Climate crisis is making endangered mountain gorillas more thirsty

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Mountain gorillas in Bwindi Impenetrable National Park drinking water. Credit: Martha Robbins

Endangered mountain gorillas increase the frequency they drink water as the temperature increases, suggesting a likely impact of climate change

on their behavior, finds a new study published in *Frontiers in Conservation Science*. Researchers used 10 years of data from observations on the only two existing mountain gorilla populations and found that both populations drank water significantly more often at higher average temperatures than cooler ones. The results have important implications for the behavior and conservation of mountain gorillas, which are faced with continued increases in temperature and frequency of extreme weather events due to the climate crisis.

Mountain gorillas are rainforest dwelling species and get most of their water requirements from the plants they consume. However, increasing temperatures will make them more reliant on free-standing water, such as a stream, river, puddle or swamp. Because mountain gorillas live at higher elevations, they are also more susceptible to faster temperature rises.

"Understanding how animals obtain water is increasingly important in the face of climate change, as warmer temperatures and more extreme weather conditions are predicted to influence water availability, which could have implications for how they use their limited habitat," said author Dr. Edward Wright, of the Max Planck Institute for Evolutionary Anthropology.

"This is particularly important in endangered species which are vulnerable to extinction, such as mountain gorillas."

The mountain gorilla is a subspecies of the eastern gorilla. There are only two populations, one in the Virunga volcanic mountains that border Rwanda, Uganda, and the Democratic Republic of Congo, and one in the Bwindi Impenetrable National Park in Uganda.

Mountain gorillas are listed as endangered in the International Union for the Conservation of Nature (IUCN) Red List, and face continuous

threats such as small population size, limited habitat, poaching, and habitat destruction. There are only around 1,000 individuals left.

Reliance on free-standing water

To investigate if the water drinking habits of mountain gorillas were impacted by changes in climatic conditions, Wright and his colleagues examined water drinking behavior between 2010 and 2020 in the two remaining populations of mountain gorillas of Bwindi and Virunga and correlated this to local maximum temperature and rainfall.

They found that both populations showed an increase in water drinking at higher average temperatures than at cooler ones.

"Mountain gorillas drink water more often as the temperatures increases. In these conditions, drinking water likely helps to maintain a healthy body temperature range," explained Wright.

A greater reliance on free-standing water has several effects on the survival of these endangered animals. A higher frequency in water drinking may lead to more parasite and human disease exposure. Moreover, because mountain gorillas are a small, isolated species with a limited habitat range, water availability is not always guaranteed in the home range of each group.

Other research has shown that 22% of primate species are vulnerable to the impacts of droughts, while primate habitats are predicted to experience 10% more warming than the global average increase in temperature. By 2050, temperatures in the habitats of mountain gorillas are projected to increase by 1°C to 2.5°C.

While extensive conservation efforts have moved the mountain gorilla populations from 'critically endangered' to 'endangered' on the IUCN

Red List, this study shows that the climate crisis may have new and unexpected negative consequences on the conservation and overall survival of the species.

Wright concluded: "Our results suggest that mountain gorillas may have to work harder to maintain water balance in the future."

More information: Edward Wright et al, Higher Maximum Temperature Increases the Frequency of Water Drinking in Mountain Gorillas (Gorilla beringei beringei), *Frontiers in Conservation Science* (2022). DOI: 10.3389/fcosc.2022.738820

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