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How do forest fires affect the lives of bats?

Rym Nouioua

What are bats?

Bats are very special animals because they are the only mammals that can fly! With their wings made of thin skin tissue, they may look a little scary, but they are actually quite harmless and even very useful. Bats are the best hunters of the night and catch vast numbers of insects every night, which are often a nuisance to us humans.

Forest fires and their consequences

Forest fires are very dangerous for animals and plants living in the forest. They destroy trees, shrubs and other plants and the habitat of many animals. But how do bats react to such large fires?

To find out, Rym Nouioua, who is now also leading the workshops of the SOUNDS WILD project, studied bats on Madeira, an island in the Atlantic Ocean. Major forest fires happened there and the research group wanted to know how the bats behaved afterwards. Bats hunt at night and use ultrasonic calls, which we cannot hear, to orientate themselves and find their prey. Therefore, the research group used special devices to record the bats' calls. These devices were distributed all over the island so that they could hear the bats in over 200 locations on the island. This allowed them to find out how the bats behaved after the fires without disturbing the animals.



What did the researchers find out?

The research group found out that the behavior of the bats changed after the fires. One subspecies of the so-called lesser noctule or Leisler's bat was even more active a few years after the fires than before. This is because the fires destroyed many trees and dense shrubs and created open areas. These open areas offer some bats better hunting opportunities than a dense forest.

But not all bats are equally adaptable. After the fires, the researchers had difficulties finding a different species of bats on the island, namely the gray long-eared bat. This species prefers tree hollows as a place to sleep and is very adept at flying in dense forests. The fact that the gray long-eared bat was barely audible on the recording devices indicates that it must have suffered greatly from the forest fires. Presumably, many tree hollows in which the gray long-eared bat normally sleeps were destroyed. The forest fires have probably also decimated the insect population, which means that there is less food for the bats.

It was also found that all three bat species on the island tend to avoid previously burned forest areas. This could indicate that the bats perceive the burnt areas as potentially dangerous or less suitable for their needs.



Subspecies of the lesser noctule bat (*Nyctalus leisleri verrucosus*)
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The grey long-eared bat (*Plecotus austriacus*)
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What does this mean for the future?

Such research is important to understand how animals can adapt to changes in their environment. By studying how bats respond to forest fires and what landscapes they need, we can better ensure that they have enough places to live.

We also need to be aware that climate change is likely to lead to an increase in forest fires. Therefore, it is particularly important to take measures to protect and conserve the natural habitats of bats.