

<b>Institution: University of Aberdeen</b>
<b>Unit of Assessment: 17 (Geography, Environmental Studies and Archaeology)</b>
<b>a. Overview</b> <p>This submission relates to research in Archaeology and Palaeoecology at the University of Aberdeen. This Unit lies within the School of Geosciences at the University of Aberdeen. Major investment in establishing <b>Archaeology</b> as a new discipline since 2007 has complemented existing strengths in <b>Palaeoecology</b> (part of Geography &amp; Environmental Studies for RAE 2008), resulting in the newly combined research cluster of <b>Archaeology and Palaeoecology</b>. This integrated Research Unit represents a rapid evolution since RAE 2008, with a more than doubling of equivalent Unit size from 6.0 to 13.9 FTE, developing a distinctive international reputation that explores long-term human-environment relations with cultural development in their broadest sense. Our research currently operates within two principal and overlapping groupings: <b>Archaeology of the North</b> and <b>Human Palaeoecology</b>, with <b>Conflict Archaeology</b> emerging as a third new theme. Unlike many other longer-standing Units, our unique research strategy was originally conceived, planned and implemented within the burgeoning aspirations of the University of Aberdeen to establish itself as a “Global University of the North” and to promote research in the high latitudes, across the full disciplinary spectrum, from humanities to natural and physical sciences. As a result, <b>Archaeology and Palaeoecology</b> at Aberdeen has a high-latitude focus unique to the UK. With Scotland as its base, the Unit undertakes its’ principal research within the broad geographical sweep of the North Atlantic, Scandinavia, Northern Eurasia, the North Pacific and high-latitude North America. However, alongside this distinctive profile, our interdisciplinary research embraces broader global research questions whilst utilising diverse and novel approaches. As such, this Unit is growing rapidly and is developing new and complementary research strands, involving bioarchaeology, offshore archaeology (including submerged landscapes), and indigenous peoples.</p>
<b>b. Research strategy</b> <p>The long-term vision for this Unit is to develop a distinctive Aberdeen University brand, built upon dynamic and related areas of research. The Unit’s research culture is outward looking and international, one that explores big research questions in interdisciplinary and innovative ways. It has developed a collaborative approach to a select number of contemporary debates including migration and mobility, climate change, human-environment interactions, and culture-contact/change. These areas of activity have been significantly enhanced through the establishment of Archaeology as a new discipline and the carefully targeted investment of posts (9.9 new FTE’s in total). In this short time, the Unit has also directly benefited from opportunities afforded by University investment in strategic research priorities as outlined in the University’s Strategic Plan, and the Unit has contributed to three of the four institutional research themes (The North, Environment and Food Security, and Pathways to Healthy Living).</p> <p><b>Research Culture and Leadership:</b> The management structure of the Unit involves two research theme leaders - <b>Dobney</b> (Archaeology) and <b>Edwards</b> (Palaeoecology) - each tasked with fostering a culture of research and scholarship at all career stages. Each theme leader provides strategic direction for research based on individual strengths and ambitions, whilst the themes provide a broader forum for dissemination of new ideas, mentoring and peer review of research proposals and publications. <b>Dobney</b> sits on the Research and Commercialisation Committee of the College of Physical Sciences, which provides guidance on the scope and operation of research governance in close collaboration with the College Ethics Board, of which <b>Milek</b> is a member. Research synergies between Archaeology and Palaeoecology benefit from <b>Edwards’</b> position as Adjunct Professor within Archaeology. These synergies have generated several inter-connected research themes:</p> <p>i). <u><i>The Archaeology of the North</i></u> - Aberdeen and Scotland are at the heart of (and form one of the main doorways to) a vast region that extends across the northernmost third of the globe; the University is one of two UK representatives of the University of the Arctic network. Aberdeen’s ‘North’ encompasses northern Britain, Scandinavia and Baltic Europe, northern Eurasia and high-latitude North America – linked by the varied communities of the North Atlantic and North Pacific. Whilst in archaeological research terms the North holds huge potential as a greater world of past encounters and interactions, it remains a rather peripheral research priority of other established Archaeology Departments in the UK. The new Archaeology and Palaeoecology group at Aberdeen, <i>inter alia</i>, directly fills that void.</p>

Our Research within this broad theme is diverse, but critical mass exists in the early medieval period, particularly for the Viking era, which saw one of the most dramatic population diasporas in European history. The global impact of Viking culture lies at the heart of Viking research at Aberdeen (**Price, Milek, Hillerdal, Edwards, Schofield**, plus adjunct Chair **Stefan Brink**) and considers a watershed transformation of the North. Scotland is central to this perspective on the Viking world, and research at Aberdeen is funded by a range of bodies including Research Councils, charities and overseas sponsors. Our research strategy includes topics from palaeoenvironmental reconstruction and the impact of cultures on settled and non-settled lands, to the role played by domestic architecture in the structuring and negotiation of social relations. It includes centres of power, cultural interaction, North Atlantic settlement and the structure of Viking cosmology (the theme of a current Leverhulme Major Research Fellowship for **Price**). Our expertise in this area is significantly augmented by palaeoecological studies of climate change and human colonisation across the North Atlantic, with specific reference to Viking-Age human impacts on vegetation and landscape (**Edwards, Schofield**). The early medieval strengths of the unit are also evident in a new comparative project examining the transformation of small-scale tribal societies into medieval kingdoms of the modern nation states of Ireland, Scotland, Iceland, Norway, Sweden, and Denmark in a unique comparative context (**Noble, Milek, Brink, Price, Hillerdal, Foster**) and in a new project funded through a private donation examining the early Pictish Kingdoms of Scotland (**Noble, Sveinbjarnarson**). Research carried out in this theme has also developed unique perspectives on early town development in the North (**Price, Hillerdal**).

Northern diasporas of more recent times have also generated complex demographic and cultural outcomes of worldwide significance, and a major new focus of archaeological research at Aberdeen (funded by the Leverhulme Trust) is providing new insights into European migrant landscapes and intercultural relations in western Canada, by questioning older assumptions about narratives of loss, and investigating the creative and complex processes of colonial interactions (**Oliver**). Key highlights from several other 'flagship' research projects in this theme involve the interaction between humans and Arctic environments (**Knecht, Britton, Edwards, Schofield**) and the transition from hunter-gatherer to farming lifeways (**Noble, Wickham-Jones, Dobney, Cucchi**); Our distinctively 'Northern' research focus also incorporates the exploration of cultural landscapes and includes aspects of indigenous and community archaeology. Shifts in landscape perception that accompanied an early prehistoric agricultural lifestyle have been explored in new ways. These diverse projects have involved some of the largest excavations conducted in Scotland - e.g. at the third millennium BC monument complex at Forteviot (**Noble**). More recent socio-cultural identity and landscape transformations are also being identified in the post-clearancecrofting community at Bennachie (**Oliver, Knecht, Noble, Milek, Schofield**).

A particular focus in this theme has been a cutting-edge programme of archaeological fieldwork, ethno-archaeology and community archaeology in the Arctic. Prehistoric sites here rank among the best preserved in the world because they are often found preserved by permafrost. Our research on frozen sites on the Bering Sea coasts of Alaska has already generated new proxy data for rapid climate change in the region and one of the largest extant collections of prehistoric Eskimo material culture that is providing us with a very clear view of the complex maritime hunting and foraging technologies unique to Inuit/Eskimo. For this flagship project, we have the direct involvement and support of the indigenous Yup'ik community who wish to explore and re-connect with their lost past. Whilst Yup'ik culture is well represented in ethnographic collections in North America and beyond, it has remained almost unknown from an archaeological perspective until Aberdeen were invited to undertake research excavations at the Nunalleq site in 2009 (**Knecht, Britton, Hillerdal**). Our close collaboration with Yup'ik descendant communities in this endeavour is directly linking the past to the present, around important academic and political issues of identity (**Hillerdal**). This unique research focus is now supported by a £1.12m AHRC grant award.

ii). *Human Palaeoecology* – supported by a number of major RCUK grants (NERC, AHRC), UK charity (Leverhulme Trust) and international funding (Icelandic Government, Co-Reach), this theme was initially developed within, and principally driven by, our existing northern research agenda, but is not constrained by it. Human Palaeoecology at Aberdeen engages with advancing methodological and empirical palaeoecological research related to the origin, nature and rate of long-term environmental and climatic changes and its general or specific links to human behaviour and activity. Ranges of proxies are used through the application of palynology, non-pollen microfossils, geochemistry (**Edwards, Mighall, Schofield**), macrofossils, testate amoebae, and

stable isotopes (**Mauquoy**), supported by geochronologies (**Edwards, Mauquoy, Schofield**).

Current research projects address humanly-driven environmental impacts in Scandinavia, Greenland and South Africa (**Edwards, Schofield, Mighall**). Important and novel aspects to emerge from this group's recent research include refining the chronology and character of human-environmental interactions in pristine landscapes at high latitudes in the Northern Hemisphere (**Edwards, Schofield**). The first detailed chronologies for heavy metal (tin, lead and copper) deposition in ombrotrophic bogs within ancient British and continental ore fields have also been generated, with wide-ranging implications for European metallurgical history and understanding the influence of anthropogenic forcing on global biogeochemical cycles (**Edwards, Mighall**). Peat deposits in southern Chile and Argentina (**Mauquoy**) are the focus of quantitative reconstructions of late-Holocene climate change using testate amoebae and stable isotope analyses.

Bio-cultural co-evolutionary frameworks are also employed to examine the long-term temporal context of human-environment interactions using approaches involving geoarchaeology, bioarchaeology, biomolecules, advanced morphometrics and evolutionary theory. Thus, wholly new insights into the biology and process of domestication, commensalism and the spread of early farmers are also major research highlights of this Unit, along with past diet, health and living conditions. Key outcomes from this research have changed our understanding of the origins and spread of early stock-keeping in SW Asia and Europe, revealed new evidence for the timing and processes of pig domestication across Eurasia, challenged established models of Austronesian migration history (**Dobney, Cucchi**) and prehistoric arctic adaptation (**Britton, Knecht**), developed new approaches for reconstructing ancient diet and health (**Dobney**) and past human activity and living spaces (**Milek**).

iii). *Conflict Archaeology* - A new research trajectory for the Unit is the merging of conflict studies with the collaborative archaeology of indigenous communities. With funding from the U.S. National Park Service and the government of Palau, major surveys have been undertaken on the WWII battlefields of Peleliu Island, to record the best-preserved conflict landscape of the Pacific theatre - from an explicitly multi-cultural perspective - within the cultural arena of the Micronesian islanders (**Price, Knecht**). This work is developing approaches and techniques that are also being extended to past areas of conflict in the North Atlantic (Orkney Islands) and represent a major new direction for battlefield archaeology.

### c. People

**i. Staffing strategy and staff development:** Archaeology at Aberdeen was established in August 2007 with the appointments of one Professor (**Price**), one Senior Lecturer (**Jordan** moved on in 2013 to a Chair in Groningen) and one Lecturer (**Milek**), whilst staffing within the Palaeoecology group (**Edwards, Mauquoy, Mighall, Schofield**) has remained stable since 2005. Continued investment in archaeology resulted in staff recruitment within our distinctive 'Northern' brand, focusing first on Scotland (1xL: **Noble**) then on North America (1xSL: **Knecht**, 1xL: **Oliver**). The Unit later made appointments to strengthen Aberdeen's profile in human palaeoecology and archaeological science (1xP: **Dobney**, 2xL: **Britton, Cucchi 0.2FTE**). Our most recent appointments (2xL: **Hillerdal, Foster** & 1xP: **Collard 0.2FTE**) deepen the areas of expertise in Scandinavia and Scotland, circumpolar identities and ethnicities, human/cultural evolution and physical anthropology. Our future strategy is to appoint staff and research students who will be able to develop critical mass in these core areas of expertise and who are well placed to engage in both existing and new strategic research opportunities.

The Unit has implemented a proactive research development and implementation culture within each of the research themes, addressing the aspirations of all research-active members of staff. Review meetings (with the Head of Discipline and Research Theme Leader) are held quarterly with all members of staff individually to discuss and plan their specific research and publication strategies. Key documentation from a range of successful grants has been collated and made available to all members of staff in order to provide useful templates for new applications, especially to support early career researchers. As a result, the success rate for grant funding for the Unit has been high (73% by number of applications; 40% by application value over the REF period, with progressive year-on-year improvement). In addition, all academic members are monitored via the University's Framework for Academic Excellence, which details expected teaching, research and scholarship outcomes for each discipline, plus a statement of expectations regarding engagement with national and international research communities. A workload model and staff appraisal is overseen by the Head of School.

New staff benefit from procedures to assist early career academics through reduced teaching and administrative loads in their first three years, along with mentoring from a senior academic colleague. There is also support available through the Principal's Excellence Fund and Principal's Interdisciplinary Fund, which have been used to support, for example, foreign conference attendance and international ancient DNA, artefact replication and ethnicity and identity workshops. The University Development Trust has helped the Unit secure a significant private donation towards the Northern Picts project. The Unit has bi-annual "Research away-days and weekends" for both individual and group contributions, and feedback on specific research priorities and ideas, along with the wider strategic planning of the discipline. These structures and initiatives have facilitated cumulative growth in external research grant income from both senior staff (**Dobney** [AHRC; NERC; Wellcome Trust; BA], **Mauquoy** [NERC], **Price, Edwards** [LT; ERC; Carnegie; RSE] **Knecht** [AHRC; Carnegie]), **Noble** [AHRC; BA; Carnegie; Historic Scotland] and early career staff (**Britton** [AHRC; BA; Carnegie], **Hillerdal** [AHRC; Carnegie], **Oliver** [LT, AHRC, Carnegie], **Foster** [RSE; The Henry Moore Foundation]).

The Unit has made explicit efforts to break down and work across disciplinary boundaries and to build collaborative partnerships both within and beyond the institution. Thus every member of staff within the Unit has project partners from universities and institutions across the World including Europe, North America and Asia, as well as the UK, and two research colleagues (**Cucchi & Collard**) hold joint academic research posts between the Unit and their home Institutions (Musée Nationale d'Histoire Naturelle, Paris; Dept Archaeology, Simon Fraser University). Two of the Unit's RCUK and University-funded PDRFs (Evin & Owen) are currently based in each of these overseas institutions.

The research mentoring and strategy for internationalising research underpins staff (and student) development in this Unit. It has facilitated strong academic positions for departing PDRA/F's and PhD Students (several have recently taken up lecturing and research related positions at the Universities of Durham, York and SFU in Vancouver), and provided a crucial springboard for internal promotion of junior staff (i.e. promotion to senior lecturer of **Noble & Oliver** and promotion to Reader of **Jordan**). It has also provided grounding for more senior advancement - i.e. recent appointment of Peter Jordan as the new Director of the Arctic Centre, University of Groningen.

During the census period, the University sabbatical policy provided opportunities for **Edwards** to be the Christensen Fellow at St Catherine's College (Oxford), Visiting Scholar at the McDonald Institute for Archaeological Research, Visiting Fellow at Clare Hall (Cambridge), and Visiting Researcher in the Department of Geography and Geology, University of Copenhagen; **Dobney** to be visiting Professor (Laboratoires d'Excellence) at the Département d'Ecologie et Gestion de la Biodiversité, Musée Nationale d'Histoire Naturelle, Paris; **Price** to hold a Major Research Fellowship from the Leverhulme Trust, entitled "*Vikings Remembered: Funerary Drama and the Origins of Norse Mythology*" that provided three years of full-time study leave (spent as Visiting Researcher at the Department of Archaeology, University of Uppsala); **Noble** to obtain an AHRC Early Career Fellowship for 2012-13.

The University has been awarded an Athena Swan Award for its supportive environment for female researchers. It holds an HR Excellence in Research Award, which recognises alignment and implementation with the Concordat to support career development of researchers ([www.vitae.ac.uk/concordat](http://www.vitae.ac.uk/concordat)), as well as an Investors in People award. The unit promotes equality and diversity in all aspects of recruitment and training on equality and diversity legislation, and the University's E&D policy is compulsory for all staff sitting on selection or promotion panels.

**ii. Research students:** There has been a rapid increase in the Unit's PGR population (currently 17) and completion of PhD students in the REF period, with 5 funded by Research Councils & charities. Additional internationally funded studentships include a Commonwealth scholarship, an Overseas Research Studentship and one funded by the Ministry of Education, Taiwan (R.O.C).

All research students have a supervision team comprising at least two members of academic staff. The University provides supervisor training, whilst the College oversees a bi-annual progress review. Each PhD student is assigned a progress review panel when they commence their studies. Progression is contingent upon delivering a formal research presentation to the School and successful performance at an annual progress review meeting.

The training of research students follows institutional and discipline-specific requirements. All PhD students are required to engage in generic skills training which comprises a suite of courses

offered by the University's Researcher Development Unit. Subject-specific training is also provided within the Discipline.

Through a series of agreements and other formal collaborations, the Unit has encouraged and implemented joint research and exchange programmes that have significantly benefited postgraduate students. Several have spent time during their research careers at Aberdeen working in other UK and international research-active laboratories and institutions. These include the aDNA laboratory of Dr Greger Larson in Durham, the CNRS-funded Bioarchaeology Laboratory of Professor Jean-Denis Vigne at the Musée Nationale d'Histoire Naturelle in Paris, the evolutionary ecology Laboratory of Professor Jeremy Searle at Cornell University, USA, Prof Alan Cooper's Australian Centre for aDNA in Adelaide, and the Institute of Archaeology of the Chinese Academy of Social Sciences, Beijing (China). Our interdisciplinary and internationalisation agenda is also articulated in the number who are co-supervised (and in some case jointly funded) across other disciplines in Aberdeen (Anthropology, Biology, Chemistry, Computing Science, Medical Sciences, Psychology, Zoology) and other UK and International Institutions from Paris to Beijing (see above).

Specifically within the Human Palaeoecology group, PhD students (as well as post-doctoral researchers and junior staff) have also benefitted from participation in research events (as well as direct funding for training and pilot projects) from the two international (funded) Bioarchaeology networks directed by **Dobney** (BIOARCH & EUCH-BIOARCH).

With institutional, RCUK and international research network support, many of our PhD students have presented papers (and won prizes – e.g. best student paper, Royal Soc Chem EAP) at conferences held in the UK and overseas and have organised sessions at International conferences (e.g. the 2012 Quaternary Research Association Postgraduate Symposium; 2013 Society for American Archaeology Congress; 2012 European Association of Archaeologists Congress). The quality of our research culture is also reflected in our undergraduates, by our retention of a 'home-grown' Gates Scholar (Patrycja Kupiec) and the award in 2013 of the Society of Medieval Archaeology's John Hurst Prize for best undergraduate dissertation in medieval archaeology (Lindsey Stirling). The School holds an annual PhD poster exhibition, which doubles as a welcome event for new students each autumn, whilst PhD students participate in seminars across campus and beyond.

#### **d. Income, infrastructure and facilities**

Staff and research students in the Unit are accommodated in a single building on campus that provides space in the form of dedicated offices and meeting rooms for staff interaction. Research administration, technical drafting, cartographic support, digital imaging, map curation, IT and technical support and equipment maintenance are supplied by 10 dedicated research support staff. The Unit has seen significant Institutional investment over the last six years, particularly in general fieldwork equipment, dedicated laboratory and related equipment provision. This complements existing laboratory infrastructure for palaeoecology (a microfossil preparation lab, research microscope suite, and cold store). Subsequent to the appointment of **Dobney**, a newly refurbished multi-purpose Bioarchaeology laboratory and storage facility was equipped in 2010, which included the purchase of zooarchaeological comparative and teaching materials. With the subsequent hiring of **Britton**, a chemistry/isotope sample preparation laboratory was refurbished, with specialist laboratory equipment dedicated to bone chemistry and sample preparation for ancient biomolecules. With recent senior appointments in Medical and Biological Sciences, significant central investment has been agreed to establish a new **Centre for Genome-Enabled Biology and Medicine**. To be included in this Centre, the Unit has secured additional investment for a purpose-built ancient DNA facility – which includes the appointment of a post-doctoral research fellow, equipment and running-costs. More broadly, the active participation in the Scottish Alliance for Geoscience, Environment & Society (**SAGES**) continues to make available to the Unit world-class analytical equipment infrastructure and cooperation at the Scottish Universities Environmental Research Centre (**SUERC**), East Kilbride, including AMS dating and isotope geochemistry, as well as inter-institutional sharing of advice and equipment across Scotland.

Growth in staff numbers has been matched by significant growth in research income and spend during the census period. Substantial grant income has been secured from RCUK and UK charities. Successful major awards include: a second successive £1m international research programme grant (2007-11) to **Edwards** from the Leverhulme Trust for an interdisciplinary project that has developed high resolution, multi-proxy approaches to assess the complex environmental and economic relationships between immigrants and indigenous groups in medieval Greenland

and Scandinavia. **Edwards** is also Co-PI on the RELIC project (£250K, Leverhulme Trust), which is investigating 8 millennia of environmental and landscape change associated with pinewood colonization in the Cairngorms using dendrochronology, palynology, diatoms, geochemistry and landscape archaeology. **Mauquoy's** PATAGON project (funded by a £791k NERC award, 2012-15) is investigating Holocene land-ocean-atmosphere interactions in Tierra del Fuego. A joint £380K AHRC Project Grant (2007-2011) awarded to **Dobney** has systematised and reanalysed the published zooarchaeological record to re-evaluate the origins and spread of stock keeping from the Near East to Europe; and three NERC joint project grants totalling £2.3M have been awarded to **Dobney** which use new genetic and biometric techniques to revisit and resolve the domestication and dispersal of pigs (and now dogs) in the Old World and to challenge models of European and Austronesian migration history through animal proxies. A £159K Leverhulme Trust project grant (2012-2015) has been awarded to **Oliver** to explore colonial era inter-cultural relations in the western Canadian prairie; with a Leverhulme Trust Senior Research Fellowship Award of £150K to **Price**; two AHRC Community Engagement grants totalling £120K to **Oliver & Noble** to develop a community heritage research project at Bennachie; and a recent £1.12m AHRC Project Grant to **Knecht, Britton & Hillerdal** which will explore cultural resilience and climate change on the Bering Sea. An AHRC Early Career Fellowship of £70K was also awarded to **Noble**.

The Unit has also been awarded institutional research project investment under the University's strategic theme of 'The North' (~£200k over three years for four PhD studentships and two Post-doctoral researchers). Research programmes within this theme – i.e. *'Pathways to Power'* and *'Fragility, Adaptation and Resilience to Climate Change in the North'* – have been effective in securing external funding. An archaeological and palaeoecological study of the Northern Picts (**Noble Mighall and Schofield**) has received a significant donation (£260K) from a private individual/foundation, whilst investigation into environmental change during the Little Ice Age across Europe and the North Atlantic (**Edwards, Schofield**) has been augmented by an EU-INTERACT Programme award for palaeoclimate investigations in the Faroe Islands.

#### e. Collaboration or contribution to the discipline or research base

Leadership and contribution to research base: The Unit is proud of its influential role in the fields of Archaeology and Palaeoecology and of its collaborative and interdisciplinary approach to research and in the mechanisms it has developed to inform and deliver it. This approach has ensured that the Unit's research at Aberdeen has, in a short time, become integral to the wider research base of the discipline in the UK and internationally. All our flagship research projects involve a wide array of collaborators, partners and stakeholders from diverse institutions, disciplines and organisations. Our engagement with the local, national and international wider research community takes many forms. For example, our membership of SAGES (**Edwards, Mauquoy, Mighall, Schofield**), the Scottish Alliance for Geoscience, Environment and Society has broad, long-term benefits. The SAGES research pool consists of nine HEIs and one research centre (SUERC) and has been supported by c.£6.7M of funding from the Scottish Funding Council. This has brought investment in academic posts, PGR studentships, new facilities and equipment, and has provided funding to ensure that the benefits of shared resources and expertise are realised. SAGES is generating >£3M of new research income annually and has had major impacts on graduate training, knowledge exchange and the profile of UK geoscience.

Our agenda-setting research is also highlighted by our key role in international research networks:

- **Dobney** is Project Leader of the joint AHRC/EPSRC/European funded Co-Reach project *'European-Chinese Bioarchaeology Collaboration'* (EUCH-BIOARCH) and Co-Director of "BIOARCH" - a joint funded CNRS Projet de Groupement de Recherche Européen (GDRE) initiative exploring the *'Interactions between Holocene Human Societies and their Environments'*. He was also a member of a Cold Spring Harbor working group exploring *'DNA, Genetics and the History of Mankind'*; a NESCENT funded workshop on animal and plant domestication at Duke University, USA and Co-Director of a recent bid (PASTBioDiv) to the European Cooperation in Science and Technology, Trans Domain COST-Action.
- **Collard** is a P.I. (with **Dobney** as a member) of a proposed Canadian Institute for Advanced Research (CIFAR) working group entitled *'Human-Environment Interaction'*.
- **Price** was Co-Chair of the Medieval panel for the Scottish Archaeological Research Framework (ScARF) 2008-12, while **Edwards, Milek, Noble and Schofield** served on the Palaeolithic/Mesolithic, Neolithic and Archaeological Science panels.

## Environment template (REF5)

Recognition of the influential contribution made to the discipline by the research of Unit members can be seen in a variety of additional external posts and positions held, activities undertaken and special invitations made during the census period. Nearly 50% of the Unit academic staff hold honorary, visiting or joint positions at international centres of research excellence:

- **Dobney** is Visiting LABEX Professeur, Département Ecologie, Musée Nationale d'Histoire Naturelle, Paris and with LABEX Director (Prof Jean-Denis Vigne) is co-director of the previously mentioned GDRE BIOARCH research network.
- **Price** is Honorary Senior Research Fellow at the Rock Art Research Institute, University of the Witwatersrand, Johannesburg, South Africa, Visiting Researcher (2011-2014), Dept. of Archaeology and Ancient History, University of Uppsala, Sweden, and Member of the Laboratory for Past Disaster Science at Aarhus University, Denmark.
- **Cucchi** holds a CNRS junior researcher position at the Musée Nationale d'Histoire Naturelle.
- **Britton** is Associate Research Scientist at the Max Planck Institute for Evolutionary Anthropology, Leipzig, Germany.
- **Edwards** and **Milek** are both Adjunct Research Professors in the Graduate Program in Anthropology at the City University of New York (CUNY).

Invitations to deliver internationally renowned lecture series:

- **Edwards** became the 133<sup>rd</sup> Rhind Lecturer of the Society of Antiquaries of Scotland, presenting the prestigious Rhind Lecture series at the Royal Society of Edinburgh during 2012.
- **Price** was invited to give the prestigious Messenger Lectures on the Evolution of Civilisation at Cornell University, USA – entitled “The Viking Mind”

Invitations to deliver keynote addresses at international congresses:

- XVIII INQUA Congress (**Edwards**, 2011); the South African Association of Geomorphologists Annual Conference (**Mighall**, 2011); International Symposium on Biomolecular Archaeology (ISBA3), University of York and 60th anniversary celebrations, University of Basel Environmental Sciences Colloquium (**Dobney**, 2008 & 2013); The Vikings, Smithsonian, Washington DC, Persistent Piracy, University of Stockholm, and Viking Worlds, University of Oslo (**Price**, 2010, 2012 & 2013).

Conferences/conference sessions organised by members of the Unit include:

- CHAT (2010) Aberdeen (**Oliver**); Beyond Ritual: Monuments, Houses and the Late Neolithic of Northwest Europe (2013) Aberdeen (**Noble**); Scotland in Early Medieval Europe 2013 (**Foster**); Nocturnal Histories: witchcraft and the shamanic legacy of pre-Christian Europe (2009), Harvard, and Sutton Hoo: a Swedish Perspective (2011), Ipswich (**Price**); Session convenors at 11th ICAZ International Conference (2010) & 6th European Congress of Mammalogy (2011), Paris (**Cucchi**); Association for Environmental Archaeology (2010) Aberdeen (**Edwards**, **Mighall**, **Milek**), the International Palaeolimnological Symposium 2012 (**Mighall**), and the Society for American Archaeology annual meeting 2013 (**Dobney**). The Unit hosted the Association for Environmental Archaeology (AEA) Spring Conference (2010).

Further recognition of the research contribution and leadership role of the Unit is seen in the election of **Edwards** (already FRSE) to Membership of the Academia Europaea; award of the Gordon R. Willey Prize (2010) from the American Anthropological Association for the ‘most outstanding article’ appearing in *the American Anthropologist* over the period 2007-09 (**Edwards** co-author); **Cucchi** being awarded the CNRS Médaillés de bronze 2013; **Edwards** and **Price** being invited UK delegates for the membership-limited 16th Viking Congress (Reykjavík, 2009). **Edwards**, **Price** and **Schofield** being invited as national representatives for the (17th) Viking Congress in Shetland in 2013; Peer-review roles undertaken by Unit staff for international institutions and research organisations (e.g. Research excellence reviews for Australian National University; Research grant reviews for NSERC and SSHRC (Canada); NHMRC and ARC (Australia), NSF (USA), NWO (The Netherlands), SNSF (Switzerland) and the Carlsberg Foundation (Denmark).

Eight members of the Unit serve on the editorial boards of international peer-reviewed journals: *Journal of Archaeological Science*; *Environmental Archaeology*; *Earth and Environmental Science Transactions of the Royal Society of Edinburgh*; *Journal of Conflict Archaeology*; *Journal of the North Atlantic*; *Journal of Northern Studies*; *Medieval Archaeology*; *Viking and Medieval Scandinavia*, including positions as Co Editor-in-Chief, Deputy and Associate Editor.