

Giant pandas endangered by inbreeding: study

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(PhysOrg.com) -- We are all aware that the giant panda is an endangered species. Dutch researchers at the University of Twente's Faculty of Geo-Information Science and Earth Observation (ITC, The Netherlands) have suggested that these animals are becoming increasingly endangered due to local inbreeding. This was announced in an article published by Tiejun Wang and Andrew Skidmore on 18 January, at the website of the leading scientific journal *Nature*.

Only about 1,800 giant pandas remain in the wild. This panda normally has black-and-white colouration, but there are increasing sightings of the rare brown-and-white panda. According to Tiejun Wang, a researcher at the University of Twente's ITC faculty, the recent sighting of a two-

month-old brown-and-white panda was the seventh time that these pandas have been spotted in the past 25 years. Researchers are now suggesting that this is due to inbreeding. This is quite a large number for giant pandas, as they have a low rate of reproduction. Accordingly, there is no convincing [explanation](#) for the number involved.

Dr Wang worked in China's Qinling Mountains for twenty years, one of six areas where giant pandas still live in the wild. According to Dr Wang, the brown-and-white pandas are only seen in the Qinling population. About 300 wild pandas live in the Qinling Mountains, which amounts to one sixth of the total wild panda population.

Inbreeding

Like humans, each panda has two copies of each gene, one from the father and one from the mother. Dr Wang suggests that the pandas in Qinling have a dominant gene for black-and-white colouration and a recessive gene for brown-and-white. Those pandas with two recessive genes are brown-and-white, while all of the others are black-and-white. This means that pandas with brown-and-white colouration only occur when the recessive 'brown' gene is inherited from both the father and the mother. The researcher suggests that there is normally a very low probability that both parents will have the recessive gene for brown-and-white colouration. However, the dense human population in this area has caused the habitat of the Qinling pandas to become fragmented. In this group of animals, therefore, there is a much higher probability of pandas mating with close relatives. As a result, the presence of brown-and-white [pandas](#) may be an indication of local inbreeding.

Tiejun Wang and his colleagues at ITC, Andrew Skidmore and Bert Toxopeus, who have worked in this field for the past twelve years, are concerned that the increasing incidence of the brown-and-white panda is a direct result of the reduction and fragmentation of the pandas' habitat.

This fragmentation results from human activities, such as the construction of roads and the felling of forests.

The researchers are deeply concerned about such [inbreeding](#), as it means that more and more animals are depending on the same set of genes, which in turn increases their risk of extinction.

More information: The full journal article can be found [here](#).

Provided by University of Twente

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