Archaeology at Petaga Point Includes Both Traditional and High-tech Methods.

Tradition

The Petaga Point archaeological site in Mille Lacs Kathio State Park is best known for the discovery of 3,500-year old copper spear points, knives and other utensils. Archaeological and historical investigations at the site have also revealed evidence of a village from the 1600s and a Depression-era farmstead. Archaeological research at Petaga Point has resumed over the past seven years, directed by Jim Cummings from Kathio State Park and David Mather of the Minnesota Historical Society. When planning the renewed research at Petaga Point, Cummings and Mather decided to include public education as a major component.

In 1967 excavations conducted by University of Minnesota archaeologists revealed the subtle remains of an ancient house that had apparently burned. Nearby, the archaeologists noted other depressions, suggesting that the house may have been one of five, in a village setting.

"One of the reasons we decided to renew investigations where archaeologists had found the remains of a prehistoric house is that we have access to more sophisticated scientific testing than they did in the 1960s," said Mather.

A traditional method of research is to open up a grouping, or *block* of 1-meter square excavation units. Each 1-meter square is carefully excavated and recorded. This results in a lot of data, including what is essentially a 3-dimensional map of each excavation unit. This way, archaeologists seek to understand not only the objects that are found, but their association with other objects, features and soil deposition of the site. In other words, the archaeologists are not just looking for objects, they are looking for information. In archaeology, there is often as much information learned from exactly where an artifact is found and with what it is associated, as from the object itself. Archaeologists call this "context." Or, as Cummings and Mather like to put it: "Archaeology is actually more like CSI than Indiana Jones."

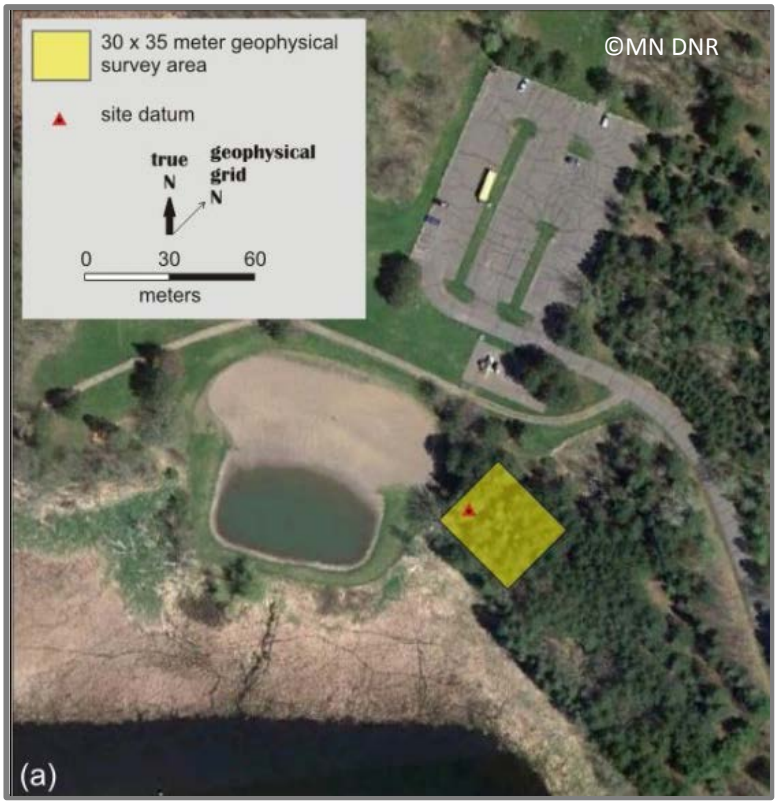
The renewed research at Petaga Point is being done with standard methods, but with a unique twist: Mather and Cummings are excavating only one square meter each year. In archaeology, more time is actually spent cataloging and analyzing artifacts and writing up the results than is spent excavating. "We figured we could afford to devote about 5 days on this public education and research project each year," Park Naturalist Jim Cummings said. "We spend one afternoon opening up the excavation and preparing for public interaction.

Another day is for observation by school classes and one day is for park visitors to see the excavation in progress. We spend a lot of this time explaining the excavation and research, so it takes another day to finish up the 1-square meter excavation unit. The rest of our time is spent on analysis and writing up our findings." They began this long-range project in 2006, so they have excavated seven square meters thus far. Each year on the last Saturday in September the public is invited to watch. In 2013, ***Kathio Archaeology Day*** will be held on September 28.

Detailed analyses of charcoal and soil from the current excavations at Petaga Point suggest that the dwelling they are excavating, which is near the one excavated in 1967, had also burned. It was made of pine and spruce poles, and covered with a lattice of sticks and mud, what is referred to as 'wattle and daub.' It was likely occupied briefly in mid-summer, according to the remains of charred berries, seeds and other plant remains recovered. Another developing theory is that this structure was an earth lodge, with a floor dug into the ground. Radiocarbon dates indicate that the house was occupied in the late 1600s.

High-tech Archaeology

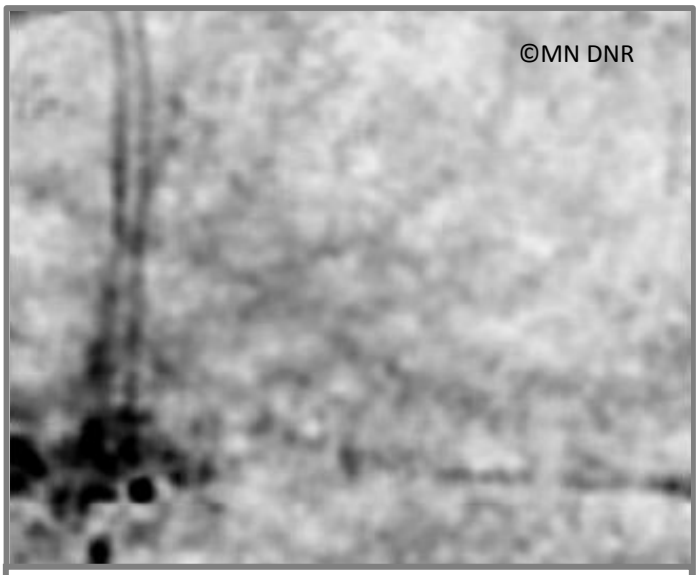
One of the problems with the continuing research at Petaga Point is that most of the 1967 documentation was lost in a house fire. Some good summaries have been written and some maps and notebooks remain, but the bulk of the detailed field documentation is not available. One of the complications that this brings to the current research is that the archaeologists do not know exactly where some of the previous excavations were conducted. Enter high-tech specialist Dave Maki. Maki runs an archaeological research company called Archaeophysics. When he heard about the renewed research and the need to know the exact location of the previous digs, he offered his services as part of the research team. He conducted an archaeological survey of the project area without ever breaking the ground surface.



Maki utilized a series of tests, known collectively as a geophysical survey. Ground-penetrating radar, magnetic field gradient and electrical resistance surveys were conducted in a 30 by 35-meter area surrounding the current excavation units.

Ground penetrating radar detects anomalies, or differences in soil composition, such as would be made by compaction, excavation or other disturbances.

In his electrical resistance survey, Dave Maki ran electrical current though the ground. Charting the travel of the current helps him "map" what lies beneath the surface.



The geophysical testing revealed a road from the 1930s and possible locations of ancient houses, as well as clues to where archaeologists had excavated in the 1960s.

By combining the data from the three surveys into a multi-layered look at what's beneath the surface, Dave Maki has come up with a data set showing possible locations of archaeological excavation units from the 1960s, a road from the 1930s and even what may be pathways to the houses in a village from the 1600s! The next step in this process is to "field test" these areas and locate the features. One thing that needs to be noted: Dave Maki did all this high-tech research as a donation to the archaeological research at Kathio. We are very appreciative of his valuable contribution to the research.

Dave Maki of Archaeophysics LLC has posted his survey results online as what he calls an "interactive research tool." Find it: www.archaeophysics.com/files/21ml11/