



# GEM3

Genes by Environment  
Modeling · Mechanisms · Mapping



*Matt Clark, PhD student at Boise State University*

## Bringing forecasting into the future: Using Google to predict visitation in U.S. national parks

Matt Clark, a recent MSc graduate funded by EPSCoR and PhD student with Human-Environment Systems at Boise State in the Ecology, Evolution, & Behavior PhD program, recently published his research, [\*Bringing forecasting into the future: Using Google to predict visitation in U.S. national parks\*](#), in the Journal of Environmental Management.

The goal of this project was to find a way for U.S. national parks to predict rapid visitation changes. We wanted to do this in a simple way that would be feasible and straightforward for park managers to do themselves. This project began when he was accepted into the George Wright Society Park Break Program, a week long applied research experience for 10 graduate students chosen from around the country, who work together in collaboration with the National Park Service to deliver a concrete scientific solution to a real-world problem. This project was primarily aimed at and funded by Death Valley & Joshua Tree national parks.

While there are no national parks in Idaho, our state is characterized by public lands and natural areas. Visitation to natural areas is critical for local economies and for local identity in many places, but high levels of use can degrade the very areas that visitors go to enjoy. This project provides a way for individuals to make use of internet search data to forecast visitation to these amazing places and subsequently better plan for changing levels of visitation.

Outcomes from this project show that easily accessible internet search data can be highly predictive of future visitation in certain U.S. national parks. According to Matt, rising visitation increases the stress on both natural resources and park staff. Rapid, and seemingly random, visitation increases are especially stressful for national parks and often result in parks entering a sort of “triage mode” where only the most pressing maintenance and environmental needs are addressed. This project demonstrates a way that national parks and other protected areas can better forecast these unanticipated visitation changes by tracking the clues that visitors leave behind in their internet search history.

According to Matt, “science is only as good as how well it is communicated and can be put into action. Because academic journals and written equations are inaccessible to the majority of the population, I created an [interactive web application](#) which allows users to explore our models and visitation predictions for each national park in an intuitive and easy to understand way. I believe that transparency and public engagement are the future of science and I am trying to do my part to support the uptake of these values in the broader scientific community.”



- *The project described was supported by NSF award number OIA-1757324 from the NSF Idaho EPSCoR Program and by the National Science Foundation.*