Visualisation for bioacoustics and ecoacoustics

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Contents

About

Bioacoustics and ecoacoustics are rapidly advancing multi-disciplinary fields of study that focus on how organisms communicate using sound, and the overall sound of a landscape (the soundscape). Despite the focus on sound, much of the communication of ideas, and even sounds, between researchers is done using graphical representations.

This should not come as a surprise, the printing press came centuries before the radio as a means for long distance communication, and ink on paper has a permanence that sounds would not achieve for a long time after the invention of writing. The current flourishing of these disciplines is driven as much by the low cost and ease of use of products such as AudioMoth and the decreasing cost of digitial storage and processing as by novel ideas.

Visualizations of acoustic data however are not going away - we are a predominantly visual species, and as ways of summarising acoustic data - or making the ultrasound tangible, they are powerful tools in the hands of the acoustician.

Chapter 1

Introduction

"...while we take it for granted that sounds may be described visually,
the convention is recent, is by no means universal and, as I will show,
is in many ways dangerous and inappropriate."

— Schafer [1977]

While Murray Schafer's *Tuning of the World* [Schafer, 1977] inspired many
soundscape scientists, this view is of an earlier time, where the concept of multi-
ple simultaneous streams of acoustic data being processed by a single individual
was still an idea over the horizon. Individual sounds could be isolated and
studied (as today they still are by bioacousticians interested in the behaviour
of individual species). The scale of many contemporary ecoacoustics projects
precludes an individual from listening to every minute that is recorded, this task
no longer being delegated to students but machines.

Chapter 2

History

2.1 Phonetic writing

2.2 Musical

2.3 Descriptive

Chapter 3

Early visualisations

3.1 CRTs and print outs.

Bibliography

R. Murray Schafer. *Tuning of the World.* Random House, 1977.