Challenges and Perspectives in Soundscape Ecology Research

Almo Farina[*1] and Nadia Pieretti[*2]

[1]Department of Basic Sciences and Fundamentals, University of Urbino – Faculty of Environmental Sciences The University of Urbino Campus Scientifico - Sogesta 61029 Urbino, Italy
[2]Department of Basic Siences and Foundations (DISBEF) – Campus Scientifico "E. Mattei", 61029 Urbino, Italy

Abstract

Soundscape ecology has recently exhibited an enormous surge of research that has demonstrated the ability of acoustic diversity to be an efficient tool for describing complex phenomena at community, ecosystem and landscape scales within natural and human dominated systems. Testing new theoretical assumptions will create stronger linkages between landscape ecology, ecological acoustics and soundscape ecology, supporting the relationship between topographic, environmental and acoustic patterns. The scientific practice of soundscape ecology has been powered by recording devices that are readily evolving into inexpensive units with improved microphone quality, efficient data storage, and better acoustic parameterization. At the same time, innovative metrics have allowed researchers to manipulate acoustic files enabling robust synthesis of emergent patterns in frequency dynamics. New technological development that incorporates both improved recording capabilities and acoustic metrics is critical to continue advancing soundscape analyses. Advancement of soundscape research has also extended into several journal publications, books, and dedicated software, which are readily available to students and practitioners. To make advances in education, a new course on Soundscape theory and applications has been constructed for students at various levels. Soundscape ecology is a promising discipline that will aid in understanding global threats of biodiversity loss and growing pressures on fragile ecosystems under scenarios of the climatic change and a rapid evolution of human societies.

[*]Speaker