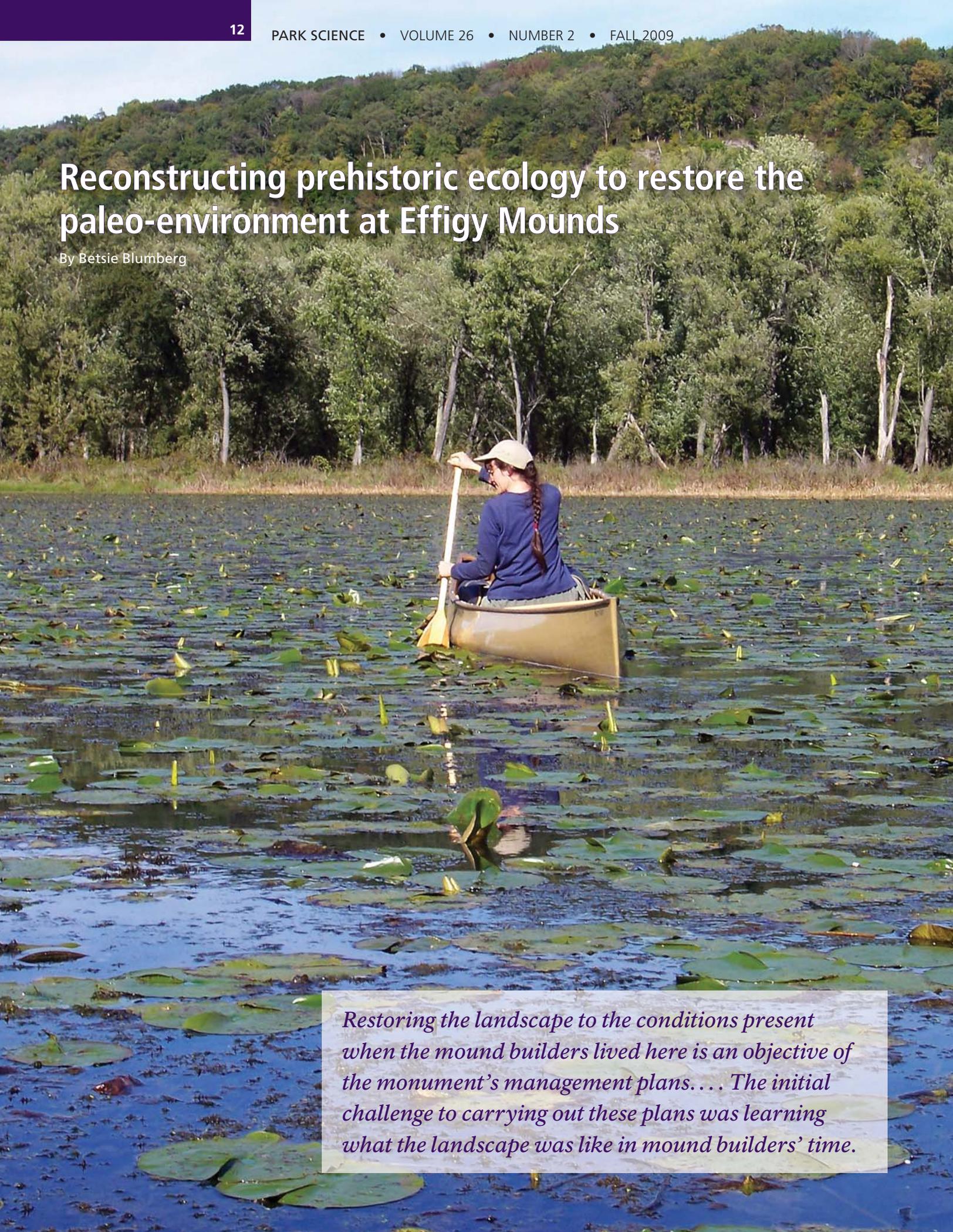


Reconstructing prehistoric ecology to restore the paleo-environment at Effigy Mounds

By Betsie Blumberg

A photograph of a person in a tan canoe paddling across a pond filled with lily pads. The person is wearing a blue long-sleeved shirt, a tan cap, and has a braid. The background is a dense forest of green trees under a clear sky.

Restoring the landscape to the conditions present when the mound builders lived here is an objective of the monument's management plans. . . . The initial challenge to carrying out these plans was learning what the landscape was like in mound builders' time.

Figure 1 (facing page and right). A core sample provides evidence of prehistoric ecological conditions. Investigators chose a spot at the bottom of a shallow pond at Effigy Mounds National Monument to sink a core sampler. The 26-foot core reached sediment that was 9,000 years old. Investigators carefully divided the core into 2-foot sections for transport to the lab for analysis.



EFFIGY MOUNDS NATIONAL MONUMENT in Iowa is the site of 200 burial mounds constructed 2,500 to 750 years ago. Restoring the landscape to the conditions present when the mound builders lived here is an objective of the monument's management plans. However, the initial challenge to carrying out these plans was learning what the landscape was like in mound builders' time and how it changed over the 1,750 years when the mounds were built. When a graduate student from the University of Wisconsin–Madison requested permission to take a core sample at the monument for data for her master's thesis, the opportunity arose to retrieve some information that managers needed. The Great Lakes Northern Forests Cooperative Ecosystem Studies Unit (CESU) provided funds for the equipment and analysis of the core. Partners were the National Park Service and the University of Wisconsin–Madison.

The core was taken from the bottom of a shallow pond and extended as deep as it was possible to sink the sampler. Monument staff stood on a plywood platform fastened to two canoes and pushed the sampler into the sediment using a post driver (fig. 1), ultimately producing a core 26 feet (8 m)

in length. Two-foot (60 cm) segments were extruded from the sampler, and taken to the lab for analysis of pollen (indicating vegetation type), charcoal (for carbon-14 dating and indicating fire), and grain size (indicating flooding).

The result was a sketchy profile of the environment around the pond for the last 9,000 years. Most important to the monument was the period when the mounds were constructed. The mound builders were people who practiced what is called Woodland culture. The beginning of the decline in the prairie ecosystem coincided with the appearance of Early Woodland culture (2,500 years ago). The temperature cooled, more patches of trees were present, and probably more deer appeared, which these people hunted as they adopted pottery and began the mound-building tradition. Middle Woodland people (1,900 to 1,500 years ago) experienced an environment that included mesic (well-balanced moisture supply) forest oak woodland, savanna, and prairie. The core indicates that around 1,710 years ago, the incidence of fire decreased and that there was heavy flooding around 1,600 years ago. Late Woodland people (1,500 years ago) also enjoyed a landscape

of mixed prairie, savanna, and forest where they began using the bow and arrow. They were succeeded by the Oneota people, who did not build mounds.

The core suggests that the landscape around the pond at Effigy Mounds varied from prairie to mesic forest over the last 8,500 years. Rodney Rovang, natural resources manager at Effigy Mounds, reports that activity is already under way to modify today's largely mesic, but disturbed, landscape to reflect conditions present 1,000 years ago. That landscape, as the core revealed, should include mesic woodland, floodplain forest, savanna, and prairie.

For more information

Bogen, S. M., and S. C. Hotchkiss. 2007. Paleo-environmental investigations of a cultural landscape at Effigy Mounds National Monument. Report. University of Wisconsin–Madison. Accessed 2 June 2009 from http://www.cesu.umn.edu/documents/ProjectReports/UW.M/UWM_NPS_04_FinalReport.pdf.

About the author

Betsie Blumberg is Park Science contributing editor.