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# Recording and analysis of italian soundscapes

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## Abstract

The collecting of animal sound recordings is increasingly recognized as a valuable and non-invasive tool for taxonomy, systematics and biodiversity research, because of the species-specificity of bioacoustic signals.

The recording of soundscapes, as opposed to the recording of individual sounds, allows to capture all the sounds generated by the biological and non-biological elements composing the environment, including anthropogenic noise. The analysis of all these components and the evaluation of the relations among them provides indexes related with biodiversity, richness, and noise contamination. The project initiated by CIBRA is aimed at collecting soundscapes in a series of natural habitats with diverse level of biological richness and noise contamination. Among the monitored sites there are remote Integral Nature Reserves to provide examples of pristine habitats where the only noise contamination is due to flight routes.

Recording techniques and instruments to perform long term soundscape recordings are also developed and tested in the field to produce optimal results, by increasing bandwidth and lowering self-noise to expand the receiving sound space. The cooperation with the SABIOD (Scaled Acoustic Biodiversity) project addresses the problem of the analysis of extensive recordings by using advanced algorithms.

Within the frame of the Soundscape Project, several products have been already developed for the valorization of educational trails where to discover valuable natural habitats by listening to nature sounds.

**Keywords:** sound recording, soundscape analysis

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