



Association *for*
Environmental
Archaeology

Spring Conference:
Social Landscapes;
Populating Environments

7th - 9th May 2026



**University of
Lancashire**

Conference Booklet

Welcome

Welcome to the University of Lancashire, Preston, UK and spring conference of the Association for Environmental Archaeology.

The theme of this is 'Social landscapes; populating environments', which allows us to focus on people and how environmental reconstructions can help us understand the social landscapes they inhabited.

The conference has a wide range of papers covering many different time periods exploring the interplay between people and environments, not just as drivers of environmental change, but as embedded agents, reacting and adapting through practical and social actions. We are also pleased to have papers that explore the social dimension, using environmental archaeology offers a tool for exploring the lives of people and non-human animals. Overall, the conference aims to foster a dialogue on how our discipline can contribute towards understanding the lives of those living within the environments we study.

The conference is hosted by the Archaeology and Anthropology team at the Research Centre for Field Archaeology and Forensic Taphonomy at the University of Lancashire. The University of Lancashire has a long history, established in Preston in 1828 as the Institution for the Diffusion of Knowledge. It most recently in 2026 changed its name from the University of Central Lancashire (UCLan) to the University of Lancashire. We are one of the youngest archaeology departments in the UK, being established in 2005. From the small beginnings of two members of staff, we have grown to become an established team and discipline within the university.

You'll find the University and the city of Preston to be a small but friendly place. With our wide range of engaging papers, poster presentations and keynotes over the conference we will have many opportunities to engage with the above themes, meet friends and have a fun time talking all things environmental archaeology.

Organising Committee and Helpers

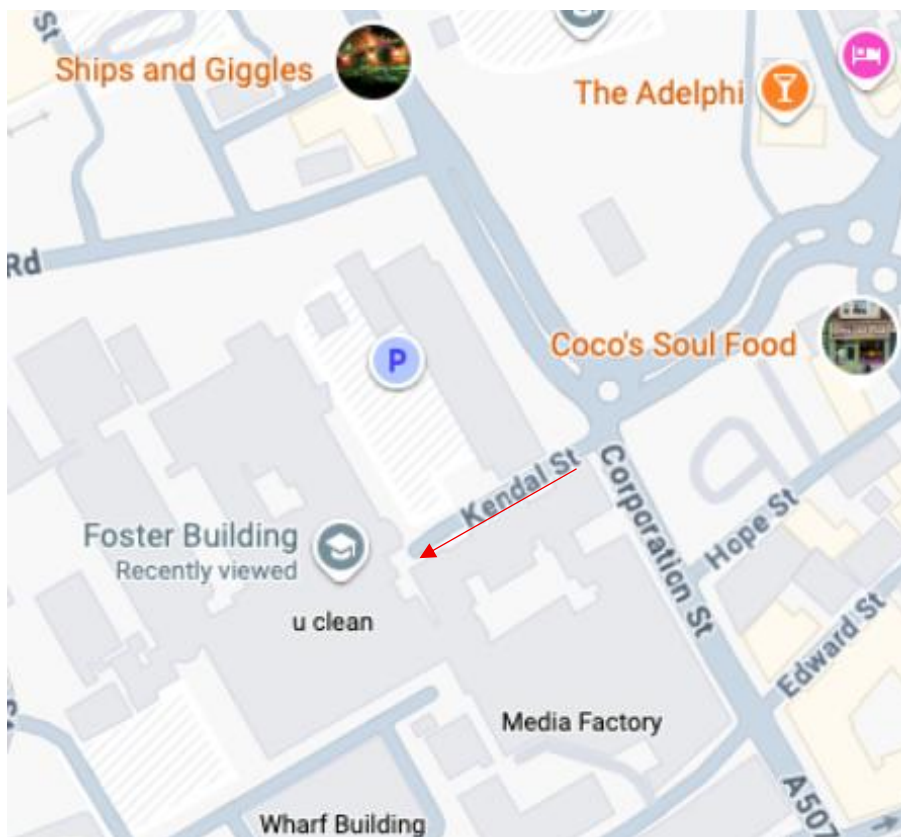
The conference is organised by Dr James (Jim) Morris and Dr. Jennifer (Jen) Jones. They are assisted by Dr Mónica Fernández García, Hannah Gardiner, Catherine Sharpe, Sarah Hunt, Howell Garside and Jessica Atkinson.

Venue

The conference is held in the Foster Building of the University of Lancashire, Preston. Registration will be by the main entrance to the building. The main entrance faces Kendal St a small pedestrian street just off Corporation St.

The Thursday keynote lecture will be in Foster Lecture Theatre 2 followed by a drinks reception in the foyer outside the lecture theatre.

The Friday and Saturday talks will be in Foster Lecture Theatre 1 as called Mitchell and Kenyon Cinema, just beside registration. Coffee and lunch will be provided in the Scholars space also within the Foster building.



Google map link to the main entrance to Foster Building
<https://maps.app.goo.gl/wdZSVBWKf17LYL7h9>
What3words ///gates.line.logo

Information for delegates

Posters

Delegates presenting a poster please hang your poster in the Fosters Scholars space where coffee and lunch will also be served.

Material to hang your poster will be provided. You will find a sticker with your name indicating where to hang your poster.

At 2.30pm on Friday there will be a specific poster session please be close to your poster at this time. There will be an AEA prize for the best poster.

Papers

Please keep your papers to 15 minutes to allow time for questions. The chair will warn you if you are running over your time.

Ensure your presentation is either PowerPoint or PDF format. Please either bring your presentation on USB drive or email it to Jim - jmorris9@lancashire.ac.uk. Papers can be uploaded in the coffee and lunch breaks.

All attendees

The doors to the Foster building are swipe access. A member of staff or student helper will be near the main entrance to enable delegate access.

All delegates will have a name tag lanyard please wear it during the conference. The name tag is printed on seed paper and can be planted after the conference. Please return the lanyard and name tag holder after the conference so they can be reused.

Printed timetables will be available but all other material including the conference booklet will be online.

WIFI is available in all buildings. Either eduroam or Universityguest wifi. The guest wifi will require you to register and sends an activation code to an email address.

Timetable

Thursday 7th May

The registration desk in the main entrance to foster will be open from 16.30.

18.00 Welcome and Keynote Lecture

Jacqui Mulville (Cardiff University)

Movin' On Up: From Midden to Molecules in the Western Isles

19.00 Wine reception

20.00 We have booked tables at the Chew's Yard Food Hall and everyone is welcome to join us there. Please note that if you wish to eat at Chews Yard the kitchens close at ~8.30pm so please order promptly on arrival. [View the Menus here!](#)

Friday 8th May

The registration desk in the main entrance to foster will be open from 9am.

Time	Presenter	Paper title
9.50am		Welcome
10.00am	Kay Hamilton	Embedded Landscapes, Sculpting Environments: Human–environment interactions across 6000 years in five upland sites
10.20am	Isobel Harvey	A Cultural and Natural History of Scotland's Peatlands
10.40am	Sarah Ruth Hunt	An attempt to understand Heaning Wood Bone Cave Faunal Deposit
11.00am		Coffee break
11.40am	Samantha Jones	Farmers, monks and raiders: exploring cultural and environmental transitions in the Inner Hebrides during the 1st millennium AD
12.00pm	Zara Evans	Optimizing sedaDNA for multiproxy environmental reconstruction: a case study at Loch Gàrradh a' Chapuill

Time	Presenter	Paper title
12.20pm	Julia Best	Small shoreline stories: Active avian landscapes in the Scottish islands
12.40pm		Lunch Break
1.30pm	Fraser Brown	Keynote: Irish Sea serendipities: recent early-prehistoric discoveries by Oxford Archaeology from marginal landscapes around the Irish Sea
2.30pm		Poster presentations and coffee
3.20pm	Molinari Chiara	Environmental resources management in NW Iberian mountains over the last millennium: a multi-proxy analysis
3.40pm	Tomás Paya	Water and Stone: Hydraulic Engineering, Rock Art and Social Landscapes in Prehispanic Northwest Argentina
4.00pm	David Robinson	Hallucinogens as Medicine: environmental evidence for medicinal substances and ritual time from Pinwheel Cave, California.
4.20pm	Jenifer Jones	The Cached Cow: A case of cattle rusting in South Central California
4.40pm	Closing discussion	

Saturday 9th May

The registration desk in the main entrance to foster will be open from 9am

Time	Author/s	Paper title
9.50am		Welcome
10.00am	Yuxi Xie	Early Neolithic Plant Use Strategies at WF16, Southern Jordan: An Archaeobotanical Perspective
10.20am	Phil Gould	People and Changing landscapes: Palynological and Archaeological Analysis of Landscape Change in the Scottish Highlands, 1250 AD-present

Time	Author/s	Paper title
10.40am	Matthew Law	Palaeoecology at a high-status ecclesiastical residence, Wells, Somerset, UK: reconstructing lived environments across five centuries Palaeoparasitology and multi-proxy
11.00am		Coffee
11.40am	Jonas Bergman	Archaeoparasitological studies from Scandinavia – parasites from Mesolithic to modern period
12.00pm	Mónica Fernández-García	LGM environmental impact in Iberia: stable isotope data from the Upper Paleolithic sequences of Cova de les Cendres and Cova de les Malladetes
12.20pm	Djernæs, S. H., F	Soil analytical evidence of early horticulture in Southwest Scandinavia
12.40pm		Lunch
1.30pm	Kate Britton	Keynote: PALaEoScot: environmental and archaeological approaches to Scotland's earliest archaeology Poster prize & AEA publication prize awarded
2.30pm	Don O'Meara	Going against the grain: oat cultivation in medieval Cumbria
2.50pm		Coffee break
3.20pm	Neal Payne	Five and a half millennia of agriculture in the Fens: new perspectives from large-scale archaeological data
3.40pm	Alex Bowers	Living off the Land: Food and Subsistence Strategies of the Early Medieval East Anglian Fens
4.00pm	Jack Eggington	Diet, health and social inequality in industrial London: an early life perspective (1789-1853)
4.20pm	James Morris	Horses NW European in early medieval funerary performance
4.40pm	Closing discussion	

Additional activities

Friday 8th May - Conference dinner

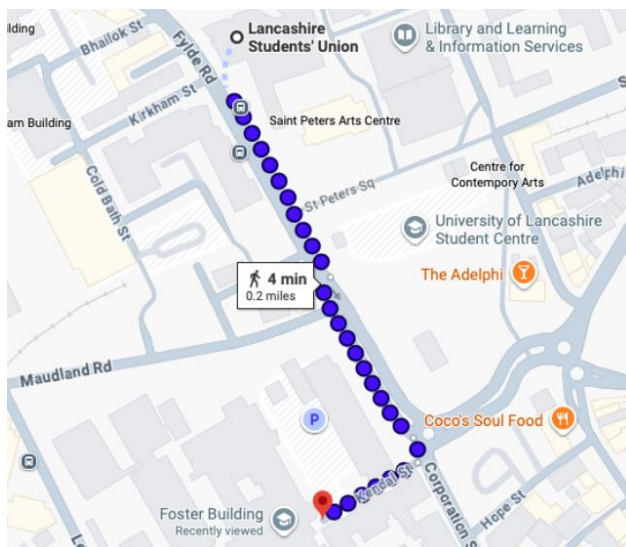
Below are the details for delegates who booked the conference dinner. The conference dinner will be at the Flower Bowl entertainment centre north of Preston. <https://www.theflowerbowl.uk>

We will have an hour to try the sport of Curling at one of only three centres in England that have curling lanes. For curling, please wear flat-soled trainers/shoes and a warm jumper for being on the ice. You may want to bring gloves.

This will be followed by dinner and desert in the Ocean Fish and Chip restaurant.

The coach will **leave from Preston at 5.15pm** from outside the Lancashire Students Union on Fylde rd. See map below.

The coach will be leaving the **Flower Bowl at 8.45pm** and should be back in Preston for drop off at the university for **9.15pm**.



Sunday 10th May - Fieldtrip

On Sunday there is the optional field trip to archaeological sites in Cumbria. This will include stone circles, Neolithic henges and Medieval Castles.

The coach will set off **at 9.30am** from the same location outside the Lancashire Student Union on Fylde Road. See map above. Please wear sensible shoes and bring a coat we will be outside in Cumbria. Lunch is not provided, please bring lunch with you, or alternatively, there will be opportunity to purchase lunch at Lowther Castle and Gardens.

The trip will aim to return to Preston by **5pm**.

Preston recommendations

Food and drink

Preston has lots of food and drinks options. Friargate is where lots of student focused options are. National chains can be found in the town centre. Below are some of our recommendations.

Coco's Soul Food

A Preston institution, small colourful, vibrant and popular with staff and students at the university. Caribbean-inspired comfort food at a reasonable price.

Chamos Street Food

South American inspired street food, a good vibes casual food spot. Good vegan options and great tacos at a reasonable price.

PLAU Gin and Beer House

Good beer selection and a medieval well in the basement bar. The food is small sharing plates.

Chew's Yard

A vibrant contemporary place to eat and drink with a mix of street food vendors to suit everyone's tastes!

All Hopes No Promises

Tucked away in a side street a great American burger bar – National burger award finalists and good selection of beers. [Toto's Africa was not written in this building in 1982.](#)

Himalayan Monal

Small and charming restaurant with Nepal and Indian food. Good sized portions and good value for money.

East Z East

If you're after a curry the food is good and is massive so will be able to fit in most parties.

Winedown Preston

A basement wine bar that also does locally sourced cheese and meat platters. Not a place for dinner, but if you're after late night wine and discussion a great place.

The Black Horse

If you want to step back in time to Victorian Preston this grade II listed pub still has many of its original features and serves a good pint of beer.

Other local insights

If you have a moment, then why not try out our local delicacy the butter pie, available from Greenhalgh's bakery in the city centre. If you prefer jacket potatoes then give the social media famous 'Spud Bros' a go, located on the Flag Market outside of the Harris Museum. If fast food is more your thing, then you could visit the UK's first KFC on Fishergate.

The Harris Museum is a great place to learn more about the history of the city, and you can meet Horace the 15,000-year-old Elk, and why gold thread is so important to Preston.

In front of the market you can meet two famous Prestonions – Wallace and Grommet, and look out for Feathers McGraw keeping a beady eye on them!

If 1960s brutalist architecture is more your style, then the Grade II listed building of Preston Bus station (Europe's second biggest bus station) might be the place for you!

Avenham Park is located in the heart of Preston and is a beautiful Victorian park with scenic routes along the river Ribble. There is a parkrun there every Saturday morning at 9am, just be sure to make it back in time for the morning's talks!

Accommodation

Nearby hotels we recommend are;

Preston Legacy - closest to the university, 5min walk to the conference venue
[Preston International Hotel – Legacy Hotels & Resorts](#)

Premier Inn - 10min walk to the conference venue and close to the town centre
[Preston City Centre Hotels | Book Hotels In Preston | Premier Inn](#)

No.10 Preston, Apartments - 10min walk to the conference venue, comfortable apartments
[Hotels Preston | Luxury Hotel Preston | No 10 Preston](#)

Holiday Inn, Preston - 15min walk to the conference venue, one of the cheaper options
[Hotels In Preston City Centre: Holiday Inn Preston](#)

City Studios - 15min walk to the conference venue, student style apartments
[City Studios - Best Price Guaranteed Direct - City Studios](#)

For **Air B&B** accommodation we recommend you look around the Winkley Square area.

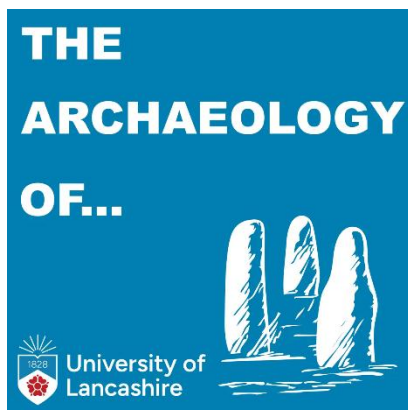
Travel

Preston has excellent transport links. There are direct trains from London, Glasgow, Edinburgh, Leeds, Manchester and Liverpool to Preston. On the quickest trains it is 2 hours from London and Glasgow to Preston.

There are direct trains from Manchester Airport to Preston connecting international delegates to the city.

If you are staying outside of Preston and driving into the city please contact the conference organisers for parking at the university.

The Archaeology of... podcast



On your journey to Preston why not listen to The Archaeology of... podcast. Available in video format on Youtube and Spotify and audio from all other podcast

Abstracts Posters

Aitor Burguet-Coca (Catalan Institute of Human Paleoecology and Social Evolution)

Ana Polo-Díaz, Patricia Martín, Isabel Expósito, Nit Cano-Cano, Roser Marsal, Francesc Marginedas, Josep Maria Vergès and Ethel Allué

Interdisciplinary approaches to identifying shifting spatial uses within the sequence of El Mirador Cave (Sierra de Atapuerca, Spain)

El Mirador Cave (Atapuerca, Burgos) preserves an exceptional Neolithic–Bronze Age stratigraphic sequence characterised by repeated episodes of livestock stabling and combustion. Within this sequence, Unit MIR105 has traditionally been described as a macroscopically homogeneous and continuous deposit, in contrast to the clearly stratified burned fumier documented in the overlying MIR104.

This study focuses on MIR105 and integrates archaeobotanical, micromorphological, and zooarchaeological data to reassess cave use during this phase. Phytolith assemblages are dominated by Poaceae, with underrepresented inflorescences and a predominance of leaf and stem morphologies, and no significant compositional differences throughout the unit. However, multivariate analysis of quantitative data reveals marked internal variability: phytolith and spherulite concentrations peak at the top and base of MIR105 and decline sharply in the medial sector, distinguishing three consistent activity areas within the unit.

These results indicate that MIR105 does not represent a uniform deposit but records distinct activity phases. Micromorphological evidence supports these data, revealing in situ burned dung accumulations and associated penning surfaces at the base and top of the deposit, while reworked dung, wood combustion residues, and additional sedimentary debris concentrate in the mid-section. According to our results, the medial sector reflects reduced stabling intensity or relocation of the pen within the cave, suggesting secondary use of this area, a pattern consistent with the analysis of cultural materials and human remains.

In contrast, the basal part shows exceptionally high phytolith concentrations and abundant multicellular structures, indicating a plant-rich deposit dominated by grasses. These grasses constitute the bulk of the vegetal matter found both within dung remains and plant aggregates in the ashes, the latter interpreted as Poaceae bedding supplied by humans for livestock at the site. The presence of fetal and neonatal ovicaprines documented in previous zooarchaeological studies supports the interpretation of this sector as a lambing pen.

This study demonstrates how integrating archaeobotanical, micromorphological, and zooarchaeological evidence can reveal changes in cave use within a single stratigraphic unit. This approach provides new insights into herd management strategies and the spatial organisation of cave pen enclosures.

Alexandra Bojinca (University of Cambridge)
Müge Ergun, Amaia Arranz Otaegui and Alexander Weide

Food and Fodder: An Archaeobotanical Study of Subsistence at Nineveh, Northern Iraq

In this poster, we present first results of our ongoing investigation of archaeobotanical remains from the last Neo-Assyrian capital Nineveh in modern Mosul, northern Iraq. The analysed flotation samples date to the Neo-Assyrian and Post-Assyrian periods of occupation (ca. 1000-536 BCE) and yielded a charred macrobotanical assemblage including amorphous charred objects (ACOs). Using scanning electron microscopy we identified herbivore dung and plant particles embedded within the dung remains, informing about livestock foddering practices and the use of dung as fuel. The results offer insights into crop cultivation and the integration of plant and animal husbandry strategies within an urban provisioning system. Alongside this, our ongoing analyses of ACOs focus on possible food remains, which provide direct evidence for food processing and consumption practices in Nineveh's administrative centre. The presented results are part of a continuing project to analyse the economic basis for the Neo-Assyrian Empire's extensive measures to reshape the social and ecological landscapes of Mesopotamia, which helped sustain large capital cities and an empire of unprecedented scale.

Catherine Sharpe (University of Lancashire)
Jennifer Jones

Reconstructing Late Quaternary Equid Ecology: A Stable Isotope Meta Analysis from France and Germany

The extinction of *Equus ferus* in Late Quaternary Europe remains unresolved, with debate centred on the relative influence of climatic instability and expanding anthropogenic landscape modification. Although stable isotope analysis has become fundamental to palaeoecological reconstruction, existing datasets are dispersed across regions and publications, limiting systematic evaluation of ecological change preceding extinction. This project addresses this gap through a structured meta analysis of published $\delta^{13}\text{C}$, $\delta^{15}\text{N}$, and $\delta^{18}\text{O}$ values from equids, associated fauna, and human communities across Germany and France between 15–2 kya BP, two regions with dense archaeological records and well characterised climatic archives.

A fully traceable database has been assembled from peer reviewed sources, recording site information, species, sample material, calibrated radiocarbon age, and isotopic values, with digital object identifiers retained to ensure reproducibility.

Data are organised into five time bins (Last Glacial, Younger Dryas, Early Holocene, Middle Holocene, Late Holocene), enabling comparison of ecological conditions across discrete climatic phases. These temporal slices will be integrated with spatial

layers in QGIS to visualise climatic reconstructions, precipitation patterns, and indicators of human land use expansion.

Comprehensive $\delta^{13}\text{C}$, $\delta^{15}\text{N}$, and $\delta^{18}\text{O}$ datasets provide complementary evidence for dietary behaviour, trophic structure, and climatic variability, enabling assessment of ecological flexibility, seasonal conditions, and potential stress prior to extinction. Subsequently statistical analyses in R (terra, SIBER, ggplot2) will evaluate shifts in isotopic means and variance as indicators of ecological stability or niche contraction.

Through standardising dispersed isotopic records within a transparent analytical framework, this research contributes a regionally comparative synthesis of Late Quaternary equid ecology and advances environmental archaeological approaches to understanding megafaunal decline.

Ekaterina Ershova (University of Wisconsin)
Elena Ponomarenko

Anthropogenic burning and the emergence of inland heathlands in Nova Scotia (Canada)

Heathlands - treeless shrublands - form an unusual ecosystem within the densely forested landscape of Nova Scotia. They support ericaceous shrubs and several rare plant species with disjunct distributions whose principal ranges lie to the south and southwest. The persistence of treeless sites in Nova Scotia's humid climate has long been debated. Although recurrent fire has been proposed as the primary driver, this hypothesis has not been tested systematically.

We reconstructed the history of inland heathlands in southwestern Nova Scotia - the frontier of early European contact - using pollen and macrofossil analyses from oxbow and peatland sequences, complemented by the study of buried soil horizons. Vegetation dynamics spanning ca. 12 ka reveal that, for most of the Holocene, areas now occupied by heathlands were forested. Pollen spectra were dominated by conifers (*Abies*, *Pinus*, *Picea*, *Tsuga*), and macrofossils from adjacent soils confirm the presence of hemlock, juniper, red and white pine, and white and black spruce.

Fire episodes are recorded throughout the sequences, but more than half occurred within the last millennium. A pronounced increase in fire frequency coincided with a two-stage vegetation transition. Initially (1000-500 yrs BP), declining conifers were replaced by shrublands marked by the increase in pollen of *Onagraceae* (fireweed family) and *Ilex*, and *Polypodiaceae* spores. Subsequently (ca. 300-50 yrs BP), these communities shifted to *Ericaceae*-dominated heathlands. Although ericaceous taxa appear intermittently in late Pleistocene and early Holocene records, their dominance emerged only during the past several centuries.

The timing and magnitude of increased burning strongly suggest anthropogenic landscape management, likely aimed at enhancing berry-producing shrubs and game habitats at the pre-European stage and at clearing for fields and pastures at the

European stage. Heathlands of southwestern Nova Scotia therefore represent a relatively recent cultural landscape superimposed upon a long forest history.

Gerard Terrón-Marín (University of Barcelona)
Montserrat Sanz and Joan Daura

Reconstructing the landscape associated with the arrival of *Homo sapiens* in the Iberian Peninsula through ungulate body mass estimation

Environment has received a special attention to understand the spread of anatomically modern humans and the last occurrence of neanderthals across Europe. Climatic changes, including the aridity and cold temperatures associated with Heinrich Event (HE) 4, are considered key elements for understanding this crucial moment of human evolution. In this study we estimate the body mass of the equid and bovid communities present at the HE4 site of Terrasses de la Riera dels Canyars (Gavà, Barcelona) where modern human-associated Aurignacian technocomplex is documented, in order to reconstruct the landscape occupied by the first modern human populations of the Iberian Peninsula.

Body mass was estimated using Scott's allometric equations for bovids and equids applied to metapodial diameters. The equids (*Equus caballus* and *Equus hydruntinus*) from Canyars are smaller than other European groups (420.59 kg \pm 80.74 for *E. caballus* and 183.76 kg \pm 33.87 for *E. hydruntinus*), but are in accordance with other Iberian equids. This can be linked to the diet and a gregarious social organisation, which is consistent with a landscape dominated by open grasslands, particularly under cold and dry climatic conditions. Bovids (*Bos primigenius*) show more complex results, strongly influenced by sexual dimorphism. Females (805.68kg \pm 137.4) exhibit lower variability than males (1415.14kg \pm 211.4). However, these results are consistent with Pleistocene aurochs. Based on their feeding traits, the aurochs at the site are identified as browsers, and the larger body mass may therefore associate with forests. Additionally, aridity and cold temperatures, seasonality and open landscapes should be considered as factors influencing body mass.

Overall, our results support an open landscape with limited forested areas and agree with previous studies. These estimates provide a strong basis for further analyses aimed at assessing the local paleoenvironment like the estimation of the Net Primary Productivity (NPP) and the herbivore biomass.

Hannah Gardiner (University of Lancashire)
Jennifer Jones, David Robinson and James Morris

When Animals Were Still People: Exploring the relationship between animals and Native American populations in Southern California

Animals are not only fundamental to Native groups subsistence strategies, but they are also present in Native American stories, oral histories, and cave art iconography.

This study aimed to bring these three disparate strands of archaeological, iconographic, and ethnographic information together to help us understand the multitude of ways that animals were ingrained in the lives of indigenous communities.

The study used a comparative interdisciplinary methodology. Ethnographic records were examined to gather stories and references relating to species identified at archaeological sites, including coyote, rattlesnake, bald eagle, white tailed deer, cottontail, and grey fox. These accounts were compiled into an annotated bibliography, alongside additional bibliographies on animals in rock art, material culture, and cattle theft in California. Archaeological evidence was then compared with these sources, particularly faunal remains and artefacts made from animal materials. Examples include the use of pelts for clothing and blankets, eagle feathers in ceremonial regalia, and turtle shell rattles in ritual contexts. Rock art depictions from Chumash and Coso traditions were also examined, including both identifiable animals and abstract zoomorphic forms.

The results demonstrate that animals were understood as powerful beings and active participants in Indigenous social worlds, highlighting the need for archaeological interpretations that move beyond purely subsistence-based models.

Kariane Bourgault (University of Highlands and Islands)

Living and Dying Together: a multi-species and biomolecular approach to understanding animal-human relationships during the Iron Age in Scotland

Using Iron Age Scotland (c.800BC-800AD) as a lens through which to explore our relationship with farm animals, my PhD will focus on the paradox at the heart of farming – that animals which are cared for will ultimately be slaughtered. It will apply an innovative approach, integrating theoretical perspectives from Human-Animal Studies (HAS), biomolecular and zooarchaeological methods to identify ancient animal husbandry, offering new insights into the nature of animal-human relationships in Scottish farming communities, past and present.

Marguerite Waechter-Eliez (Oxford University)

A combined palaeoecological and archaeological approach: reconstructing late prehistoric land use patterns around a Northumberland rewilding estate

In most parts of the British Isles, uplands are now considered “marginal” – whether it be environmentally, economically, or socially. They are often barren and unable to sustain modern farming economies. However, this was not always the case, as evidenced by complex late prehistoric ritual landscapes and settlements.

This poster presents new palaeoecological work undertaken at Hepple Rewilding Estate in the Simonside Hills (Northumberland, England). Despite dense concentrations of Bronze Age burial cairns and Iron Age hillforts, few excavations or systematic surveys have taken place in the area. As a result, late prehistoric

settlement patterns are poorly understood. As part of a PhD thesis and the 'Rewilding Later Prehistory' project, new peat cores were collected at Hepple to provide long-term vegetation records and improve our understanding of late prehistoric upland land use. Results of this work are presented here. Phases of woodland clearances, heath expansion, or mixed farming are compared to known local archaeological sites as well as pollen and archaeobotanical records from the wider region.

By considering palaeoecological and archaeological records together, this poster hopes to present a richer picture of late prehistoric upland land use in the Simonside Hills than is currently available based on archaeological evidence alone. This work highlights that far from always being considered marginal land, uplands were well integrated within late prehistoric societies.

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Mitsuhiro Kuwahata (Kyushu University)

Considering the Archaeological Site Dynamics and Environmental Change from Late Pleistocene to Early Holocene in Kyushu, Southwestern Japan

It has been recognized that the cultural aspects features diverse settled structures, such as pit dwellings, earth-oven remains, stone-arranged furnaces, and fire pits, in

addition, stone tool assemblages with a high proportion of nut-processing tools such as grinding stones and milling stones corresponding to vegetation development were identified, during the late of Incipient Jomon period specifically the Thick-Ridge (Ryūtaimon) Pottery phase between 14,000 and 13,500 years ago at the southern part of Kyushu, southwestern tip of the Japanese archipelago.

On the other hand, for the subsequent the Undecorated (Mumon) Pottery phase around 13,000 years ago, except for a few site investigation cases, at most archaeological sites, only a small amount of pottery has been excavated, and instances of detected structures are extremely few. Furthermore, advances in ¹⁴C dating of charcoal attached to pottery in recent years have indicated the existence of a period of sparse human activity between 12,700 and 11,600 years ago following the Sakurajima-Satsuma (Sz-S) eruption 12,800 years ago, which is the largest in the eruption history of Sakurajima volcano.

To examine the factors behind this, Phytolith analysis of sediments from the Miyazaki Plain in southeastern Kyushu, dating from the late Pleistocene to the early Holocene, revealed that between 12,000 and 11,000 years ago, the climate was likely unstable, alternating between cool and slightly warmer periods. This unstable climate is generally consistent with, though slightly offset from, variable phase on a decadal scale observed in varved sediments of Lake Suigetsu in Fukui Prefecture, which are dated from 12,800 to 11,600 years ago, corresponding to Younger Dryas Event. Regarding the sparse of archaeological sites dating from 12,700 to 11,600 years ago in southern Kyushu, it is necessary to consider not only the impact of relatively large eruption of Sakurajima volcano but also the effects of prolonged unstable climate conditions.

Molly Delaney Jones (Oxford University)

Farming, foraging, and the lake: subsistence at the early-mid 6th millenium BCE pile-dwelling site, Lin 3, Lake Ohrid, Albania

At the Neolithic lakeshore site of Lin 3, located on the western shore of Lake Ohrid in Albania, the outstanding waterlogged preservation highlights some species, such as fruits and nuts and aquatic species, which are not always visible in the archaeological record. Waterlogged archaeological sites offer a rare glimpse into categories of botanical remains that are not always visible in a typical dryland archaeological assemblage. At lakeshore sites, the gentle sedimentation and low oxygen depositional environment allow for a diverse variety of botanical remains to be preserved, whereas in a typical archaeobotanical assemblage, the majority of species represented are those that come into contact with fire, leading to the charring of the botanical material. This creates a preservational bias at many archaeological sites towards species, frequently crops, that come into contact with fire.

This poster seeks to highlight the broad spectrum of plants utilised at Lin 3, including foraged foods from a wide array of taxa. Lin 3 is situated at the margins between the wetland environment and the nearby wooded environment, and the archaeobotany from the site shows that while living at the lakeshore, the people of Lin 3 were utilising

foraged resources from the margins of the woodland as well as relying on cultivated species. This poster will present the early results from my doctoral research project, showing the archaeobotanical results which indicate a significant dominance of terrestrial plant taxa, mostly associated with arable farming and woodland environments, while wetland/aquatic species make up a much smaller proportion of the assemblage. These results show how the people at the earliest pile-dwelling site in Europe interacted with their marginal, wetland environment, showing that despite living in the wetland environment, their subsistence largely was based on cultivation along with gathering edible fruits and nuts.

Mónica Fernández-García (University of Lancashire)

Mónica Fernández-García, Juan Ignacio Morales, Diego Lombao, Sofia Samper Carro, Gabriel Bowen and Jennifer Jones

Modelling Neanderthal landscapes during MIS4 in Iberia: survival beyond the glacial period

The NEANSCAPES project (MSCA-PF funded; ID: 101205968) aims to advance our understanding of Neanderthal subsistence strategies during MIS4 (71–57 ka), a glacial period that imposed harsh conditions affecting environments on a global scale. The transition from the temperate phase of MIS5 (128–71 ka) to the cold phase of MIS4 required flexibility and innovation in livelihood strategies and resource management by these populations. Much is known about Neanderthal behaviour during MIS5 and MIS3 (57–27 ka), but there is a notable gap regarding human subsistence during MIS4. The project will assess whether Neanderthal subsistence strategies remained unchanged, potentially increasing vulnerability to abrupt climatic shifts, or whether populations adapted their behaviour in response to drastic environmental changes.

To this end, NEANSCAPES examines hunted ungulates from archaeological sites in north-eastern Iberia, including La Griera (Calafell, Tarragona) on the coastal plain and Abric Pizarro (Àger, Lleida) in the Pre-Pyrenees. These sites have experienced repeated and intensive Neanderthal occupation throughout the MIS4 glacial period. Stable isotopes (oxygen, carbon, nitrogen, sulphur, strontium) preserved in faunal tissues provide detailed information on animal ecology and past environmental conditions. By integrating multi-isotope analyses with regional isoscape modelling (oxygen, sulphur, strontium), the project will produce high-resolution climatic and spatial reconstructions directly linked to human presence in this region, characterising habitats and micro-environments exploited by Neanderthals. This pioneering application of isoscape modelling to Palaeolithic research in Iberia provides methodological innovation and new opportunities to understand the landscape use, mobility and adaptive strategies of Neanderthals during this poorly documented glacial phase.

Tetsuya Shiroishi (Yamagata University)

Masashi Mori, Wataru Okamura, Kazuhiro Shinohara, Yu Koizumi and Takayuki Omori

Palaeoenvironment at the Abandonment of Yayoi Rice-Farming Settlements: Evidence from the Toro Site

In the Japanese archipelago, located at the eastern edge of East Asia, rice-based agriculture was introduced around the ninth century BC via the Korean Peninsula. Because wet-rice cultivation requires the construction of paddy fields, water-rich environments such as low-lying wetlands were essential. From the initial stage of its adoption, irrigated paddy fields were developed in lowland areas of the Japanese archipelago, making the establishment of settlements in close proximity to paddy fields virtually inevitable.

This paper focuses on the Toro site in Shizuoka Prefecture as a case study. The Toro site is of particular importance as it represents the first settlement in Japan where rice paddies were identified archaeologically, with paddy fields and residential areas discovered as an integrated complex. Owing to its lowland location, two major flood-related sedimentary layers have been identified at the site. In order to investigate the background and timing of these flooding events, the authors conducted coring surveys in and around the Toro site. Because the flood deposits contain few charcoal remains and are therefore difficult to date using conventional methods, radiocarbon dating was carried out using pollen samples.

By reconstructing the palaeoenvironmental conditions from the formation of the settlement to its abandonment, this study examines the environmental background of settlement abandonment and clarifies the timing at which the Toro site was abandoned.

Yuichiro Kudo (Yamagata University)
Mayumi Ajimoto and Fuyuki Tokanai

Radiocarbon dates of the oldest remain of gourd (*Lagenaria siceraria* species complex) on the Japanese archipelago excavated from the Torihama shell mound site, Fukui, Japan

A total of 76 remain of gourd (*Lagenaria siceraria* species complex) were excavated from the Torihama Shell Mound in Fukui Prefecture, during surveys conducted from 1980 to 1985. Among these, 12 founds placed to the Initial Jomon period (ca. 11,000–7,000 cal BP), while 4 materials may date back to the end of the Incipient Jomon period (ca. 11,000 cal BP), although no direct dating has been performed. In addition, during the 1975 excavation, a gourd with artificial processing was excavated, which is commonly referred to as the “gourd capsule.” The fruit's had been cut by a sharp knife, and there were traces of perforations on both sides, suggesting a cord may have been threaded through the holes. The authors conducted ¹⁴C dating on the “gourd capsule” collected in the Wakasa History Museum. The results showed that “gourd capsule” dated to 11,265–11,190 cal BP, corresponding to the Incipient Jomon period. This makes it the oldest gourd with a directly measured ¹⁴C date found in the Japanese archipelago.

Abstracts Papers

Friday 8th May

10.00am

Kay Hamilton (University of Sheffield)

Embedded Landscapes, Sculpting Environments: Human–environment interactions across 6000 years in five upland sites

Environmental archaeologists seek the reconstruction of past landscapes; despite this, we often neglect the less-tangible social dynamics which existed within and interplayed with them. This paper presents a comparative palynological study of five upland sites in the Carneddau, North Wales, exploring how human communities transformed their environments over the last six millennia, and how those environments influenced human activities in turn.

High-resolution pollen and non-pollen palynomorph records from five peat bogs, arranged spatially and altitudinally across the Carneddau landscape, were analysed to reconstruct vegetation changes, hydrological shifts, land-use dynamics, and anthropogenic impact from the Neolithic onwards. Early sustained signals of woodland clearance emerge here, followed by strong evidence for expanding heathland. Neolithic clearances are accompanied by intermittent, but recurrent, indicators of cereal agriculture. These episodes suggest practices that were not always sustained, implying adaptive, possibly experimental engagements with cultivation in agriculturally marginal upland settings. Critically, none of the sequences show a complete return to pre-anthropogenic landscape conditions following initial clearance and anthropogenic indicators persist, suggesting continuous or recurrent human presence within these landscapes.

Rather than framing upland zones as peripheral, the pollen evidence suggests long-term, embedded utilisation, with communities responding dynamically to fluctuating ecological constraints and demonstrating social land-use patterns galvanised by these metrics. Episodes of clearance, regeneration, grazing expansion, and land-use intensification are evidence of deliberate and socially mediated decisions responding to the needs of a population and the opportunities of a landscape. The persistence of anthropogenic signatures throughout demonstrates that these landscapes were not passive backdrops to human stories, but living environments shaped through negotiation, resilience, and adaptation, shaping their occupants in turn.

This study contributes to broader discussions of land-use and anthropogenic impact through time, while emphasising our capacity as environmental archaeologists to illuminate the lived experiences of communities embedded within dynamic ecological systems.

10.20am

Isobel Harvey (University of Glasgow)

Nicki Whitehouse, Eileen Tisdall and Derek Alexander

A Cultural and Natural History of Scotland's Peatlands

This project adopts a more-than-human approach to the study of Scotland's upland blanket bogs, aiming to tell a holistic story of environmental relationships that includes a range of actors from hill walkers, peat cutters and archaeologists, through to beetles, mosses and rainwater. Today these upland peatlands are often treated as marginal, unproductive places- largely the legacy of the reorganisation of Scotland's rural landscape following the Clearances and Improvement Movements which sought to place a particular economic value on only agriculturally productive land. In contrast, this project hopes to highlight the long history of people-environmental relationships in these peatlands, and particularly the value of these peatlands to past people. This will be done by adopting a deep-time approach that acknowledges the long environmental archives held within peat deposits, and the rich archaeological heritage preserved across the Scottish uplands cared for by the National Trust for Scotland. Through integrating new and existing palaeoecological research with the known archaeological and historic record for three properties under the National Trust for Scotland's care, each with a different landscape and social context, this study hopes to tell the stories of these peatlands for both people and nature. This project is funded by the AHRC and NTS through SGSAH.

10.40am

Sarah Ruth Hunt (University of Lancashire)

Richard Peterson and Jennifer Jones

An attempt to understand Heaning Wood Bone Cave Faunal Deposit

Heaning wood Bone Cave is a natural vertical shaft cave located in Cumbria, UK. This cave contains large amounts of comingled human and animal faunal material. Archaeological remains from this site date from the Mesolithic to the Bronze age. This research explores the faunal remains from the site, and what evidence of anthropogenic activity can be remained from them. My main research question will be to understand what drove humans to deposit this amount of material, and what they were doing with it before deposition.

To date 2749 remains have been recorded from the site and results indicate that the assemblage is dominated by domestic animals with a few intrusive wild specimens. Of the domesticates recorded to date sheep are the most common accounting for almost 60% of the assemblage. The second most common species is pig, followed by horse. Other interesting species found include small amounts of dog/wolf, and Lynx.

Based on Withers hights, two populations of sheep appear to be present, likely reflecting both prehistoric sheep, and modern animals resulting from recent industrial farming practices. The presence of neonatal sheep bones is noted in the assemblage, potentially from modern lamb losses.

This assemblage also has very few bones modified by humans. Of the 2749 individual elements processed, only 43 have any butchery evidence. Whilst there is evidence of human activity, through the use of the site as a burial cave, some of this material may have entered the cave by pitfall or animal action. Results show that there is a need to fully explore the taphonomy of the remains to be able to differentiate between anthropogenic remains and naturally occurring fauna, and to undertake further radiocarbon dating of further deposits within the cave.

11.40am

Samantha Jones (University of Aberdeen)
Campbell, E and Holliday, N

Farmers, monks and raiders: exploring cultural and environmental transitions in the Inner Hebrides during the 1st millennium AD

By the mid-6th century AD, the Inner Hebridean islands of Iona and Tiree, in western Scotland, formed part of the kingdom of Dál Riata although these islands are perhaps best known for their association with St. Columba and the spread of early Christianity. From the late 8th to 10th centuries AD, Viking raids devastated many monasteries, including Iona. This was then followed by Norse settlement along the western seaboard. Much is known about the life of St. Columba on Iona, but considerably less is known about the lives of other island communities along the Western Seaboard and Inner Hebrides, or the impacts of sea raiding and Norse settlement. This paper presents recent palaeoenvironmental findings, integrated with archaeological and historical archives, from the Island of Tiree and Iona with an aim to understand the potential impacts of social change on ordinary farming and ecclesiastical communities spanning the early Medieval period.

12.00pm

Zara Evans (University of Aberdeen)
Samantha Jones, and Linus Girdland Flink

Optimizing sedaDNA for multiproxy environmental reconstruction: a case study at Loch Gàrradh a' Chapuill

Environmental reconstruction allows researchers to picture the landscape of past human populations and understand how they may have interacted with their environment. Palynology is a well-established method and is one of the most frequent proxies used to explore human-environmental interactions, but it can be limited by preservation environment, dispersal biases, and low taxonomic resolution. SedaDNA is a much newer method that has great potential for overcoming some of the limitations of palynology (particularly taxonomic resolution) but its deposition and preservation in sediments is still poorly understood. Prior publications comparing extraction methods have had mixed success, with sedaDNA consistently recovering less taxonomic diversity than pollen. However, if sedaDNA purification protocols and extraction

techniques can be optimised, combined palynology and sedaDNA have great potential for providing more reliable human-environmental reconstructions, which would significantly improve our understanding of past societies and environmental change. This paper presents the preliminary findings of a comparative case study on lake sediment from Loch Gàrradh a' Chapuill in Tìree, encompassing prehistoric and Early Medieval time periods. This study aims to test the comparability of sedaDNA to palynology in terms of taxonomic diversity and resolution for three different sedaDNA extraction and purification protocols. By comparing these protocols, we seek to find the most effective protocol for combined sedaDNA and palynology to produce robust environmental reconstruction, thereby allowing researchers to untangle complex ecosystem changes and their potential impacts on human and non-human communities.

12.20pm

Julia Best (Cardiff University)

Small shoreline stories: Active avian landscapes in the Scottish islands

In this paper we will explore how the intersection of land and sea has provided a constant and yet varied landscape for avian-human interactions in the past from both historical and zooarchaeological sources. The shoreline attracts a rich abundance of avian life, but challenges of identification have limited capacity to engage with some of these, particularly those of the order Charadriiformes. With recent advances in the metrical separation of waders, this paper reassesses two sites in the Western Isles where shoreline birds have played an important role in their avian exploitation and interaction with the environment. These findings are situated within historical accounts of bird use in the Scottish islands, and the importance of these locations in daily movements, social activities, and animal interactions. Whilst sometimes small in number (and often small in body size!) shoreline birds are a prominent feature of living, working and moving in these locations allowing us insights into both these varied landscapes and the people and animals who populated them.

1.30pm

Fraser Brown (Oxford Archaeology)

Keynote Lecture: Irish Sea serendipities: recent early prehistoric discoveries by Oxford Archaeology from marginal landscapes around the Irish Sea

3.20pm

Molinari Chiara (University of Genoa)

Bruna Ilde Menozzi, Andrés Menéndez-Blanco, Riccardo Santeramo, Anna Maria Stagno

Environmental resources management in NW Iberian mountains over the last millennium: a multi-proxy analysis

A multi-proxy study carried out in the Allande municipality, south-western Asturian mountains (NW Iberian Peninsula) provides insights about different phases of landscape dynamics since ca. 900 AD, strictly associated with past management practices of environmental resources adopted by local communities. Analyses included pollen, spores, non-pollen-palynomorphs and macrocharcoal data from a sedimentary peat bog record collected in the Freisnéu valley, and anthracological information from two charcoal kilns and two pastoral huts located in the nearby valley of La Reigada, supported by archaeological and documentary evidence. The results allowed to shed light on main effects of different drivers on land-cover variations, revealing the primary role of past agro-pastoral activities – in particular, local grazing – as control factors for changing vegetation structure and composition during the last millennium at the investigated area. Despite the presence of semi-open conditions around the peat bog during the entire time period recorded, the significant reduction of the arboreal vegetation between ca. 1300 and 1900 AD seems more related to an expansion of meadows, pastures and temporary cultivations (likely connected to main changes in the use of space by local communities) than – as attested by previous research for neighbouring areas – to woodland management for charcoal production. Furthermore, our study underlines the linkage – during the last century – between the progressive abandonment of multifunctional systems and the growth of spontaneous woodland and heathland formations in the Asturian mountains. The need of a dynamic multiple management of environmental resources is emphasised for the restoration, maintenance and sustainable development of mountain ecosystems biodiversity.

3.40pm

Tomás Paya (Instituto de las Culturas)

Kevin Lane

Water and Stone: Hydraulic Engineering, Rock Art and Social Landscapes in Prehispanic Northwest Argentina

The history of humanity underwrites the interrelation between people and landscape. How different social actors through time related in ever-changing ways with their environment, exerting a decisive influence on the structuring of the differentially embodied landscapes, while conversely being structured by them. From political ecology focus, environmental archaeology offers us the possibility of delving into the means by which past human groups built and inhabited their social landscapes, immersed in given dynamics of power, politics, and economics.

Here, we will explore the interactions between human groups and their environment in the Northwest Argentine Andes, specifically the Quebrada de Tacuil, also known as Quebrada de La Hoyada, which connects the lower mesothermal valleys with the tundra grassland Puna plateau. In this region, characterised by a dry and arid climate, farming was mainly possible along the narrow riverbanks, many of which do not flow permanently. However, Prehispanic populations, from at least the first millennium AD, employed two major sets of cultural strategies to significantly enhance agricultural

production. These constituted decisive modifications to an increasingly anthropogenic landscape.

First, there is evidence for significant investment in hydraulic infrastructure, particularly from the beginning of the first millennium AD. This took the form of large expanses of hillsides covered with fields, terraces, check-dams, and canals. Drip irrigation played a key role in this system, a consequence of the area's frequent orographic fogs. Second, dozens of large boulders were engraved with lines and perforations interpreted as part of a pan-Andean pattern of "models" or "maps": miniature representations of an agricultural landscape on stone. Within the framework of the animistic ontology of Andean societies, these rocks would have been sites for ceremonies related to crop fertility, territorial organization, the sacredness of the mountains, and critically the organisation of the agricultural calendar.

4.00pm

David Robinson (University of Lancashire)

Ana Ejarque, Kristina Gill, Kally Brown, Devlin Gandy, Jon Plcciuolo, Stephen Gough-Kelly, Fraser Sturt and Julienne Bernard

Hallucinogens as Medicine: environmental evidence for medicinal substances and ritual time from Pinwheel Cave, California.

Work in the last decade has shown that masticated fibres recovered from the site of Pinwheel Cave, California, were largely comprised of the intoxicant *Datura meteloides*. Analyses show that these fibres were shaped into small packets and chewed as quids, thus confirming for the first time the consumption of a hallucinogen at a rock art site. The use of *Datura* is well documented ethnographically, used in coming of age ceremonies and in a variety of other contexts. The use of *Datura* is typically interpreted from shamanistic perspectives: however, here we present further evidence from the palynological analysis indicating that *Lomatium*, a mild stimulant, was included in some of the quids, indicating that more than just *Datura* was being consumed in the cave. Here, we contextualise the environmental evidence in the context of the cave and wider archaeology, historical, and ethnographic perspectives to consider the use of *Datura* as a medicine for Native Californian people.

4.20pm

Jennifer Jones (University of Lancashire)

James Morris, Hannah Gardiner and David Robinson

The Cached Cow: A case of cattle rustling in South Central California

Cache cave (Wind Wolves Preserve, California) has a long history of being used as a caching location by Native Americans with rich deposits of basketry, cordage, food reserves and other precious items. During excavations at the cave the remains of a cow were recovered within a crevasse at the front of the cave. Zooarchaeological

analysis of the remains was undertaken to understand more about how these remains came to be present at the site and to understand their historical context. Fragments were dominated by axial elements, with both mandibles present and some long bone remains. Carnivore gnawing on the ulna indicates that the remains were not rapidly buried and instead had been exposed for a period of time allowing carnivore access. Anthropogenic marks on the bones include evidence of processing using both metal tools and flint tools indicating a combination of both traditional and new technologies. We propose that these represent the remains from an historic example of Cattle rustling, with the cow being brought to cache cave, a long-held caching location in order to conceal activity. The location likely represented a safe location to undertake secondary butchery and to hide the remains. It is important to view this example of cattle rustling within its wider historical context. Native American populations were often forced to resort to rustling cattle during times of climatic stress which were common throughout the 19th Century, when traditional food resources were scarcer. Cattle rustling was also an act of resistance against incoming ranchers that encroached into native American land. The cache cave cow remains were left at a historic cache site, showing possible continued importance of this location over long periods of time.

Saturday 9th May

10.00am

Yuxi Xie (Oxford University)

Early Neolithic Plant Use Strategies at WF16, Southern Jordan: An Archaeobotanical Perspective

This paper investigates early Neolithic plant-use strategies at Wadi Faynan 16 (WF16), a Pre-Pottery Neolithic-A settlement in southern Jordan. WF16 provides a unique opportunity to explore human–plant interactions during the transition from foraging to farming. Preliminary analyses of selected contexts indicate a diverse assemblage including fruits and nuts as well as wild cereals, suggesting a broad-spectrum subsistence economy involving gathering and processing. The study integrates charred plant macrofossil identification with statistical and spatial analyses to explore patterns of plant use and organisation. Through the combined application of multivariate and contextual approaches, the research aims to refine interpretations of plant-use diversity, subsistence organisation, and ecological adaptation in the early Neolithic southern Levant.

10.20am

Phil Gould (University of Stirling)

People and Changing landscapes: Palynological and Archaeological Analysis of Landscape Change in the Scottish Highlands, 1250 AD-present

This project investigates the cultural, ecological and social effects of the ‘Little Ice Age’ in the Northwest Highlands in Scotland. Land managers are making decisions around the future management plans for northern Scotland, with the aim of increasing the resilience of areas of conservation value, rural economies, and cultural heritage retention.

Intergenerational/indigenous knowledge and relationships to landscape have been historically undervalued in these landscapes; and the ecological legacy of the Improvements and the Clearances are under investigated.

Palynological and archaeological investigations of landscapes can reveal detailed information of past adaptation, change, and resilience to climate pressures, and explore how Scottish ‘wilderness’ has been fundamentally altered by capitalism and industrialisation over the past 500 years. The methods proposed include: generating new high-resolution vegetation change (pollen records) in poorly researched areas; analysis of new and existing pollen records to assess community continuity and threshold response to climatic and social change; evaluate the archaeological and historical records of the landscape to assess how relationships to landscape have changed; and highlight challenging legacies of places connected to the cultural and ecological impact of the Clearances.

By taking an interdisciplinary approach, this project aims to present possible localised

frameworks for conservation and management of landscape, integrating cultural knowledge and pasts with future landscape management to the benefit of local communities, furthering deep place knowledge, place attachment and sense of belonging in the landscape.

10.40am

Matthew Law (Bath Spa University)

Yasmine de Gruchy, Kimberley Davies, David Dawson, Gavin Gillmore, Rebecca Hart, Nigel Harvey, Don O'Meara and Edward Parsons

Palaeoecology at a high-status ecclesiastical residence, Wells, Somerset, UK: reconstructing lived environments across five centuries Palaeoparasitology and multi-proxy

Environmental archaeology offers valuable insights into the texture of daily life, illuminating important details even among groups who left substantial documentary records. This paper presents palaeoparasitological and palaeoecological findings from a residential complex occupied by senior officials of Wells Cathedral between the 11th and 18th centuries CE, using the assemblages to explore the social and domestic landscapes that these individuals inhabited.

Samples recovered from fills of pits and garderobes as well as occupation layers were subjected to multi-proxy analysis including helminth eggs, phytoliths, charcoal, charred cereals, animal bone, non-marine molluscs, fly puparia, and mineralised macrobotanical remains. Recovery of roundworm (*Ascaris lumbricoides*) eggs across multiple pit fills, with concentrations highest in Medieval deposits, provides direct evidence of sanitation conditions within the household. Cathedral officials occupied a privileged position within medieval urban society, yet the bioarchaeological record reveals that social status did not correlate with good hygiene.

Macrobotanical evidence adds a further dimension to the social landscape: the recovery of fig (*Ficus carica*) and grape (*Vitis vinifera*) seeds alongside fish bone from a pit fill reflects both the dietary repertoire and the consumption networks available to cathedral officials. Variations in assemblage composition across different contexts highlight diverse and changing waste disposal practices and domestic activities, as well as improvements in sanitation, over several centuries of occupation. The paper argues that peripheral and functional spaces within domestic sites are precisely where multi-proxy environmental archaeology can recover the embodied lives behind historical records, contributing to a richer understanding of social landscapes in medieval and post-medieval England.

11.40am

Jonas Bergman (National Historical Museums, Sweden)

Archaeoparasitological studies from Scandinavia – parasites from Mesolithic to modern period

The history of humanity underwrites the interrelation between people and landscape. How different social actors through time related in ever-changing ways with their environment, exerting a decisive influence on the structuring of the differentially embodied landscapes, while conversely being structured by them. From political ecology focus, environmental archaeology offers us the possibility of delving into the means by which past human groups built and inhabited their social landscapes, immersed in given dynamics of power, politics, and economics.

Here, we will explore the interactions between human groups and their environment in the Northwest Argentine Andes, specifically the Quebrada de Tacuil, also known as Quebrada de La Hoyada, which connects the lower mesothermal valleys with the tundra grassland Puna plateau. In this region, characterised by a dry and arid climate, farming was mainly possible along the narrow riverbanks, many of which do not flow permanently. However, Prehispanic populations, from at least the first millennium AD, employed two major sets of cultural strategies to significantly enhance agricultural production. These constituted decisive modifications to an increasingly anthropogenic landscape.

First, there is evidence for significant investment in hydraulic infrastructure, particularly from the beginning of the first millennium AD. This took the form of large expanses of hillsides covered with fields, terraces, check-dams, and canals. Drip irrigation played a key role in this system, a consequence of the area's frequent orographic fogs. Second, dozens of large boulders were engraved with lines and perforations interpreted as part of a pan-Andean pattern of "models" or "maps": miniature representations of an agricultural landscape on stone. Within the framework of the animistic ontology of Andean societies, these rocks would have been sites for ceremonies related to crop fertility, territorial organization, the sacredness of the mountains, and critically the organisation of the agricultural calendar.

12.00pm

Mónica Fernández-García (University of Lancashire)

Pere M. Guillem Calatayud, Cristina Real, Valentín Villaverde

LGM environmental impact in Iberia: stable isotope data from the Upper Paleolithic sequences of Cova de les Cendres and Cova de les Malladetes

The Last Glacial Maximum (LGM) represents a key period for understanding human adaptive responses to adverse climatic conditions during the Upper Palaeolithic. In the Iberian Peninsula, this cooling phase begins during the Gravettian and intensifies in the Solutrean, and has been interpreted as a period of progressive aridification that favoured the contraction of human populations toward southern Eurasian refugia. Mediterranean Iberia therefore constitutes a crucial region for investigating human resilience during this period. This timeframe is also marked by significant shifts in subsistence strategies, including a stronger reliance on local resources. The research aims to assess whether this climatic shift was abrupt or progressive at a regional scale, and whether these environmental dynamics directly or indirectly influenced changes in human subsistence strategies.

This study focuses on the Levantine sites of Cova de les Cendres (Teulada-Moraira, Alacant) and Cova de les Malladetes (Barx, Valencia), two reference sequences for the early Upper Palaeolithic in Mediterranean Iberia. A total of 200 small vertebrate remains from Aurignacian and Gravettian levels (ca. 37,000–25,000 cal BP) were analysed. Stable oxygen ($\delta^{18}\text{O}$) and carbon ($\delta^{13}\text{C}$) isotope compositions were measured from dental enamel to reconstruct local environmental and climatic conditions, enabling the detection and quantification of subtle environmental changes.

Preliminary taxon-based studies suggested relatively stable climatic conditions with persistent Mediterranean woodland taxa throughout both sequences. The isotopic results support this pattern and indicate globally stable $\delta^{18}\text{O}$ values, consistent with relatively stable but colder-than-present conditions (estimated temperatures around 9–11 °C). At both sites, $\delta^{18}\text{O}$ and $\delta^{13}\text{C}$ variations are observed around the Aurignacian–Gravettian transition. In particular, increased dispersion in $\delta^{18}\text{O}$ values is detected near 31–33 ka cal BP in Cendres (level XVIC) and Malladetes (level XI), potentially reflecting short-term climatic oscillations at the regional scale around GS 6–5, close to Heinrich Event 3.

12.20pm

Sigrid Hyldegaard Djernæs (Aarhus University)

F. Reide, N. N. Johannsen, S. M. Kristiansen

Soil analytical evidence of early horticulture in Southwest Scandinavia

The origins and temporal development of horticulture in prehistoric Northern Europe are not well understood. This raises a central question: Is the apparent absence of early agrodiversity in the archaeological record a reflection of past reality, or of methodological biases? Inspired by globally emerging evidence for garden horticulture, we apply a soil analytical approach to Neolithic-to-Medieval garden contexts from archaeological sites in Denmark to address this question. Preliminary results from soil chemistry, particle size distribution, organic matter content, and stable isotopes in anthropogenic features such as pits, middens, and causewayed enclosure systems indicate patterns that may be consistent with small-scale, high-input cultivation detected in situ and independent of macro-botanical remains. We here present a methodological framework and preliminary results, suggesting recurring patterns of soil amendment and nutrient enrichment in small plots consistent with intensive management practices from the Neolithic onwards. These findings demonstrate how soil analyses can contribute spatial and functional detail to existing models of early horticulture in northern Europe while likely revealing more diversified cultivation systems both in terms of crop types and management practices. Against this background, we discuss the potential of integrating emerging biomolecular approaches to further investigate when and where small-scale horticulture may have emerged, how early soils were intentionally modified, and which non-cereal 'orphan' crops may have represented the earliest domesticated native plants in Northern Europe. Expanding on these questions highlights the advantage of integrating environmental archaeology approaches for refining interpretations subsistence

strategies and transitional stages between foraging, mixed economies, and fully agricultural systems.

1.30pm

Kate Britton (University of Aberdeen)

Keynote Lecture : PALaEoScot: environmental and archaeo-ecological approaches to Scotland's earliest archaeology

2.30pm

Don O'Meara (Historic England)

Going against the grain: oat cultivation in medieval Cumbria

Despite often being regarded as the lowest-status crop in medieval England, the cultivation of oats in Cumbria is a phenomenon which spans from the pre-Norman era to the later medieval period, and can be found on the smallest medieval settlements to high status monastic communities. This paper considers the role of oat cultivation in medieval Cumbria as a cultural phenomenon - cohesive within the region, but at odds with patterns seen in other regions of England. The origins for this pattern of cereal cultivation are considered using evidence from a recent excavation of a pre-Norman farm stead in north Cumbria, as well as unpublished evidence from sites the author has worked on in Cumbria. Cumbria's unique history and geography is considered as possible contribution factors to this widespread and persistent farming culture within the county.

3.20pm

Neal Payne (University of Cambridge)

Rachel Ballantyne, Matthew Brudenell, Joshua Harry, Vida Rajkovača, Phil Stastney

Five and a half millennia of agriculture in the Fens: new perspectives from large-scale archaeological data

The rich archaeological record of plant and animal remains from the Fens of Eastern England provides a valuable opportunity to investigate past agricultural practices and how those practices manifest in the archaeological record. As part of the ongoing Fenscapes project (McDonald Institute for Archaeological Research, University of Cambridge), we present a newly-compiled large-scale dataset comprising over 1.2 million archaeobotanical and zooarchaeological remains from across the Fens. Using this resource, we explore patterns in agricultural practice from the Neolithic onwards, while also considering how archaeological practice — including recovery strategies and recording frameworks — structure the patterns observed.

Results presented illustrate the potential of combining complex plant and animal datasets to develop more holistic narratives of past agriculture. Alongside this, we

reflect on key methodological constraints — including preservation bias, recovery intensity, and data comparability — and consider how agricultural change and continuity may be identified within these limits in a wetland landscape characterised by extensive development-led investigation.

3.40pm

Alex Bowers (University of Lancashire)
Allison Stewart, Jennifer Jones

Living off the Land: Food and Subsistence Strategies of the Early Medieval East Anglian Fens

The East Anglian Fenlands represents a particularly intriguing area of investigation for understanding how communities adapted to and inhabited challenging environmental conditions in the early Medieval period. Bulk carbon ($\delta^{13}\text{C}$), nitrogen ($\delta^{15}\text{N}$), and sulfur ($\delta^{34}\text{S}$) analysis of ribs from the cemetery population of Oakington, Cambridgeshire was used to investigate diet and exploitation of the landscape. Isotopic analysis reveals distinctive Fenland subsistence strategies with intensive wetland exploitation. Outlier $\delta^{13}\text{C}$ and $\delta^{34}\text{S}$ values of subadults may be indicative of dietary sources outside of the range for the Oakington population and alludes to small-scale movement between communities

4.00pm

Jack Eggington (Reading University/University of Lancashire)

Diet, health and social inequality in industrial London: an early life perspective (1789-1853)

The influence of socioeconomic status on health, morbidity and mortality is well documented for the Industrial Revolution, but its effect on early life diet and health is less clear. Bioarchaeological analysis offers the only means to directly observe this sensitive relationship.

Utilising both palaeopathological and chemical methods, this study provides a comprehensive understanding of the interplay between socioeconomic status, infant feeding practices, and the nutritional health of children in early life. Non-survivors (20 weeks gestation to 3.5 years postpartum), early life survivors (7-12 years) and adult females (18-45 years) from St. James Gardens cemetery in London (n=419).

The short use of St. James cemetery (1789-1853 CE) and defined social stratification, allows for the consideration of broad patterns of diet and health, and individual life histories. Vitamin C deficiency and deciduous caries provide evidence for nutritional health in early life. A sub sample of individuals was selected for nitrogen and carbon stable isotope analysis of incremental dentine collagen (n=37). This analysis provided direct evidence of breastfeeding duration, weaning age, and physiological stress.

The results indicate a complex picture of early life diet and health in London, with individuals suffering from nutritional stress regardless of social status. The peak of scurvy in infants (n=12/53, 22.6%), and high frequency of central incisor deciduous caries (n=8/139, 5.8%) suggests early weaning was practiced by some mothers. Stable isotope analysis revealed variation in breastfeeding and weaning duration, including short exclusive breastfeeding and physiological stress throughout tooth formation, highlighting diverse patterns of diet and health within and between social groups.

4.20pm

James Morris (University of Lancashire)

Horses NW European in early medieval funerary performance

This paper presents the results of synthesis of large mammals (Equus and Bos) recovered from over 100 early medieval cemeteries in Northwest Europe. It shows that for many communities' large mammals, horses in particular but not exclusively, were important parts of the funerary process and performance. In the British Isles these animal burials are linked with early medieval migration and acculturation, but on the mainland of Europe particularly around the Rhine's northern riverlands traditions of horse and cattle burials can be traced back to 'native' Roman period sites.

Re-examination of specific British sites, along with the wider European synthesis shows that many of these animals have been manipulated in some way before burial, including, skinning, partial dismemberment and burning. Suggesting the animals played a role in the above ground, pre-burial funerary performance; which not only reflected the perceived social identity of individuals and groups but was part of a wider ongoing process of social negotiation regarding human death and commemoration.