

University of Cambridge
NERC Doctoral Training Programme

2016 PhD Studentships in Human Evolution

*Deadline for applications **January 6th 2016***

For details of the DTP and applications procedures go to

<http://essdtp.esc.cam.ac.uk>

Genomic insights into late Pleistocene African hunter-gatherers: ancient DNA from the hunter-fishers of Lake Turkana 10,000 years ago

Which bone for the harpoon? Exploring decision-making in complex hunter-gatherers using ancient protein

African biogeography, dispersals and human origins

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Genomic insights into late Pleistocene African hunter-gatherers: ancient DNA from the hunter-fishers of Lake Turkana 10,000 years ago

In recent years, ancient genomics has revolutionised our understanding of late human evolution. It has revealed previously unknown gene flow from Neanderthals and Denisovans, and thrown light on the process of modern human differentiation and adaptation in Eurasia. However, little is known of the genomic history of African populations. The combination of new powerful protocols for extraction/amplification of ancient DNA and the large number of

human fossils discovered by the IN-AFRICA project in northern Kenya, make this a unique opportunity to explore this critical question in human evolution. This project explores that extinct variation among a unique set of 10,000 year-old human fossils from Turkana, northern Kenya. It will apply cutting-edge techniques to overcome the constraints on studying ancient DNA from warm climates, and break frontiers in ancient genomic research.

Supervisors: Eske Willerslev (Zoology) and Marta Mirazón Lahr (LCHES, Archaeology and Anthropology)
NERC DTP B245

For further information contact: Marta Mirazón Lahr (mbml1@cam.ac.uk) or Eske Willerslev (ew482@cam.ac.uk).

Institutional information: <http://www.human-evol.cam.ac.uk/index.html> and <http://www.zoo.cam.ac.uk>

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Which bone for the harpoon? Exploring decision-making in complex hunter-gatherers using ancient protein

Hunting and gathering was the universal way of life of all human societies until the recent past. In many parts of the world, that lifestyle diversified in the early Holocene increasing the range of economic strategies and social structures, including in some areas a trajectory towards fishing. Understanding the social, cultural and demographic parameters that led major economic transitions in the past is important. This project uses the iconic African bone harpoon of the early Holocene hunter-fisher traditions of East and North Africa to explore raw material choice and foraging range of societies that exploited the rich shores of Lake Turkana 10,000 years ago. Using ancient proteins the project will identify the range of species selected as raw materials for the manufacture of barbed bone harpoons by

prehistoric hunter-fishers of East Africa. The range of species used will throw light on decision-making processes, and through their distribution, on the extent to which people had become tethered to the lakeshore. The project will also use residue analyses 3-dimensional scans to explore the the relationship between form and function.

Supervisors: Marta Mirazón Lahr (LCHES, Archaeology and Anthropology) and Eske Willerslev (Zoology)
NERC DTP B239

For further information contact: Marta Mirazón Lahr (mbml1@cam.ac.uk) or Eske Willerslev (ew482@cam.ac.uk).

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African biogeography, dispersals and human origins

Africa is the place of origins of our species, but where in Africa humans evolved remains unknown, and the routes of human dispersal within Africa and out of Africa remain controversial. The biogeographical structure of Africa – the zones of endemism, geographic barriers and dispersal corridors – is key to understanding the factors that shaped the pattern and process of human evolution. The project will use analytical and laboratory approaches to reconstruct the biogeographic regions of Africa diachronically, analysing co-variation in biome and habitat distributions through time, to identify 'hotspots' of congruence and mismatch with archaeological distributions. It will use ecological models, animal and archaeological distributions, and most of all, ancient DNA data on bovids to build a framework for understanding the evolutionary

geography of our origins. The project will use different analytical tools based on animal lineage patterns and species pools, basins and taxon-specific faunal distributions to build interactive maps of Africa in the last 15,000 years. That information will be used as a proxy with which to explore human evolution in Africa.

Supervisors: Robert Foley (LCHES, Archaeology and Anthropology) and Eske Willerslev (Zoology)
NERC DTP B234

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Institutional information: <http://www.human-evol.cam.ac.uk/index.html> and <http://www.zoo.cam.ac.uk>