

Practice of farming reaches back farther than thought

February 20 2007

Ancient people living in Panama were processing and eating domesticated species of plants like maize, manioc, and arrowroot at least as far back as 7,800 years ago – much earlier than previously thought – according to new research by a University of Calgary archaeologist.

One of the most hotly debated issues in the discipline of archaeology is how and why certain human societies switched from hunting and gathering to producing their own food through agriculture. Dr. Ruth Dickau, a post-doctoral researcher in the U of C's department of archaeology, has used a new technique called starch grain analysis to recover microscopic residues of plants directly off the stone tools that people were using in Panama 3,000 to 7,800 years ago.

"These results add to the growing evidence that the earliest beginnings of farming were not centred in arid highland regions like central Mexico and the Peruvian Andes as once believed, but in the lowland areas and humid forests of the American tropics," Dickau says.

"What is particularly interesting is that these crops were originally domesticated outside of Panama; maize was domesticated in Mexico, and manioc and arrowroot in South America. Panama, as a relatively narrow land-bridge between the two American continents, was an important route for the human spread of food crops, and clearly a region where agriculture was practiced very early in history."

Dickau is the lead author of a paper appearing next week in the online

early edition of the *Proceedings of the National Academy of Sciences*, an internationally respected academic publication. The paper is titled "Starch Grain Evidence for the Preceramic Dispersals of Maize and Root Crops into Tropical Dry and Humid Forests of Panama."

Dry, arid areas favour archaeological preservation, whereas tropical regions typically don't – especially when it comes to foodstuffs. But with starch grain analysis, researchers are able to isolate residue from microcrevices in both ground stone and flaked stone tools and identify preserved starch grains under a microscope.

"The ability of starch grain analysis to identify plant taxa in the unfavourable preservation environments of western and central Panama confirms the importance of this method for establishing the presence of particular plant species, both domesticated and wild, in the subsistence practices of early inhabitants of tropical forests," the authors write.

Source: University of Calgary

Citation: Practice of farming reaches back farther than thought (2007, February 20) retrieved 25 April 2024 from <https://phys.org/news/2007-02-farming-thought.html>

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