

Evidence of Ancient Towns Found in Amazon Basin

Hillary Mayell, National Geographic News. Sept. 25, 2003

Far from being a pristine wilderness prior to Columbus's arrival in the New World, parts of the Brazilian Amazon more closely resembled a pre-historic version of urban sprawl.

Michael J. Heckenberger and colleagues have identified at least 19 settlements dating from A.D. 1250 to 1600 in the Xingu region of Brazil's Amazon forest. Connected by a complex set of interlinking roads, the villages were defined by ditches, curbs, moats, open parklands, and working forests. The researchers estimate that some clusters of six to 12 villages may have been home to as many as 2,500 to 5,000 people.

"The idea that people lived in small, dispersed, autonomous villages, moving around and living in a delicate balance with nature is just a fantasy," said Heckenberger, an archaeologist at the University of Florida. "Five hundred years ago Amazonian society was comparable with developments in North America, Africa, Asia, much of temperate Europe in 1492, in terms of scale and sociocultural innovation."

"The region supported a fairly dense, settled population," he said. "The Xinguano people built their villages according to a very clear plan, at a very large scale, and all of them are interconnected with one another. The sophistication of the layout bespeaks a knowledge of mathematics, architecture, astronomy, and engineering."

The study is published in the September 19 issue of the journal *Science*.

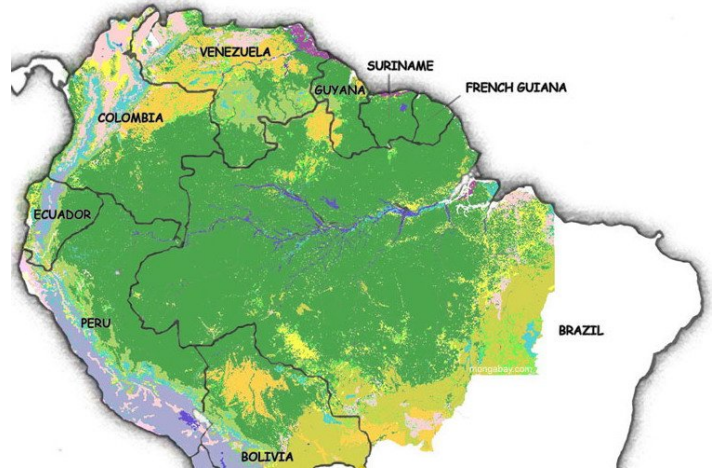
Looking at a Regional System

Heckenberger and colleagues mapped all of the sites within a 15 mile by 15 mile square (24 by 24 kilometers) in order to understand the study area as a regional system.

Dating from roughly 400 to 750 years ago, the 19 villages are approximately two to three miles (three to five kilometers) apart, connected by straight roads that have curbs and are as much as 165 feet (50 meters) wide in some places. Each village has a central circular plaza. Ditches up to 1.5 miles (2.4 kilometers) long and 16 feet (5 meters) deep surround the villages.

Other structures include bridges, constructed ponds, canals, and raised causeways. To support such a dense population, farmers converted surrounding forest to grow manioc, fruit orchards, and large fields of grasses for thatched houses.

"What's really exciting are all these roads that radiate out of plazas, showing there must have been a lot of social interaction," said Clark Erickson, an anthropologist at the University of



Pennsylvania and the University Museum. "These were large towns, maybe even small cities, being found in what is really pretty much Amazon hinterlands. It's really quite spectacular in an area we didn't think could support that kind of population."

The sheer size of the earthwork structures is part of a cultural aesthetic that held symbolic and social importance, rather than economic functionality, said Heckenberger.

"They build big things. We have a tendency to think of Amazonians engaged in an ongoing struggle with nature, and that everything they do is based on economic need or value," he said. "But these people overcame that and it stimulated quite phenomenal cultural and social elaborations of the environment. The socio-cultural complexity is significantly more than what we expected, and shows the Amerindians were amazingly sophisticated cultural innovators."

Erickson, who has worked extensively in the Bolivian Amazon, concurs.

"This research overlaps what we're finding in Bolivia. It shows massive transformations of the landscape through agriculture, transportation, and controlling water, using pretty sophisticated engineering techniques," he said.

Arrival of Spanish and Portuguese about 1600 brought Old World diseases, slavery, missions, and resettlement, depopulating much of Amazonia within 100 years.

Myth of the Pristine Environment

The findings have implications for economic development of the Amazon today.

The Amazon is a notoriously hostile environment for agriculture. Some research indicates that fields may need to be left fallow for as long as ten to 30 years before they can be replanted, said Heckenberger.

"If that's the case, think of the enormous amount of space needed to maintain active production. It's hard to imagine there was much of the land that was big tracts of untouched forest," he said. "What forest there was, was there because they intentionally left it there. And it was a working forest, known to them, not some sort of primordial wilderness."

Some conservationists argue the Amazon is pristine wilderness that wouldn't survive encroachment by humans.

"Finding large scale population centers in such a remote region of the Amazon adds weight to the idea that there are no pristine patches of nature," said Erickson. "The extent and dating of modifications [identified in the Heckenberger study] show the impact of humans was substantial, profound, and long-lasting."

"This shows it's not an all-or-nothing type of deal: Let's cut it all down or we can't let anybody in it because it's pristine and never been touched by human hands," said Heckenberger. "The Amerindians essentially transformed the entire forest landscape. But they did it in a sustainable, not destructive way."

