - which only served to increase the hiatus in research. There was a strong need to re-establish connections as we were emerging from 'lockdown' before we could begin developing them further. The combination of one-to-one online interviews, discussed above, and frequent email correspondence meant we could establish contact more effectively and quickly making the researchers fully aware of our situation and limitations, but also our aspirations and aims to get them back in, as soon as possible. Research projects could subsequently be booked from the summer 2021 onward.

As some research projects effectively started only a little before the Designation Stage 2 deadline of November 2021, and some projects took place the following year, it was particularly important to include in our application what results the

researchers could potentially find, based on their objectives. Furthermore, a key document which can be included (it is supplemental rather than mandatory) in the Stage 2 application is a 'Future Planning Document' (Arts Council England, 2015). The inclusion of this document within our application helped to demonstrate how we were increasing research activity on the collection and detailed what we were planning when – this is a highly useful strategic document to demonstrate future research activity which might not actually take place during the Designation application. A (non-requested) update was subsequently provided for the Designation Panel about how the research programme was progressing in a short bullet point document – again non-mandatory but in the author's opinion helps to demonstrate that intentions are being fulfilled.

### Conclusions

This paper has charted key elements of our Designation bid for our Post-Cretaceous Geology Collection. The importance of working closely to the ACE guidelines and both written and verbal comments from the Arts Council cannot be emphasised enough (reiterating Jackson, 2020). Whilst guidance (Arts Council England, 2015) provided critical prompts to address for each of the criteria, specific feedback provided direction for a more bespoke Designation bid.

Undoubtedly, significant staffing resources are recommended to undertake a Designation bid, with ideally a lead to coordinate various elements (e.g. the application, letters of support, supplemental data) and a support team. Ipswich Museums have been in a very fortunate position with the resources that it has had in undertaking this work, including a natural science curator in post to lead on each application of the two-stage process. It is appreciated that other museums (or libraries or archives), who might be applying for Designation, might not be in such a position. We have also been very fortunate to have had such an active involvement from our senior management, who directly participated in discussions around the application at regular meetings and ultimately reviewed drafts of the applications. The support of senior management is invaluable to the Designation process not only to approve the resources and support of the applications, but also in the development of the bid itself.

However, the focus of this paper has really been on the external collaborations which we have developed during our Designation journey, and which greatly strengthened our applications.

Whilst the award of Designation was Ipswich Museums' ultimate goal with our applications, the strengthened network of researchers, curators, collections managers and other museum staff, former staff and geological organisation, GeoSuffolk, through our collaborative efforts, has proved to be a thoroughly worthwhile result in its own right – which was made all the more challenging after the research hiatus of 'Covid-lockdown'. The Museum now, for instance, is involved in a number of international research projects such as the current search for the oldest mammoth DNA in Europe, and reconstructing ancient climates using fossil shell chemistry and also mammal teeth. The delivery of the 'Virtual Plio-Pleistocene Conference' of 2022 has also helped to boost our collaborative networks, strengthening, for instance, our working relationship with the Sedgwick Museum of Earth Sciences (University of Cambridge) – we are aiming to work together to deliver another similar conference in the next year or two. Furthermore, the conference has also enabled us to build up new contacts and to start building support and enthusiasm for regular Plio-Pleistocene meetings and discussions.

Every museum's (or library's or archive's) Designation journey will be different depending on the nature of its collection. For instance, Jackson (2020) highlighted Tullie House's journey with regard to its collection based on the significance of Cumbria's unique biodiversity. Whilst there are obvious differences in the focus of the applications (though each bid is fundamentally linked to its geographic region), many similarities can be drawn to our experience including its cross-disciplinary internal team (working closely with its Cumbria Biodiversity Data Centre) and also close working with its local natural history society and academic researchers. Indeed, Jackson (2020) also concluded that close working with researchers, including face-to-face meetings, was vital.

As highlighted in this paper, it is recommended to all Designation applicants: involve as many stakeholders as possible in your Designation journey, including but not limited to: ACE staff, internal staff, former staff, volunteers, local societies, other museum staff (including curators and collections managers) and academic researchers – strengthen your links with these different communities to develop a deeper understanding of your collections and amass their expertise to build a strong, successful Designation bid – and whatever the outcome, you will have a stronger internal and external museum community. A Designation journey is worth committing to.

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