

## RESEARCH UPDATE

## Amazonian Dark Earths in Western Amazonia?

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Western Amazonia is a large region that includes a global biodiversity hotspot (the Yasuni National Park) and which still retains large tracts of intact native rainforest. Along the Napo River (**Fig. 1**), which originates in the Ecuadorian eastern lowlands and discharges into the Peruvian reaches of the Amazon River, current human settlement is uneven and highly dispersed. In Ecuador, towns are associated with the encroachment of oil extraction activities and the expansion of the agricultural frontier; small villages are found along an expanding road network and also dot the banks of the main rivers; and small groups of nomadic peoples, some in voluntary isolation from our industrialised society, inhabit the rugged interfluvial terrain beyond the main rivers. In Peru, small villages dot the middle reaches of the Napo River and its main tributaries, and there are also reports of indigenous groups in voluntary isolation. Larger settlements become more prevalent in the lower Napo, closer to the Amazon River and within reach of the road network leading to the Peruvian city of Iquitos.

The Napo River was first explored in the 16<sup>th</sup> century AD by Spanish *conquistadores* who left some of the most intriguing accounts of lowland indigenous peoples in lowland South America. These and reports from the 17<sup>th</sup> and 18<sup>th</sup> century described

densely-settled, hierarchically-organised, riparian settlements that, as time went by, became increasingly overwhelmed by Old World diseases and slave raiding expeditions (Newsom 1996). Owing to a lack of written sources before the 16<sup>th</sup> century AD, only archaeological investigations can provide insights into the societies that existed in the region in pre-Columbian times. Archaeological evidence for pre-Columbian occupations along the Napo River, however, is quite unevenly distributed: the upper reaches of the Napo in Ecuador were explored by Smithsonian Institution archaeologists Clifford Evans and Betty Meggers, who established the backbone of the region's ceramic sequence (Evans & Meggers 1968). More recently, amateur collecting by missionaries (Cabodevilla 1998) and oil industry-funded archaeological contract work (e.g. Netherly 1997, Solorzano 2007, Arellano 2009) have provided additional assessments of different pottery and settlement types. In contrast, along the Peruvian middle and lower reaches of the Napo River, scientifically-documented archaeological evidence is virtually unreported (Bolaños 1990).

Supported by the British Academy, and thanks to scientific collaborations with Fernanda Ugalde (Pontifical Catholic University, Quito, Ecuador) and Santiago Rivas Panduro (Peruvian Culture Ministry, Loreto Division, Peru), Manuel Arroyo-Kalin is currently developing an international research project focused on the archaeology of the Napo River. A key theme is the presence of Amazonian Dark Earths (ADEs),

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**Fig. 1:** Western Amazonia, showing the research area of the project (purple). (© OpenStreet-Map contributors CC BY-SA licence).

which are anthropic soils of pre-Columbian origin generally regarded as proxies of large pre-Columbian sedentary occupations and, potentially, agricultural intensification (Arroyo-Kalin 2010). ADEs are ubiquitous in the Brazilian Amazon but have rarely been reported in western Amazonia (Arroyo-Kalin 2012), leading some to suggest that low population density was characteristic of the region in pre-Columbian times (McMichael *et al.* 2012). Through archaeological survey, the project is currently assessing on the ground whether this reported lack of ADEs is a reflection of insufficient archaeological survey or is indeed an archaeologically-significant observation. The project is also examining afresh the ceramic sequence of the Ecuadorian Napo River and assessing the extent to which it applies to occupations along the middle and lower Napo, Peru. Both lines of research are relevant to developing

a full account of pre-Columbian occupations in the region, to evaluating 16–17<sup>th</sup> century AD ethnohistorical accounts that suggest Tupi language speakers dominated large tracts of the upper Amazon and its main tributaries (Chantre y Herrera 1901), and to establishing the timing and direction of a pre-Columbian expansion of Tupian groups into the region (Lathrap 1970). Following two short field seasons (one of which also involved the participation of José Oliver, also at the Institute of Archaeology), additional fieldwork is planned for 2014 and 2015.

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