

Qualia

Acoustic ecology: Wild sounds in wild places

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Last month, researchers from disparate fields, with a common interest in animal bio-acoustics, met in Ithaca, New York for the third Symposium on Acoustic Communication by Animals. The conference was hosted by Cornell University's Bio-acoustics Research Program, and sponsors included the Acoustical Society of America, the Office of Naval Research, the National Oceanic and Atmospheric Administration, and the National Science Foundation.

One theme that emerged from the meeting was the growing emphasis on the role of sounds in ecosystems. Much of the presented research fell under the umbrella of acoustic ecology, a relatively new field devoted to the relationship, mediated through sound, between living things and their environment.

Among the topics discussed were the impacts of urbanization and construction on bird song, proper measurement of the magnitude and consequences of ship noise on marine mammals, and understanding the roles of different species that make up an acoustic community. Often, the ultimate goal is conservation. Natural sounds could act as canaries in a coalmine, an early indicator of changes to the ecosystem. Changes in the characteristics of animal sounds can indicate changes in climate patterns, the presence of pollution, or other alterations to the environment. The sounds animals make can also be recorded and analyzed to estimate the density or health of a population, or to identify individuals over long periods of time.

What are the consequences of perturbing an acoustic community? The effects of anthropogenic noise could be extremely detrimental to many different aspects of animals' lives. Many animals depend on sound to communicate. Rising background noise reduces the range over which they can exchange signals and collect information about their environments. Noise that blocks opportunities to communicate could lead to decreased foraging efficiency, decreased mating opportunities, and even decreased survival.

Conserving ecosystems begins with understanding the myriad factors and relationships that allow healthy ecosystems to thrive. Bringing the study of acoustics into ecology and conservation biology has added another dimension by which we judge the health of the environment.