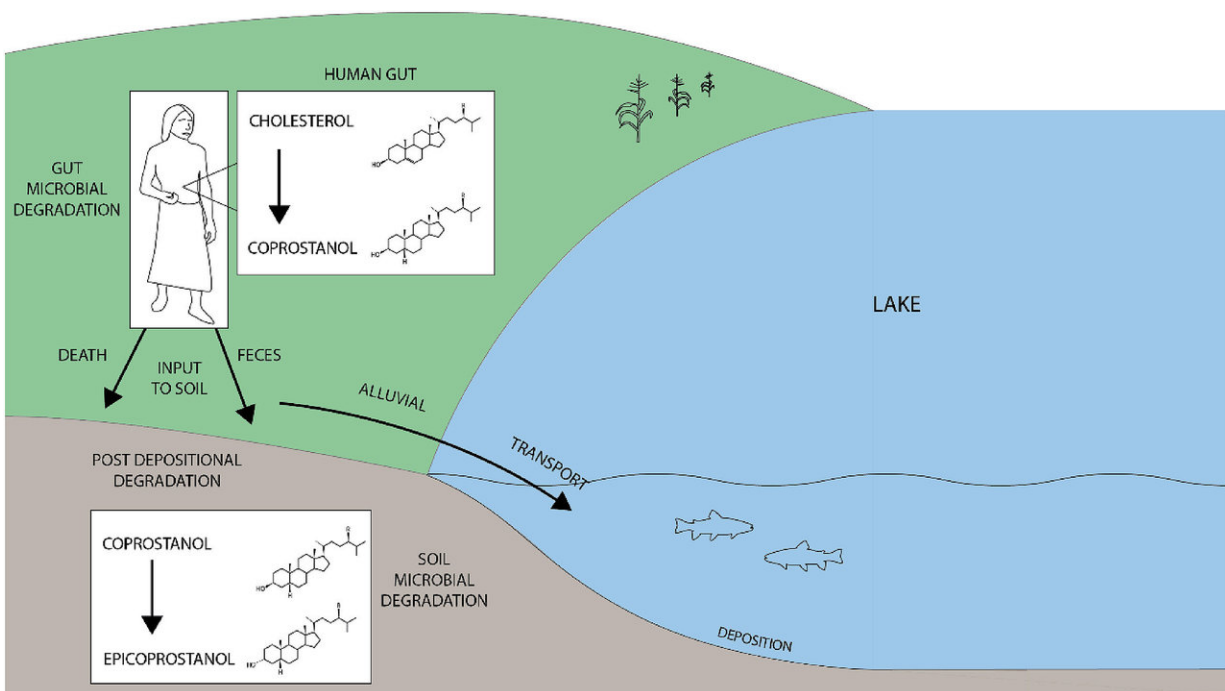


Scientists can measure population change through chemicals found in feces

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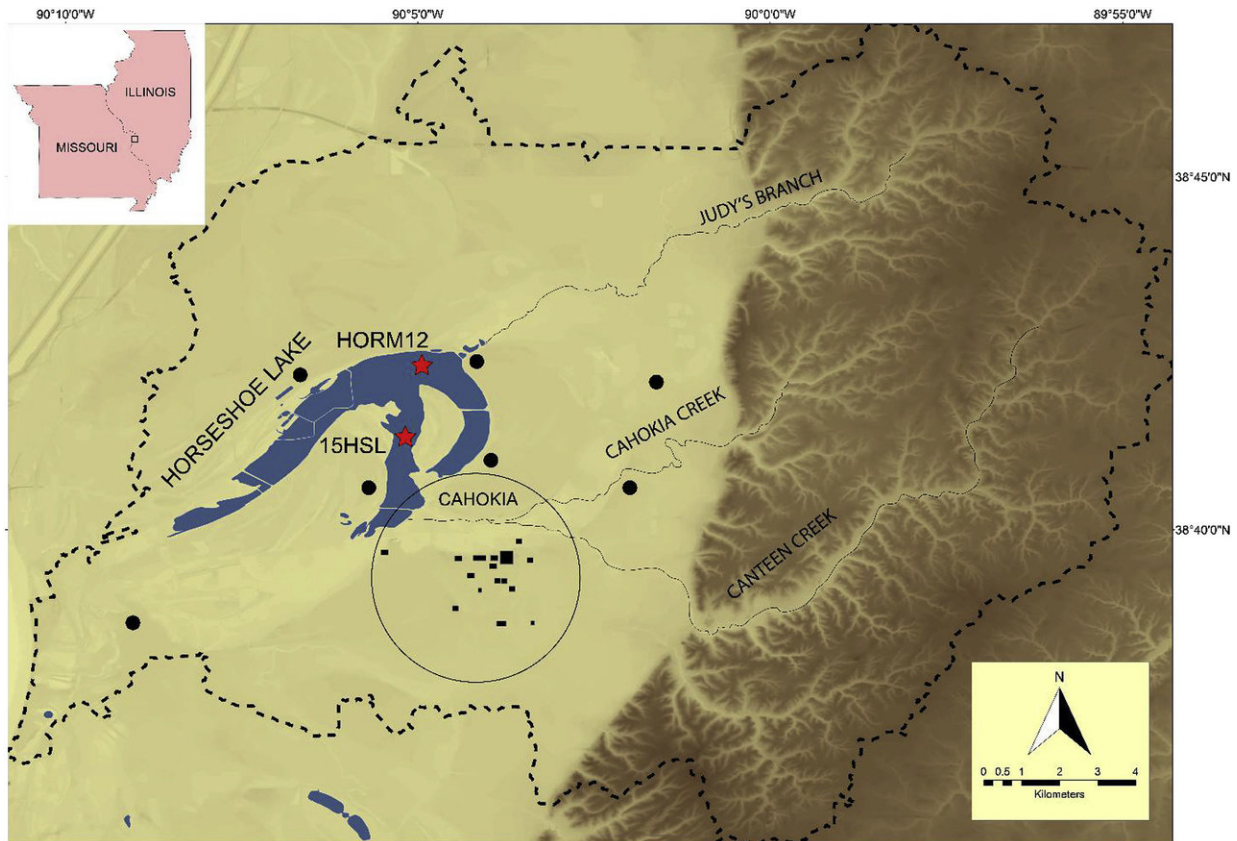
Schematic depicting the formation, deposition, and degradation of human fecal stanols. Credit: A.J. White, Lora R. Stevens, Varenka Lorenzi, Samuel E. Munoz, Carl P. Lipo, Sissel Schroeder

Fecal stanols—organic molecules—located in sediment can give archaeologists new information about population numbers and changes, according to new research by faculty at Binghamton University, State University at New York.

"Archaeologists have just begun to explore how biomarkers like fecal stanols can provide information on past populations," said Carl Lipo, professor of anthropology at Binghamton University. "Traditionally, we have used coarse proxy measures such as houses and artifact numbers. These measures are plagued with problems, as this evidence may or may not be directly connected to changes in population sizes. Conditions of preservation, changes in settlement patterns, limited observations, shifts in subsistence activities, alteration in burial practices and so on can all lead to changes in artifacts without there being a connection to the number of people in the past environment."

Although other human materials can be unreliable in terms of population prediction, fecal stanols, which contain traces of human waste products, can be a more accurate clue into the history of a settlement. These organic molecules are present in sediment for hundreds to thousands of years.

In collaboration with colleagues at California State University Long Beach, Lipo studied a method of [population change](#) in a settlement called Cahokia, located just outside of St. Louis. The site is the location of one of the largest prehistoric populations in North America, existing between 600 to 1,500 years ago.



Cahokia regional vicinity and Horseshoe Lake watershed, shown as the black dashed line. Coring sites are indicated by red stars. Cahokia largely consists of deposits that are within the large circle; black rectangles indicate the location of major Cahokian mounds. Black dots show the locations of small archaeological deposits (

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