

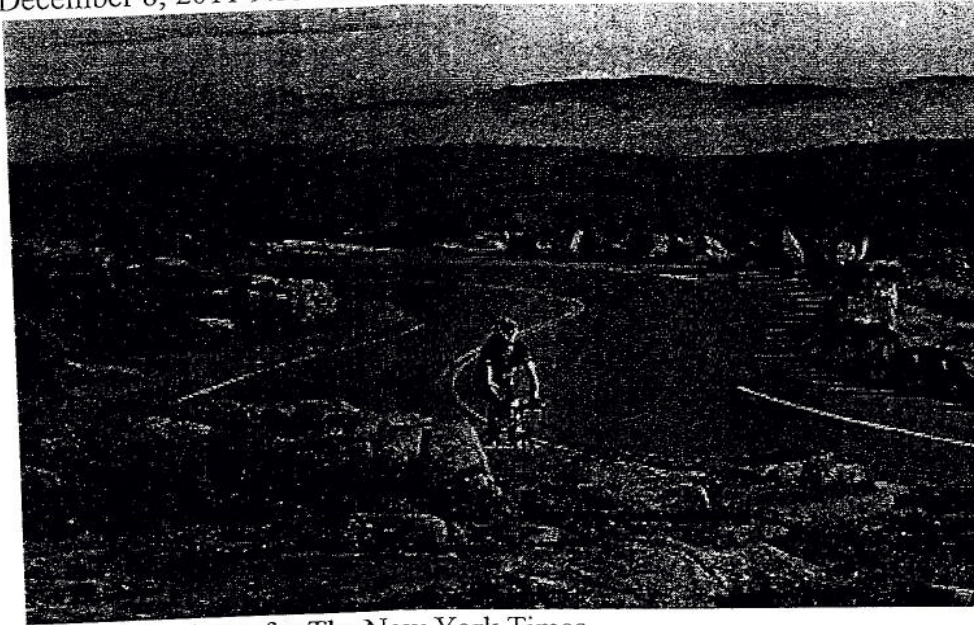
~~Article of the week~~

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Time for a Vacation? Climate Change and the Human Clock

By *Rachael Nuwer*

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Michael Appleton for The New York Times

A cyclist makes his way up Cadillac Mountain in Acadia National Park in Bar Harbor, Me.

In the natural world, scientists have documented a vast range of shifts in biological behavior related to climate change, from birds laying their eggs earlier to bears emerging earlier from hibernation in time for the first blossom of spring.

As it turns out, humans are not excluded from such behavioral changes. Over the last 30 years, a new study has found, peak park attendance has shifted by about four days, probably in response to climate change.

The results may come as a surprise to some, said Abe Miller-Rushing, the science coordinator for Acadia National Park and the Schoodic Education and Research Center in Bar Harbor, Me., who was not involved in the study. "One of the main ways that people often think of climate change is affecting things that are far away," he said.

Past studies have examined climate-related human behavior in terms of single events like droughts or floods. To the researchers' knowledge, this is the first study to examine behavioral response to temperature changes over a long period of time.

The study, published in the International Journal of Biometeorology, compared park temperatures and attendance records from 1979, when the parks started keeping reliable attendance data, to those from 2008. Of nine parks experiencing significant increases in average spring temperatures, seven exhibited corresponding shifts in peak visitor attendance, said Lauren Buckley, a biologist at the University of North Carolina at Chapel Hill and lead author of the paper.

“Although the public is still debating the occurrence of global warming, they’re already changing their behaviors,” she said in an interview.

Human behavioral shifts were comparable to those noted for other species. Of the nine parks with temperature increases since 1979, 78 percent recorded shifts in visitor rates, and 71 percent of the species at those parks have undergone behavioral timing changes in relation to rising temperatures.

Some shifts were more pronounced than others: at Grand Canyon National Park, July 4 was the peak attendance day in 1979, whereas June 24 was the peak in 2008. At Mesa Verde National Park, visitors peaked on July 10 in 1979 and on July 1 in 2008.

Across the parks, the average shift was four days.

Dr. Buckley also compared attendance at parks with notable temperature changes to attendance at parks without much change in temperature. The timing of attendance at the latter did not change much. (The study factored in other variables like travel costs.)

Dr. Miller-Rushing suggested that the warming trend could eventually lead parks to adjust their preparations for peak periods, including the hiring of seasonal employees. “As visitor season shifts, when those employees are hired or working would need to shift as well,” he said.

Climate change could influence the timing of many types of vacations, like ski trips, autumn leaf viewing and bird watching, he noted.

While the four-day shift in park visitation may not seem momentous, Dr. Buckley said, it does suggest that humans could be changing their behavior in other incremental ways that have not been researched. “There are probably more economically and socially significant events that might be shifting that we just don’t have data for yet,” she said.

She has preliminary data to suggest that people are buying ice cream earlier in the year and that spring births are advancing.

With all factors considered, Dr. Buckley concluded, “we are fairly confident that climate is having a role in shifting visitation.”