

Researchers show predominant importance of the correlation between climate and demographic growth

October 25 2012

We're not used to thinking of ourselves as animals. But as Jason Samson sees it, climate is as important in shaping the distribution and movement of humans as it is in other animals. The McGill-trained ecologist and fellow researchers have been using modeling techniques similar to those used to define the ecological niche for plant and animal species to explore the correlation between climate patterns and population growth in the contiguous United States between 1900-2000. And what they discovered was a pronounced population shift away from areas within the U.S. with cool and seasonal climates, towards those areas that are warmer and drier year-round, and they found that this was the case even when it meant moving further away from agricultural lands.

By using census data and information about weather patterns (temperature and rainfall) gathered from the nearly 3 000 counties in the U.S. over the course of the century, Samson and his colleagues were able to show the predominant importance of the correlation between climate and demographic growth. Moreover, in the study just published in [PLOS ONE](#), the researchers found that population growth was more correlated with climate than income, urbanization or food production.

The researchers found that the average American today not only lives in a drier environment than they did a century ago, but that they have also experienced a temperature increase of over 1.5° Celsius or 2.7° Fahrenheit over the last century. That represents a six-fold increase

compared to the [temperature change](#) across the US during the same time period.

More and more Americans now live in the warm southern belt of the country that extends from California to Florida, and includes cities such as San Diego, Austin (the third largest growing city in the nation between 2000-2006) and Tampa. The researchers also point to the fact that demographic growth in these warmer and drier climates within the country, and the trend towards [urbanization](#) and agglomeration, has been happening at an accelerating pace over the course of the twentieth century, and is particularly noticeable within the last thirty years.

Although the researchers were able to show such a significant correlation between climate and demographic growth, they caution against thinking of climate as a strong predictive factor in determining population movements. They also caution that this concentration of population in warm, dry areas is likely to have a significant effect on human well-being in these locations due to monetary, and environmental factors (such as growing size and intensity of heat islands, increasing stress on limited water supplies, and the high cost of using air conditioning). And they suggest that policy makers may be well advised to consider this information as they plan for the future given the context of global [climate](#) change.

More information: *PLoS ONE*, 2012; 7 (10): e45683 [DOI: 10.1371/journal.pone.0045683](#)

Provided by McGill University

Citation: Researchers show predominant importance of the correlation between climate and demographic growth (2012, October 25) retrieved 12 May 2024 from

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