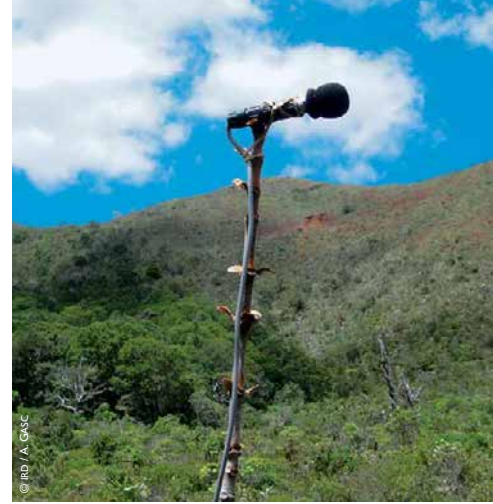


Listening to the environment

Biodiversity is being eroded all over the planet, creating new and unprecedented challenges. How can we keep track of a phenomenon on such a scale? Perhaps we need to stop and listen...



Sound recorder to assess the impact of an invasive species of ant on local fauna, New Caledonia.



Sparrow nesting in a wall, France.

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You can see biodiversity, of course, but did you know that you can also hear it? When they noticed substantial variations in sound levels in disturbed environments, one group of biologists working in the field had the idea that sound could be used to detect disruption to the equilibrium of ecosystems. Back in 2013, research conducted in New Caledonia demonstrated that the presence of an invasive, highly-aggressive species of ant (*Wasmannia auropunctata*, also known as the “little fire ant”) led to a decrease in the cricket population, ordinarily a source of much noise. By installing microphones in the field, the team succeeded in monitoring the territorial progression of the little fire ant.

The method was conceptualised in 2015 by a team of Franco-Italian researchers, who dubbed their new technique “ecoacoustics.” The practice has continued to thrive ever since, becoming a fully-fledged component of biodiversity monitoring systems alongside genetics and field observations. It allows researchers not only to detect modifications in the natural milieu, but also to conduct inventories in hard-to-reach environments such as the canopy of tropical forests, where our only knowledge of some species comes from the sound they make. Another great advantage of ecoacoustics is the measurement timeframe. The acoustic sensors can be programmed and installed for long periods of time, providing information on the daily or seasonal activities of species or whole ecosystems.

For the moment, the task of analysing these soundscape recordings falls mostly to human ears, with the exception of some easily recognisable species which can be detected automatically. In the more or less distant future, we might easily imagine the creation of environmental acoustic data banks allowing us to monitor developments on a regional, national or even continental scale. This could enable researchers to study the environmental impact of climate change, invasive species

... Eco-acoustic methods can be used
to monitor the evolution of ecosystems ...



Sound recorder to assess the impact of fire on local fauna, Arizona, USA.

and pollution, as well as more unexpected events. During the Covid-19 pandemic, for example, scientists launched a collaborative project called “Silent Cities,” encouraging researchers and citizens living under lockdown and equipped with a recording system to track the evolution of their acoustic environment, consisting primarily of noise generated by human activity and the biodiversity found in urban environments (birds, amphibians and insects).

BIODIVERSITY IN THE GLOBAL SOUTH

Research
for a sustainable world

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Listening to the environment

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Using genetics to identify the adaptive capacities of coral

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Protecting biodiversity

Converting waste water into fertiliser for leafier cities

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Nature's abundance protects us against pandemics

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Trees, the backbone of agriculture

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The potential of the world beneath our feet

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