SUNDASIA: Evidence for the refugial nature of limestone forest biota on the Tràng An massif karst, Ninh Binh province, Vietnam

Shawn O'Donnell[1], Nguyen Thi Mai Huong[1,2], Ryan Rabett[1], Christopher Stimpson[1], Thorsten Kalhert[1], Evan Hill[1] and Fiona Coward[3]

[1]School of Natural and Built Environment, Queen's University Belfast

[2]Vietnam Academy of Social Sciences, Institute of Archaeology, Hanoi

[3]Department of Archaeology, Anthropology and Forensic Science, Bournemouth University

Abstract

SUNDASIA is a multi-disciplinary project focused on the archaeological, geological and ecological histories over the past 60,000 years of the Tràng An massif, a UNESCO World Heritage property in Ninh Binh province, northern Vietnam. Several lines of evidence from the project's current programme of palaeoecological, archaeobotanical and zooarchaeological research, as well as from previous work by RR and CS with the forerunning Tràng An Archaeological Project, support the view of Tràng An as a glacial and post-glacial refugium for different elements of limestone forest biota. Today, the massif forms a karstic landscape draped in limestone-adapted tropical and subtropical vegetation, and enclosing deep sheltered valleys through which a network of waterways links forests and rice paddies via caves at the bases of limestone cliffs. Last Glacial Period (LGP) climates, inundation during Holocene marine transgressions, and millennia of human land use on the karst and on the surrounding Sông Hồng (Red River) delta have exerted various pressures on biota and ecosystems within the broader landscape that have led to range contractions and shifts. In this poster we present evidence from floral and faunal remains recovered from palaeoecological and archaeological deposits which show the local resilience of elements of limestone forest biota through LGP climates and cycles of marine inundation, as well as suggestions that other elements that inhabited Tràng An in the past have contracted to refugia elsewhere. We draw attention to the implications of our data for the need and prospects for present and future conservation efforts focused on species as well as habitats.