

<p>Institution: Liverpool John Moores University</p>
<p>Unit of Assessment: 24 Anthropology and Development Studies</p>
<p>a. Context</p> <p>The Research Centre in Evolutionary Anthropology and Palaeoecology (RCEAP) conducts research at the frontiers of biological anthropology, catalysed by discovery-oriented field research in each of our research themes of <i>Social behaviour, ecology and conservation, Contexts of human evolution, and Human adaptation and variability</i>, and in an emerging theme in Forensic Anthropology. We actively engage with the main non-academic audiences for our research in biological anthropology ranging from the general public (both in the UK and internationally) to international Non-Governmental Organisations (NGOs, e.g. UNEP) and governments (China, Indonesia).</p> <p><i>Social behaviour, ecology and conservation impact</i></p> <p>Research observations gathered in the course of fieldwork investigating the behaviour of endangered animals are used to create characterisations of their requirements in terms of space and environmental resources. The main intermediate users of the research on animal behaviour are the national and international governmental agencies [Wich, Government of Indonesia, International Union for the Conservation of Nature (IUCN), United Nations Environment Programme (UNEP)] and conservation bodies (e.g. Dowell, Wheeler, the North of England Zoological Society; hereafter Chester Zoo). These organisations use LJMU expertise both in the form of published research and by using researchers as consultants. LJMU research underpins the formulation of conservation programmes, the establishment of game reserves (including Sichuan Forest, China, Dowell) and creation of conservation plans based upon habitat use and current deforestation (e.g. Gunung Leuser National Park, Sumatra, Indonesia, Wich, Santa Rosa National Park, Area de Conservación Guanacaste, Costa Rica; “Otoch Ma’ax Yetel KooH” Nature Reserve, Punta Laguna, Yucatan, Mexico, Aureli). We are developing new techniques to monitor wildlife and helping to embed these in a variety of tropical forest contexts (Wich, Conservation Drone Project, Africa and Asia). LJMU research has improved or changed conservation policy and/or practice (China, Dowell); changed public awareness around specific environments (China, Dowell, Mexico and Costa Rica, Aureli); and enhanced cultural understanding of conservation issues (China, Dowell; Mexico, Aureli). Society in general is the ultimate beneficiary through conservation of heritage which impacts on quality of life. More direct benefits include local communities which engage with conservation and stimulate ecotourism (Mexico, Aureli).</p> <p><i>Contexts of human evolution impact</i></p> <p>One area of research within this theme concentrates on the use of fossil mammals, particularly their postcranial remains, to reconstruct African palaeoenvironments in human evolution (Bishop, Moloro). This work also helps us to understand the behavioural repertoire of the earliest tool-using hominins. RCEAP staff work with the museums that curate collections from archaeological and palaeontological sites to ensure that fossil postcrania, even those which are not identifiable beyond the family level, are collected from the field and kept (Bishop, National Museums of Kenya [NMK]). In order to effect this change which has considerable resource implications, we needed to demonstrate the scientific worth of these specimens which had previously remained uncollected. Our work has added value to these remains and made them useful for palaeoanthropological research. It has underpinned changes in collection and curation practices, which has been adapted by field workers and by museums in Kenya and Ethiopia (Bishop, NMK, National Museum of Ethiopia [NME]).</p> <p><i>Human adaptation and variability impact</i></p> <p>Research on human evolution focuses on the biology, appearance and ecology of our human relatives. Unlike much research in this field which investigates evolutionary relationships, our research helps to flesh out the fossils. This is achieved by modelling form and function in an evolutionary context to obtain reliable reconstructions of the live hominins. We add value and impact to our research on human evolution by working with some of the major broadcasters</p>

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(notably the BBC, Discovery Channel, Channel 4 and their production teams, Wheeler, De Groote, See REF 3b, 1; 7 million viewers total of first broadcasts). We work closely with these organisations to magnify the impact of our research both in terms of the breadth and scope of its exposure to the general public. Our research also creates a positive economic benefit within the sector, by helping programming on human evolution to secure funding. The broadcast of these programmes has a positive impact on large viewing audiences, on original broadcast in the UK and in syndication internationally (more than 12 countries for Horizon, purchased for use on aircraft entertainment). Our research influences programme content and leads to heightened public awareness and understanding of human evolution.

Forensic Anthropology is an emerging area of research for RCEAP. LJMU research is developing morphological standards, which are specific to the southern Mediterranean region, for the identification and estimation of sex, age and life history variables from human skeletons. These standards are more appropriate to the populations and regions currently being investigated following recent conflicts and alleged crimes against humanity. These metric and non-metric standards are being evaluated for adoption by NGOs and agencies which are engaged in the recovery and identification of human remains in the aftermath of these conflicts (e.g. Forensic Unit, University of Athens, Committee for Missing Persons in Cyprus, Eliopoulos). RCEAP staff are also working with historic graves in Europe (Commonwealth War Graves Commission, Borrini). LJMU research is instrumental in the reconciliation process through helping to identify the dead and providing resolution for affected populations.

b. Approach to impact

The University's strategic intent is to share its knowledge, resources and skills, and to listen to and learn from the local, national and international audiences with which we engage. As part of this LJMU is a signatory of the Manifesto for Public Engagement (National Coordinating Centre for Public Engagement). The University formally recognises external engagement as one of its four criteria for promotion to Reader and Professor. Research impact in this UoA is supported through staff development grants (all RCEAP staff), ECR fellowships (5 awarded within RCEAP) which require researchers to consider impact as well as outputs of supported research. Furthermore, short absences to fulfil consultancy or other engagement responsibilities are managed internally to allow relief from teaching or administrative obligations. Our central Research and Innovation Services also offers training and advice about the formation of impact strategies, realisation and evidencing of impact. As an example of capturing impact, we have followed our interactions with the media through production of programmes, to changes in perception of human evolution as evinced by post-broadcast audience reactions following speaking tour (results in REF 3b).

RCEAP takes an active role in engaging users of our research. In the case of animal behaviour research, we seek to promote studies which are of value externally because they have the potential to inform conservation policy and practice (Aureli, Dowell, Wich). Our research into human evolution concentrates on form and function in our hominin ancestors; these are aspects of our evolution which are of considerable public interest (Wheeler, De Groote). To reach this audience we actively work with broadcasters (e.g. the BBC) to make television programmes for broadcast. Research on hominin environments additionally has practice implications for museums that collect and curate the remains on which these are based (NMK, NME, Bishop). Research into aging and sexing standards in Mediterranean European populations has important implications for identifying remains following conflict. Therefore we work with NGOs and units doing this important work (Forensic Unit, Athens, CMP, Eliopoulos; Commonwealth War Graves Commission, Borrini). This has improved the processes feeding into the post-war justice and reconciliation processes.

We have developed relationships with several media organisation (notably the BBC, Wheeler) in two ways. First, our staff contribute to programme content (often as a response to the production company approaching an expert, e.g. Wheeler, *Horizon*). Second, our long-standing relationship with producers has allowed us to influence programme content and representation of complex issues (e.g., the feasibility of representing aspects of human evolution for *Bang Goes The Theory*, Wheeler as described in REF3b 1). Researchers maximised impact of centre research through their involvement with mediating organisations such as the Chester Zoo, where researchers (Wheeler

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2000-present, Dowell 2009-2013) hold governing roles as Trustees. This role provides further scope to engage with commissioners of research and end users, such as other conservation groups and international NGOs and government agencies (Area de Conservaci3n Guanacaste, Costa Rica, Comision Nacional de Areas Naturales Protigidas, and Procutadaria Federal de Protecci3n al Ambiente, Mexico, Aureli). The nature of our relationship with the mediating users and beneficiaries of research is evidenced through, for example, external roles within conservation organisations (also Wich, UNEP, IUCN). Staff engage with end users directly (in the case of BBC Prehistory Autopsy Uncovered public lectures, 2013, De Groote), or involvement with locally-devolved conservation efforts (Mexico and Costa Rica, Aureli, Dowell 2008-2013, Zoo, Wich 2012-present, UNEP).

c. Strategy and plans

RCEAP members have agreed a strategy to support and develop opportunities for our research to create impact. First, we have agreed that impact will be a key consideration throughout the research process, from initial formation of ideas, through planning and grant application, in the execution of the research, and in production and publicizing of results and outputs. Second, we will engage with our current network of stakeholders to ensure that we avail ourselves throughout the range of users, from the general public through to governmental agencies. Finally, we hope to extend the reach and significance of our research impact through engagement with new stakeholders at all levels. To complement our current impact and maximise the potential for impact in future, we have the following objectives:

1. To fully explore the potential impact of our research on conservation by working closely with major NGOs and governmental agencies, but also with potential corporate partners, (e.g. Google and drone manufacturers)
2. To increase our engagement with organisations that use our research through participating in their governance (e.g. Chester Zoo, UNEP, IUCN)
3. To ensure that impact is an integral part of research and scholarship by imbedding external engagement in the planning, bidding and evaluation stages of all activities within RCEAP
4. To promote RCEAP activities and expertise more widely to our audience, particularly the general public, through targeted (press releases and press packets) and passive (social networks, Twitter) marketing
5. To accurately capture and document the impact of research via a RCEAP database

d. Relationship to case studies

Our two case studies demonstrate our active and flexible approaches to impact, where we engage with both intermediate and end users of our research.

LJMU research improves public understanding of human evolution through engagement with the creative and media sector shows the impact of this strand of RCEAP research on the public understanding of science. We have worked with the creative industries (BBC producers and production units) and directly engaged with the general public to produce this impact. The relationship of our staff and research with the production companies is demonstrated by on-screen appearances, production credits, and involvement with web content or post-screening publicity. It is also evidenced through financial information and statements from the producers and production teams involved. The impact our research has had on our intended audience is evidenced by viewing figures and survey results.

LJMU behavioural ecology research impacts conservation strategy and practice in Sichuan Province, China demonstrates engagement with a UK funding body (Chester Zoo, Dowell) and a Chinese government agency (Sichuan Forestry Department, Dowell) leading to the successful establishment of local conservation programmes in Sichuan (Sichuan Forest Biodiversity Project, Dowell) within four new reserves (total 100k ha). The impact of RCEAP research is evidenced by legislation, the implementation of conservation and monitoring policy, publication of consultancy reports. Impact is further demonstrated by the establishment of reserves which are defined, monitored and managed using principles established by Centre research.