



Media only: Michele Urie (202) 633-2950
Randall Kremer (202) 633-2950

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New Research Reveals the Earliest Evidence for Corn in the New World

Among the hundreds of plants that have been domesticated in the New World, none has received as much attention or been subject to as much debate as corn, or maize (*Zea mays* L.), arguably the most important crop of the Americas. Controversies have existed for years over what the wild ancestor of maize is and where and when it was domesticated.

An international team of scientists led by Dolores Piperno, archaeobotanist at the Smithsonian's National Museum of Natural History, and Anthony Ranere, professor of anthropology at Temple University in Philadelphia, have discovered the first direct evidence that indicates maize was domesticated by 8,700 years ago, the earliest date recorded for the crop. The research findings will be published March 23 in the journal, *Proceedings of the National Academy of Sciences*.

It is certain that maize was originally domesticated in Mexico from a wild plant called "teosinte," and genetic studies of modern populations of teosinte and maize suggested this event occurred somewhere in the Central Balsas Valley region of tropical southwest Mexico. However, no research on early prehistoric human settlement and agriculture had been carried out there. Piperno and the team searched this region of Mexico for locations that showed human occupancy for the time period they thought to be critical to maize domestication, from approximately 8,000 to 9,000 years ago. They discovered sites dating to this age, excavated them and analyzed the stone tools and plant remains they retrieved. Microfossil (starch grain and phytolith) analysis from a rock shelter called Xihuatotla, conducted in part with Irene Holst at the Smithsonian Tropical Research provide direct evidence for the domestication of maize and a species of squash.

"Our findings confirm an early Holocene age for maize domestication and indicate that it is another important New World crop that had its origins in the tropical forest," said Piperno. "Much more work needs to be done in the Central Balsas region to investigate even earlier periods when teosinte must have been exploited by early human populations and then initially cultivated."

The evidence corroborates a large quantity of previous research carried out in the lowland tropical forest south of Mexico by Piperno and other investigators that indicated maize spread to

Panama approximately 7,600 years ago and was well established in northern South America about 6,000 years ago.

The archaeological record establishes tropical southwest Mexico as an important region where early agriculture occurred in the New World and adds maize to the roster of important cereals (others are wheat and barley from the Middle East) that were cultivated and domesticated by 9,000 years ago. The team's findings also contribute to the growing body of evidence that seasonally dry tropical forests were important centers of early human settlement and farming in the Neotropics. Early agriculture in this region of Mexico appears to have involved small groups of cultivators who were shifting their settlements seasonally and engaging in a variety of subsistence pursuits.