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## Climate Change Forecast Spells Doom For Bamboo, Panda Bears

November 12, 2012

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Image Caption: This is one of about 275 wild Qinling pandas in the study region. Their isolation has resulted in genetic variation from other giant pandas. Some, like this one being studied, are brownish. Credit: MSU/Yange Yong

**Lawrence LeBlond** for redOrbit.com – Your Universe Online

A disturbing number of reports in recent years have been highlighting the ill effects [climate change](#) is, and will be, having on the environment and the delicate ecosystem, with one recent study reporting the possible extinction of [coffee](#) within 70 years due to global warming.

Now, a new study is predicting climate change to wipe out bamboo, an important food source for pandas, which are already threatened by slow breeding and loss of habitat. With bamboo on the decline, it is possible panda bear populations could also be decimated by the end of this century, according to the researchers.

Another important factor for the bears' decline is that human development has restricted panda bear access to areas where bamboo is less likely to be affected by rising temperatures, they add.

"We will need pro-active actions to protect the current giant panda habitats," said lead researcher Dr Mao-Ning Tuanmu, from [Yale University](#). "We need time to look at areas that might become panda habitat in the future, and to think now about maintaining connectivity of areas of good panda habitat and habitat for other species."

Tuanmu and other researchers, from [Michigan State University](#) and the [Chinese Academy of Sciences](#) conducted a study in China's northwestern Qinling Mountains on bamboo found there. These mountains are home to about 270 pandas—roughly 20 percent of the of the world's wild population.

Publishing their findings in the journal [Nature Climate Change](#), the team gives a comprehensive forecast on how climate change may affect the most common species of bamboo in northwestern China. Even with the least-impacting climate scenarios the forecast doesn't look good for bamboo nor pandas.

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Because bamboo makes up 99 percent of the diet for pandas, which can pack away 84 pounds of the plant per day, the grim forecast on bamboo is tied directly to the gentle giant. And just like the panda, the bamboo has a slow reproductive rate, flowering only once every 30 to 35 years, meaning it would likely be slow to adapt to a change in local climate, according to the team.

"Understanding impacts of climate change is an important way for science to assist in making good decisions," study coauthor Jianguo "Jack" Liu, director of MSU's Center for Systems Integration and Sustainability (CSIS), said in a [press release](#). "Looking at the climate impact on the bamboo can help us prepare for the challenges that the panda will likely face in the future."

Not just an important food source for pandas, bamboo is a vital part of the forest ecosystem, providing food and shelter for other wildlife, including the endangered ploughshare tortoise and purple-winged ground-dove.

Tuanmu and colleagues, after gathering data for the study, predicted that three species of bamboo, species that make up the entirety of the Qinling pandas' diets, will all but disappear in warmer climates.

"Results suggest that almost the entire panda habitat in the region may disappear by the end of the 21st century," according to the study.

Their calculations are based on climate models projected by the Intergovernmental Panel on Climate Change (IPCC). The models show temperature rises of between 3.6 to 9 degrees Fahrenheit in summer by the end of this century, and 5.4 to 14.4 degrees in winter.

The team's projections for the future of bamboo were based on rainfall data, [greenhouse gas emissions](#) and historical growth patterns. Apart from climate woes, bamboo is already threatened by deforestation worldwide.

The team said even if other areas become climatically more suitable for bamboo growth, these would be far removed from panda habitat. And even in areas where pandas might have had access to bamboo, are now unavailable due to human development, further sealing their fate.







"The giant panda population also is threatened by other human disturbances," Tuanmu said. "Climate change is only one challenge for the giant pandas. But on the other hand, the giant panda is a special species. People put a lot of conservation resources in to them compared to other species. We want to provide data to guide that wisely."

These models can pave the way to proactive planning to protect areas that are more suitable to bamboo growth and also to panda habitat. Another plausible solution may be to build natural land bridges to allow pandas a route to suitable bamboo habitat.

Research for this study was funded by [NASA](#) and the National Science Foundation (NSF), as well as support by MSU [AgBioResearch](#).

**Source:** Lawrence LeBlond for redOrbit.com - Your Universe Online

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