

**Institution:** Liverpool John Moores University

**Unit of Assessment:** 24 Anthropology and Development Studies

### a. Overview

The Research Centre in Evolutionary Anthropology and Palaeoecology (RCEAP) focuses on biological anthropology. It was founded in 2004 and is one of two formally recognised research centres in the School of Natural Sciences and Psychology within the Faculty of Science at LJMU. Our position, in a science rather than a social science milieu, engenders a strong interdisciplinary and hypothesis-testing approach to our research, which has an emphasis on fieldwork.

Currently the main themes of research at RCEAP are

- *Social behaviour, ecology and conservation* (Aureli, Bethell, Mettke-Hofmann, Nichols, Preston, Wich)
- *Contexts of human evolution* (Bishop, Brown, Moloro, van Asperen)
- *Human adaptation and variability* (De Groote, Fernandez, Germond-Duret, Irish)

We embrace a strong interdisciplinary approach to our research in biological anthropology, which is supported by access to a wide range of Science Faculty staff, facilities and resources. We promote cross-fertilization with researchers to gain complementary expertise and effect productive collaboration. Examples of this include collaboration with physical geographers and geologists (*Contexts of human evolution*) and with ecologists and psychologists (*Social behaviour, ecology, and conservation*). Beyond our School, we are engaged in exciting interdisciplinary research with the Biomechanics research group of the Research Institute of Sport and Exercise Science (within the *Human adaptation and variability* theme). Further afield, we work with IT specialists and engineers in the Faculty of Technology and Built Environment on the novel use of drones on international conservation projects (*Social behaviour, ecology and conservation*). We do not take a silo-oriented approach to research and interact with all disciplines to make step-change advances in biological anthropology.

### b. Research strategy

#### Delivery of RAE 2008 strategy

Our Research Centre's strategy from RAE 2008 to the present had four main objectives: maintaining our focus on international, field-based research, increasing the critical mass of our research group, raising externally funded research, and improving opportunities for PGRs. We have had consistently strong institutional backing to deliver on all of these proposed goals.

We have improved our focus on and standing in **international field research**. We have active research projects in Kenya and South Africa (Bishop), and Mexico (Gonzalez) within the *Contexts of human evolution* strand, increasing our participation in discovery-led research. Within the *Social behaviour, ecology and conservation* strand, our field research and conservation projects have also expanded to include work in Mexico and Costa Rica (Aureli), Puerto Rico (Bethell), the USA (Mettke-Hofmann), Uganda (Nichols) and Indonesia, Malaysia, Nepal, amongst others (Wich). *Human variation and adaptability* theme fieldwork includes projects excavations in Belgium (De Groote), Egypt (Borrini, Irish) and Italy (Borrini).

We have greatly **increased our critical mass** of experienced researchers through strategic research investment by the University. We have been funded by the Institution's 'Inspire' strategic investment campaign in 2012 which fosters beacons of research excellence and has enabled two senior (Irish, Wich) and one junior (De Groote) appointments. Our group has increased from 9 FTEs in 2008 to 13.2 FTEs for REF 2014. This influx of new staff has helped build our expertise in established areas and also presented opportunities to coalesce research in new themes.

**External funding has improved** greatly, with income more than doubling from RAE 2008 to REF 2014 (see section REF5d) with grant and shared facilities support from AHRC, NERC, The Leverhulme Trust, The Royal Society and the European Commission. Funding for animal research has derived from the North of England Zoological Society, the United Nations Environment Programme, and most recently from the National Centre for the Replacement, Refinement and Reduction of Animals in Research.

**Improved opportunities for PGRs** have been created by strategic investment of QR funds into PhD studentships in the Faculty, of which RCEAP has received 4 (with 3 additional enrolling in Autumn 2013), with NERC algorithm studentships (1 completed, 1 writing up) and 6 completed (9 currently enrolled) self-funded MPhil students. We continue to develop programmes for taught (MSc) and research (MRes, MPhil) based post-graduate students within the Research Centre. We have 50% more completions during the REF window (12.5) than for RAE 2008 (8).

### Strategy from 2014 – 2020

Our strategic aim is to conduct research at the frontiers of biological anthropology, catalysed by discovery-oriented field research in each of our research themes of *•Social behaviour, ecology and conservation • Contexts of Human Evolution • Human adaption and variability*. We develop new and interdisciplinary approaches to answer the key questions in each of our research themes, where exploratory fieldwork is the starting point and newly developed analytical methods guide our directions. For the five years from 2014, our strategy will be to continue development of the four objectives which deliver these aims: maintaining our focus on international, field-based research, increasing the critical mass of our research centre, raising externally funded research, and improving opportunities for PGRs. We also aim to ensure the continuing development of our ECRs, develop research and consultancy in forensic anthropology (reflecting the interests of several new staff appointments), and to engage with intermediate and end users of our research.

Our **international, field-based research** will be maintained and enhanced by incoming staff who bring new projects to RCEAP. This is facilitated by the University's sabbatical scheme which allows researchers to take weeks/months away from the institution for fieldwork or other research. Field site supervision of PGRs has proven to be an important use of this scheme and has had a clear impact on their training. We will seek external funding to support such activities, including fellowships.

An **increase in critical mass** represents an important component of our research strategy and will be achieved through recruitment of PGRs, researchers and lecturing staff (see also REF5c.i). This will focus on recruitment of staff whose interests are directly of relevance or complimentary to the activities and remit of the research centre. These new staff will continue to catalyse cross- and interdisciplinary research within RCEAP.

Our **externally funded research** portfolio continues to grow and this is an area where improvements will carry on thanks to increasing support for grant writing through training, sabbatical leave and greater numbers of academic staff. We are instituting new subject oriented incubators for grant proposals within the Faculty. Several new projects are commencing in Autumn/Winter 2013, funded by the Leverhulme Trust and the National Centre for the Replacement, Refinement and Reduction of Animals in Research, with other applications pending.

We continue to improve our **PGR opportunities**. Building on recent successes, we will seek to further grow our PGR numbers and completions backed by external funding where possible (e.g. AHRC CDA submitted), by strategic investment of QR funding, and by making full use of the recently announced University scheme whereby partial funding generated externally through consultancy can be matched and used to increase PGR numbers.

**Continuing development of our ECRs** will be achieved through use of the resources of the University's Graduate School and external opportunities provided by Vitae, Research Councils and elsewhere to promote the continuing professional development of ECRs as researchers. We also

support ECRs locally within RCEAP through mentorship of junior staff by senior staff within each research theme. Further details are found below under REF 5c.i.

**Research theme development** follows the recruitment of researchers in forensic anthropology. Our intention over the next five years is to develop a new, multidisciplinary, research theme following the recruitment of staff active in international consultancy in criminal justice and international humanitarian legal cases. This group collaborates with the forensic science group within the School of Pharmacy and Biomolecular Science.

We will continue to **engage with intermediate and end users of our research** beyond the academy. We are committed to engaging with external stakeholders to ensure that we maximise the reach and scope of our research in biological anthropology. We will work with both end users (the general public, local populations near conservation areas) and intermediary translators of research (e.g. NGOs and governmental organisations on aspects of conservation policy and practice, and media companies leading on production of television programme development popularising research in human evolution and conservation). The first stage of this will be to develop specific content aimed especially at the general public as part of the redevelopment of the University's website in 2014.

Our research strategy and those of the University and Faculty are to promote an excellent environment for research in RCEAP. They allow the recruitment and development of the best staff and students. Our research income finances this environment further and is invested to foster quality at all levels. Targeted investment from the University and Faculty during the REF period has provided first class facilities which were designed for biological anthropology research.

### c. People, including:

#### i. Staffing strategy and staff development

##### *Staffing Strategy*

Our overall approach has been to recruit a balanced portfolio of staff both in terms of their specific expertise (alignment to research themes and objectives, growth of new areas) and experience (research leaders and early career staff). In doing so, we will continue to deliver our research and staffing objectives.

##### *International Staff Appointments*

RCEAP was one of nine LJMU centres or Schools to be selected for strategic research investment in 2012 through recruitment of experienced researchers. As a result of the Inspire Initiative, three new research lead posts were created following an international search (1 senior [Irish], 1 junior [De Groot] for *Human Adaptation and Variability*, 1 senior (Wich) for *Social Behaviour, Ecology and Conservation*).

These were complemented by a further 5 ECR posts. The broad nature of disciplines within the School in which the Centre is based has fostered our multidisciplinary research. New appointments in vertebrate palaeoecology, genetics and animal behaviour have joined our research group which has increased from 9 FTEs in 2008 to 13.2 FTEs for REF 2014, delivering our strategic aims from RAE 2008 to increase critical mass and enrich the remit of our research themes. Other appointments present an opportunity to coalesce research in forensic anthropology, part of the research strategy post-2013.

We have a global recruitment policy and RCEAP has proven to be an effective magnet for overseas candidates. Our group is highly international, attracting researchers from 8 European countries and the USA.

The development and career progression of new and established staff is a key element of our approach, both at University and Centre level. ECRs are supported through reduced teaching and administrative load and are assigned a mentor within their research area and extensive career support as outlined below (REF 5 c.i). One recent PDRA completed an EC Marie Curie Re-Integration Grant funded fellowship (0.2 FTE, 2010-2013) and has now obtained a Leverhulme

**Environment template (REF5)**

Trust fellowship funding her full salary and research costs as an independent researcher (van Asperen). The University invites applications on an annual basis for conferment at Reader and Professorial levels. Internally, two staff have been promoted from Reader to Professor during the REF period (Brown in 2009, Bishop in 2012).

As is the case for staff recruitment, staff dispersal is also international. Since RAE 2008 staff who have left LJMU have gone on to appointments in North America and Australia, demonstrating the competitiveness of those who have worked or trained at LJMU in the international arena. We have been able to maintain continuity and grow RCEAP despite changes in staffing during the REF period. Of the 9 FTEs submitted to UoA 42 Anthropology for RAE 2008, 1.2 FTEs are included in the current submission, which also include 2 additional FTEs who were submitted to other units in 2008. Two staff are senior recruits (see above, REF 5c.i) and the remainder are ECRs.

*Career Development Support*

Institutional policy for researcher career development is wide-ranging and delivered in modes that allow flexibility/customisation, including coaching and mentoring. LJMU fully supports the Concordat to Support the Career Development of Researchers. The University's provision is underpinned by the EC HR Excellence in Research award (from May 2012) and informed by outcomes from the Careers in Research Online Survey (CROS). Events targeted at ECRs include coaching, sessions on 'being an effective researcher', workshops on collaboration, creativity, writing skills, all of which are mapped against Vitae's Researcher Development Framework (RDF). The University's Research & Innovation Services operates an ECR Fellowship fund to specifically foster collaborative research and mentoring with some of the best academics at other institutions or research centres world-wide, from which 4 RCEAP ECRs have benefitted so far (Bethell, Borrini, Germond-Duret, van Asperen). Centrally-provided training and support for experienced or mid-career staff is generally more intensive and focussed, for example grant bid clinics and incubator workshops for principle investigators and research leaders.

New starters to the University attend a research induction and gain an overview of relevant professional services alongside the policy and procedural frameworks that underpin research at LJMU (research strategy, grant funding and management, research ethics, library resources, REF, RDF and associated training needs analysis etc.). RCEAP staff are encouraged to take up training in grant writing provided through Research and Innovation Services.

LJMUs annual personal development and performance review (PDPR) recognises research and related career development as distinct elements within it, enabling discussions around career training and guidance. PDPR also identifies areas for staff development, which is provided through the mechanisms described above. University funding is available to provide staff with training provided externally when it is identified via PDPR.

A formal workload allocation model operates and is rigorously monitored across LJMU. RCEAP staff workloads take research productivity into account when assigning non-research duties. The research allocation abates the required teaching time for staff members. The allocations are reviewed annually by the Faculty of Science Research Strategy Committee and determined by performance/research output. Newly appointed staff have their research allocations guaranteed for 3 years to allow them to imbed a research programme.

RCEAP staff are encouraged to avail themselves of the opportunities afforded by the University's sabbatical scheme to pursue significant projects, particularly field-based research. RCEAP staff can arrange their own teaching timetables, freeing shorter blocks of time to meet publication or grant deadlines.

With other Natural Sciences staff, we organise a well attended weekly seminar series which is managed by a team of ECRs. We have financial resources to bring in external speakers, and stress interdisciplinary research. Additionally we participate in the seminars organised as part of the Liverpool Evolutionary Anthropology Forum, based at the University of Liverpool.

**Environment template (REF5)**

All RCEAP staff are assigned appropriate laboratory space. The university supplies and constantly updates a networked PC for each member of staff. Staff have access to internal funding for research and staff development needs identified through PDPR (up to £1500 per person per annum; all RCEAP members have benefited). Joining staff have access to start-up budgets to access or acquire research equipment.

*Equality and Diversity*

Academic appointments and promotions to Readership and Chairs are routinely monitored (equality impact assessment) and reported in terms of equality and diversity. The University holds membership of the Athena Swann Charter. LJMU is working towards achieving the Athena Swann Bronze award by April 2014 in accordance with its Equality Objectives and Action Plan 2012-2017. Senior mentor roles are being introduced in 2014 to provide support and guidance to female researchers. LJMU is a Stonewall Top Employer. The Human Resources Team supports LJMU's staff network groups for Disability Equality, Cultural Diversity, and Lesbian, Gay, Bisexual and Transgender Staff which contribute proactively to policy development, decision making and inclusivity across the University. These also provide support and networking opportunities for staff.

**ii. Research students**

Over this REF period, RCEAP has had 12.5 FTE completions, increasing from 8 FTE for RAE 2008. There are 11 additional PhD students currently enrolled, 4 of whom should complete during 2013-2014.

*PGR training and support*

PGR students are supported by a supervisory team of two – three RCEAP staff with detailed knowledge of their project area. Postgraduate research student induction is compulsory and provided by the University's Graduate School (induction sessions are run on six occasions throughout the academic year). All research student supervisors are required to complete the University's Research Supervisors workshop.

Institutional data from the Postgraduate Research Experience Survey (PRES) is analysed at Faculty levels and available at School level. Highlighted areas of good practice within the School and Centre included in a recent Faculty report included use of School-specific PGR tutors to monitor progress and provide guidance, celebrating student success by writing to and rewarding superior progress and attainment and a dedicated PGR administrative team within the faculty.

Many PGRs participate in paid and voluntary undergraduate demonstrating. There is mandatory training provided by the University's Education and Academic Quality Services in teaching techniques (3i's Training). Successful completion of this training allows PGRs to become Associate Fellows of the Higher Education Academy, an important qualification for the academic career pathway. The Graduate School manages (from 2011-12) a competitive conference travel fund specifically to enable eligible postgraduate research students to present at an international conference (UK or overseas) and disseminate the findings of their research. To date, and following an application and review process, four RCEAP PGRs have been awarded funding. PGR students also benefit from RCEAP's partnership in the EU funded Erasmus Mundi AESOP partnership (2013-2017), which fosters exchanges to the other partner in Europe (12 HEIs, LJMU is the only UK partner) and South Africa (8 HEIs).

*Progress monitoring*

The University's Research Degree Regulations require that all registered postgraduate research students and their Directors of Study report annually on progress in line with the University's Code of Good Practice for Annual Monitoring. Annual Monitoring reports are collated at Faculty level and reported to the University Research Degrees Committee. Most PGRs register on an MPhil degree initially. After one year they apply to register for a PhD using an internal transfer report, which requires an extensive research plan and literature review. As part of this process, transfer reports are moderated and reviewed by the Faculty Research Degrees Committee and examined by an appropriate internal examiner.

As part of Faculty progress monitoring, students participate in the School research seminar scheme by giving short talks about their research, and all PGRs must contribute a poster and a paper on their PhD topics during the course of their career at the Faculty of Science Postgraduate Research Conference held annually, highlighted as another area of good practice in our PGR support. The students giving the best papers and posters are rewarded with a research bursary to finance their research.

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

##### *Income*

We have met our strategic objective from RAE 2008 and have doubled our research income for the REF 2014 period. Including shared facilities support from the funding councils, overall income for REF 2014 totals £690K compared to £288K in RAE 2008. This was achieved through major grant funding from The Leverhulme Trust (£276K) NERC (£204K) and AHRC (£20K) in the UK and the from several European grants (e.g. Marie Curie, FP7; £49K) with smaller grants from a range of other funding bodies. Other projects (National Centre for the Replacement, Refinement and Reduction of Animals in Research, The Leverhulme Trust) commencing, with several large, collaborative, bids pending.

##### *Infrastructure*

The development of and subsequent delivery of the Institution's research strategy is overseen by the University's Research & Scholarship Committee (URSC). This is chaired by a Pro-Vice Chancellor, ensuring alignment and communication with the University's Senior Management Team. The Research Degrees Committee reports to the URSC as do Faculty Research Committees.

The provision and development of appropriate policies and support for staff and PGRs is primarily the responsibility of Research & Innovation Services (which hosts The Graduate School). This includes, for example, the Research Code of Practice, ethics & governance, pre- and post-award support (including costing and pricing). Support for Open Access and Data Management requirements are provided by Research & Innovation Services in conjunction with the Library and IT Services.

##### *Facilities*

The research centre's laboratory space has benefitted from a £350K renovation in 2011-2013, providing specialist facilities for osteological and morphometric analyses, including computing and software. Our new laboratory space comprises six interconnecting but isolatable rooms, with natural light complemented by high specification benchtop lighting and retractable overhead electrical power blocks. There is a fully functioning preparation room for the cleaning and conservation of excavated material. We also use this space to house considerable collections of archaeological human remains for research and teaching. These are on long or short-term loan from the responsible organisations and housed at LJMU and comprise both domestic (Poulton Research Project, Cheshire UK n=439, Gloucester Museum, n=176, plus disarticulated material) and international collections (Sudan project, n=188) on loan for research.

The main laboratories house human osteological collections and morphometric and digitising equipment (microscribes, digital x-ray, laser scanner, digital calipers and associated computing facilities) for work on these and other material. Two additional labs allow collections on loan to be studied in isolation from the main collections. This new laboratory space has been an extensively used and valued addition to our workspace, and contributed to a lively research culture enjoyed by staff, PGRs and undergraduates.

The University has been investing heavily in Science Faculty facilities, with £34 Million in core and SRIF funding invested during the REF period, and £10-12 Million committed to refurbishment starting 2013. RCEAP researchers have access to any of the Faculty facilities, which including portable XRF for field use and laser granulometers (Bishop). The £7.4 million refurbishment of the 2100m<sup>2</sup> life sciences laboratories (opened 2013) houses £1.1 million of new equipment in purpose-built specialist units, including molecular genetics laboratories equipped for the extraction and

amplification of DNA from diverse sources (ancient and forensic DNA, Fernandez). A new life science support unit houses rodent-breeding colonies and holding facilities for non-mammalian vertebrates with adjoining procedural and experimental laboratories (Bethell, Brown, Nichols). The imaging unit is equipped for a wide range of microscopy and contains Scanning Electron, Tunnelling Electron and confocal microscopes. The new £25 Million Tom Reilly building, completed in 2009, houses well equipped, advanced biomechanics laboratories, where we collaborate with colleagues in the biomechanics research group in the Research Institute for Sport and Exercise Science (De Groote).

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

The Research Centre encourages engagement with the academic community and end users of research in biological anthropology. RCEAP members are involved in numerous international collaborations and dedicate time and resources to building the discipline. Irish organises yearly workshops on careers for ECRs at the annual meeting of the American Association of Physical Anthropologists. Amongst our activities since 2008 were participation on the organising committee for the Manchester meeting of the International Union of Anthropological and Ethnographic Studies (IUAES) in 2013, which had more than 1200 delegates from 64 countries, where we raised the profile of biological anthropology at this large international congress (Bishop, Aureli). In Liverpool, members organised the Quaternary Research Association's (QRA) Quaternary Vertebrate (QUAVER) meeting in 2011 (O'Regan) and the African Archaeology Research Day in Liverpool (2009, Bishop). We also organised the 2012 joint QRA/British Cave Research Association field meeting in northwest England (O'Regan).

We are actively involved in national and international bodies, contributing to research and administration. Our staff have been invited to present at international and national events as follows: Invited presentations at the UNEP Great Ape Survival Partnership Council meeting in Paris (2012, Wich), International Primatological Society congress in Cancun, Mexico (2012), Invited presentation at Great Ape Summit, Jackson Hole, USA (2013, Wich) Keynote speaker at International Testate Amoebae meeting, France (5th, 2009, Wilkinson) Frontiers in biodiversity: a phylogenetics perspective (Barcelona, 2010, Brown) and 7th international symposium of lacertids of the Mediterranean (Palma, 2010, Brown), and a presentation at House of Commons on trees and carbon sequestration (March 2012, Wilkinson).

Staff from the Centre have key roles on advisory boards and committees at international and national level, including: Chair of UNEP's Great Ape Survival Partnership's Scientific Commission (2007-present, Wich), Member of the IUCN Section on Great Apes Executive Committee (2012-present, Wich), Member of the Scientific Advisory Board of the Orangutan Land Trust (2012-present, Wich), AHRC Peer Review College (2012- present, Bishop), Education Committee of the Royal Anthropological Institute (2008-present, Bishop), Chair of American Association for Physical Anthropology Career Development Committee (Irish, 2007-present), Board of Governors, North of England Zoological Society (Dowell, 2008-2013, Wheeler, 2008-present, Chair).

We collaborate with numerous universities overseas (resulting in 8 co-authored publications and 4 projects involving PhD students) and also with several museum partners, including the National Museums of Kenya and the Smithsonian Institution (USA). We are partners in an Erasmus Mundus partnership for postgraduate and postdoctoral training, AESOP, led by the University of Toulouse with the University of the Western Cape, involving 12 European and 8 South African universities.

We lead the dissemination of science in scholarly publications via the editorial process. Members are or have been: Associate Editor of the American Journal of Physical Anthropology (Irish, 2008-2012), Associate Editor for the Journal of Human Evolution (Bishop 2008-2011); Academic Editor of PLoS ONE (2011-present, Mettke-Hofmann), Associate Editor of Herpetological Journal (2003-present, Brown) Associate Editor, Plant Ecology and Diversity (2012- present, Wilkinson), Editorial Board of Biological Conservation (2012-present, Wich). One member has been awarded a DSc from the University of Aberdeen, in recognition of his substantial and sustained contribution to science (2009, Brown).