For pandas, bamboo buffet may run short

If, as the study’s models predict, large swaths of bamboo become unavailable, human development prevents pandas from a clear, accessible path to the next meal source. (Credit: AndreaLaurel/Flickr)

MICHIGAN STATE (US) — China’s endangered wild pandas need bamboo to survive, but models show that climate change may kill it off in swaths.
In this week’s *Nature Climate Change*, scientists from Michigan State University and the Chinese Academy of Sciences forecast how changing climate may affect the most common species of bamboo that carpet the forest floors of prime panda habitat in northwestern China.

Even the most optimistic scenarios show that bamboo die-offs would effectively cause prime panda habitat to become inhospitable by the end of the 21st century.

The scientists studied possible scenarios of climate change in the Qinling Mountains in Shaanxi Province. At the northern boundary of China’s panda distributional range, the Qinling Mountains are home to around 275 wild pandas, about 17 percent of the remaining wild population.

The Qinling pandas vary genetically from other giant pandas, and their geographic isolation makes it particularly valuable for conservation, but vulnerable to climate change.

“Understanding impacts of climate change is an important way for science to assist in making good decisions,” says Jianguo “Jack” Liu, director of the Center for Systems Integration and Sustainability (CSIS) and a study co-author. “Looking at the climate impact on the bamboo can help us prepare for the challenges that the panda will likely face in the future.”

Bamboo is a vital part of forest ecosystems, as not only the sole menu item for giant pandas, but also an essential food and shelter for other wildlife, including other endangered species like the ploughshare tortoise and purple-winged ground-dove.

Bamboo has an unusual reproductive cycle and can be a risky crop on which to stake survival. The species that the scientists looked at only flower and reproduce every 30 to 35 years, which limits the plants’ ability to adapt to changing climate and can spell disaster for a food supply.

Pandas’ fate will be in the hands of not only nature, but also humans. If, as the study’s models predict, large swaths of bamboo become unavailable, human development prevents pandas from a clear, accessible path to the next meal source.
“The giant panda population also is threatened by other human disturbances, says Mao-Ning Tuanmu, who recently finished his doctoral studies at CSIS and is now at Yale University.

“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.”

NASA, the National Science Foundation, and support by Michigan State’s AgBioResearch funded the study.

Source: Michigan State University

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