

WHERE I WORK · 01 MARCH 2021

My race against time to capture the sounds of ancient rainforests

Electro-acoustics researcher David Monacchi preserves the soundscapes of endangered forests to convey the risks they face.

James Mitchell Crow



David Monacchi is founding director of the Fragments of Extinction project and is an electroacoustics researcher at the Conservatorio Rossini of Pesaro, Italy. Credit: Elisabetta Zavoli for Nature

Natural soundscapes have always called to me. As an eco- and electro-acoustics researcher, with a background in sound engineering and electronic music composition, I have always tried to strike a balance between art and science in my work.

In 1998, when I first heard about the extinction crisis – more than 35,500 species of flora and fauna are endangered – the idea for the Fragments of Extinction project came to me very quickly. My vision was to build a collection of 24-hour-long ‘acoustic fragments’, recorded at the highest definition possible, capturing the sonic heritage of ancient, biodiverse, untouched tropical rainforests – before climate change damages them irreversibly.

In these forests, some species vocalize from the canopy, some from the ground and others from big tree trunks that act like sound diffusers. To capture a 3D acoustic portrait of the forest, we simultaneously record on 38 audio channels and microphones.

In this photograph, I am standing in the Sonosfera, a geodesic theatre in Pesaro, Italy, in which audiences can experience rainforest soundscapes captured in the Amazon, Africa and Borneo. Forty-five high-definition loudspeakers are positioned in an isolated, acoustically perfect space, realistically reproducing the ecosystems’ natural sounds.

For the first 15 minutes of the performance, the Sonosfera is completely dark. Sound helps listeners to ‘build’ the forest space around them – the position of every insect and amphibian; the birds and mammals moving through the canopy. My team then projects the spectrograms shown here to explain the sounds, and present data showing that these ecosystems are disappearing.

We have captured the deep infrasound calls of elephants and have recorded insects that sound exactly like violins or trumpets. Our ecosystem recordings are very different. But I don’t have a favourite – they’re a collection.

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