

**ARIZONA**

# UA study: Mayan hunters, farmers worked together

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**Key Points**

The plaza was built in 950 B.C. after maize production took off and more people started settling down.

It acted as a ceremonial gathering space for groups in the area.

The plaza predates permanent residences by centuries.

Anthropologists have long believed that early societies didn't construct public buildings until after they transitioned from mobile hunter-gatherers into sedentary farmers.

But a new University of Arizona study based on research in Guatemala contradicts those assumptions.

Mayan mobile hunter-gatherers and sedentary farmers in Ceibal, Guatemala, worked together to build a ceremonial center long before people in the Mayan lowlands transitioned into a fully agricultural society, according to a paper published in the *Proceedings of the National Academy of Sciences*.

"People tend to think that the faster you get settled, the faster you start building," said Takeshi Inomata, the paper's lead author and director of graduate studies at UA's School of Anthropology. "Actually, the ceremonial structure happened at the beginning."

Inomata and co-researchers, including fellow UA professor Daniela Triadan and graduate students Jessica MacLellan and Melissa Burham, found a plaza dating to 950 B.C. Surrounding ceremonial buildings dated to 800 B.C.

Both ancient construction projects came after maize production took off in 1000 B.C., eventually leading to adaptation of an agriculture-based society across Mesoamerica.

But centuries would pass before the first substantial residences were built in Ceibal, around 700 B.C., and well before permanent residences became common, around 300 B.C.

Researchers already knew the transition from hunter-gatherer to farmer can take centuries.

"Some people may start to settle down, but lots of people remain mobile," Inomata said. "It's like any other new technology or new way of life. Some people adapt to it and others don't like it."

Previous research assumed that mobile and sedentary groups were separated. Harvard researchers in the 1960s established that Ceibal was one of the earliest sedentary communities in the region, but the UA research shows mobile groups co-existed in the area.

Roving groups worked with the settled residents to construct the plaza, and both groups used it for ceremonial purposes, Inomata said.

Excavations revealed jade, one of the most valued materials of the time, that appeared to have been given as some sort of offering.

"It would have been a binding place for the community," Inomata said.

Agriculture definitely had an impact on the transition from a largely mobile to primarily sedentary culture, Inomata said. So did the development of ceramics, which also came around 1000 B.C. These factors, along with construction of the ceremonial gathering space, worked together in important ways in Ceibal's development, Inomata said.

"This kind of gathering probably played an important role in becoming a sedentary society," he said. "If they got together for this kind of ceremony, they're sharing."

The team started working on the Ceibal site more than 10 years ago, and Triadan, MacLellan and Burham are still working in the field.

The graduate students are now primarily studying residential areas built after the ceremonial plaza.

MacLellan's work centers on a section of Ceibal called the Karinel Group. The area was named Karinel, "fisherman" in the Q'eqchi Mayan language, because researchers found many fish remains in trash pits there.

The Karinel Group was settled in 850 B.C. but permanent structures didn't appear until 600 B.C., MacLellan said in an e-mail from Guatemala.

She started work at the site in 2012 and is now finishing her investigation for a dissertation on domestic rituals in the era from 1000 to 300 B.C.

"One of the most exciting discoveries in the Karinel Group was a very early burial in a cavity in the bedrock," she said. "This burial is significantly older than the house platforms in the area and it shows that the burial customs of Ceibal's earliest residents were different from those seen at other early Maya sites."

The team doesn't rule out the possibility that earlier residential buildings existed in the area, but later construction limits where the researchers can dig.

They are, however, confident that Ceibal society had not yet started rebuilding residences on top of existing ones, which would be a key indicator of a truly sedentary culture.

Research by Inomata, Triadan and other faculty members in UA's School of Anthropology working on similar projects in the Southwest, India, Tibet and the Mediterranean helps understanding of not just past societies but modern ones, school director Diane Austin said.

"We can learn a lot from what we have done in the past as we work on problems today," Austin said. "Especially while we're paying attention to changing climates and changing environments, it's helpful to know how other cultures adapted to their own changing environments."



