

New study: Native Americans didn't change the landscape as much as previously thought

By [Martin Finucane](#) Globe Staff, Updated January 27, 2020, 1:54 p.m.



Archeologists Dianna Doucette, Deena Duranleau, and Randy Jardin conducting investigations at the Lucy Vincent Beach Site, Martha's Vineyard. Data from more than 1,800 archeological studies was used in the study. ELIZABETH CHILTON/BINGHAMTON UNIVERSITY

In the thousands of years before Europeans arrived, Native Americans didn't actively manage the landscape as much as previous research has suggested, a team from Harvard University, Emerson College and other universities says in a new study.

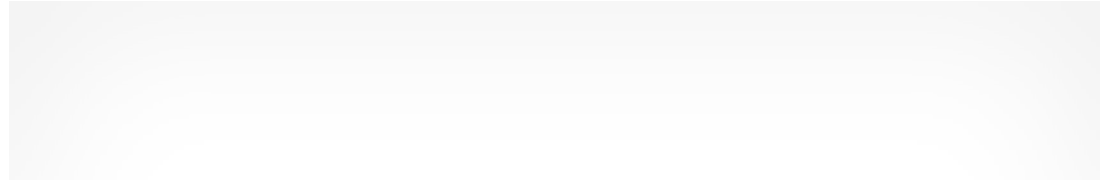
In recent decades, a theory has gained prominence that Native Americans engaged in "purposeful landscape management" seeking to increase plant and animal resources, using fire as a key tool, the study said.

But the study, [published last week in the journal Nature Sustainability](#), looks back thousands of years in coastal New England and finds, "Despite the region's dense population, anthropogenic [human-caused] impacts to the landscape before European activity were limited and fire activity was independent of changes in human population."

How wet or dry the climate was instead affected how much fire there was, researchers said.

"Climate largely controlled fire severity in New England during the postglacial interval, and widespread openlands developed only after deforestation for European agriculture," the study said.

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Native people foraged, hunted, and fished without actively clearing much land, the researchers concluded.

“Forest clearance and open grasslands and shrublands only appeared with widespread agriculture during the European colonial period, within the last few hundred years,” Wyatt Oswald, a professor at Emerson College and lead author of the study, said in a statement.

“A lot of people will be surprised,” study co-author David Foster, director of the Harvard Forest at Harvard University, said. “I was surprised. I grew up going to college learning about how native people in New England burned the landscape and opened it.”

“This is really a transformation of the way we think about prehistory, about native people,” said Foster, who spoke in a telephone interview and responded to e-mail questions.



Researcher Maru Orbay-Cerrato collecting a sediment core sample from a pond in Central Massachusetts. An analysis of pond sediments gave researchers a window into the ancient past. WYATT OSWALD/EMERSON COLLEGE

The study was conducted by a team that included archaeologists, ecologists, and paleoclimatologists. It was focused along the coast from eastern Long Island to Cape Cod. It also included the islands of Nantucket and Martha's Vineyard and the Elizabeth Islands off of Falmouth, Foster said.

The researchers looked at a period from about 10,000 years ago up to recent times, Foster said. Researchers collected sediment core samples from 21 lakes across Southern New England. Charcoal in the sediment provided clues to the frequency and size of fires; pollen provided information on vegetation. The researchers also factored in information on precipitation and temperature, and looked at archaeological information from more than 1,800 sites .

Foster estimated the Native American population in New England was about 75,000 when the Europeans arrived, with the population clustered mostly along the coast and major rivers and streams, and more people in warmer southern New England than northern New England.

Erle Ellis, a professor at the University of Maryland Baltimore County who has written about humans transforming the landscape in ancient times, said in an e-mail that the new study was "indeed an intriguing counternarrative," but it would "require a substantial revision of current knowledge" developed in "decades of research and dozens of studies by dozens of scientists and historians."

Ellis said he was "inclined to be skeptical," questioning, among other things, the reliability of lake sediment charcoal data as a signal of fire activity over a wide area.

"Lake sediments, the main source of evidence here, can be excellent archives of environmental history, but their representation of broader landscapes, rather than areas very close by lakes/ponds/bogs, has always been difficult to

demonstrate. Historical population reconstructions are also somewhat hard to validate,” said Ellis.

Foster said the new study “is the most definitive paper that has come out on this subject.”

At least for New England and much of the Northeast, he said, it suggests a return to an earlier image that Native Americans simply lived off the land — which prevailed before the rise of new theories in the 1980s.

“What we have learned is that ancient human activities varied considerably. In New England there is no evidence of major human impacts on the land and vegetation. The fairly sizable population effectively lived off the natural abundance of food and resources. Elsewhere, in places like the Yucatan peninsula of Mexico the Maya did build expansive settlements and major temple sites based on active agriculture on lands cleared of forests,” he said.

“Our results do not undercut that interpretation [that Native Americans altered the landscape] everywhere, but they argue for much more scrutiny everywhere,” he said.

Foster said that, in addition to shedding light on the distant past, the study should have implications for current methods of managing land.

Foster said he believes that both nature and society will benefit if we maintain a mix of open landscapes, actively managed forests, and wild, natural, and old-growth forests.

The new research suggests that the best way to maintain the open landscapes, he said, is not by the controlled burning currently widely used by some land managers, which is “neither historically accurate or effective,” but by agriculture.

“We are most likely to be successful if we apply the kinds of management that created and maintained these habitats in the first place and have been operative over time. Our study showed that ... the vast majority of open vegetation—

grasslands, shrublands, extremely open and young forests—originated with the logging, land clearance, and agricultural grazing that the European settlers and subsequent farmers applied.”

“The modern advantage to this management approach,” he said, “is that farmers undertake this kind of effort as part of their daily lives; in the process they employ people and generate food and other resources (like timber) that are valuable to society. Conservationists working with farmers provides benefits to both nature and society.”

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