Centre for Archaeological Science

Key Research Project

In search of the first Asian hominins: excavations in the Soa Basin of Flores, Indonesia

This 5-year Discovery Project (2010–2014) to Mike Morwood and Adam Brumm, and involving Gert van den Bergh, has been funded by the Australian Research Council (ARC) to establish fossil and behavioural evidence of early hominins in the Soa Basin on the eastern Indonesian island of Flores.

The discovery in 2003 of the small-bodied hominin *Homo floresiensis* in Late Pleistocene Liang Bua Cave on Flores has led to considerable debate about the origin of this new species. Initial interpretations suggested that *H. floresiensis* descended from *H. erectus* that became isolated on Flores ~880 ka and underwent a process of insular dwarfism. Alternatively, however, the origin of this species may lie in a much older lineage of diminutive and small-brained hominins. If the latter proposition is correct, there are fundamental implications for our understanding of the evolution and dispersal of early human populations in Asia. Testing this hypothesis, however, requires fossil hominin evidence from the earliest periods of human occupation of Flores.

This ARC Discovery Project is a collaborative effort with researchers from the Indonesian Centre for Geological Survey, (CGS), and targets key archaeological and paleontological sites in the Soa Basin, where there are well preserved faunal remains associated with evidence of Early and Middle Pleistocene hominin occupation (~1.0 to 0.65 Ma), and where distribution of early hominin activities across the basin provides insights into their adaptive behavior. Although there is a long history of research in the basin, we are currently undertaking a level of inter-disciplinary investigation and scale of excavation not attempted previously on Flores, and seldom in Southeast Asia. The principal aim of the project is to recover diagnostic hominin skeletal material, which will establish the identity of the earliest tool-workers in the Soa Basin and resolve the debate about the origin of *Homo floresiensis*. Our investigations will also greatly increase the resolution of the Pleistocene hominin
behavioural record from Flores and provide significant insight into the palaeo-environmental contexts of these early humans.

The first season of fieldwork took place in June-August 2010. Excavations were conducted at two key Middle and Early Pleistocene localities: Mata Menge (~880-800 ka), and Wolo Sege (~1 Ma). The former site is situated on the margins of an ancient lake and excavations yielded fossil Stegodon, Komodo dragon, murine rodents and crocodile remains, along with in situ flaked stone artefacts. The latter site, Wolo Sege, provides the earliest-known record of hominins from the Soa Basin (or elsewhere on Flores), and the excavations recovered an important collection of stone tools from stratified streambed and floodplain sediments. The first season of investigations was focused primarily on recording the wider geological and stratigraphic contexts of these sites, and taking further samples for dating and palaeo-environmental analyses. Subsequent seasons will involve the use of heavy machinery and large teams of fieldworkers to significantly expand the scale of excavations at Mata Menge and Wolo Sege, and at other Soa Basin sites with potential for revealing hominin fossils.

Main collaborators
- Fachroel Aziz: CGS, Indonesia
- Matt Tocheri: Smithsonian Institution, USA
- Bill Jungers: Stony Brook University, USA
- Michael Storey: QuadLab, Roskilde University, Denmark

Key publications