

Preserving the Upper Peninsula Through Soundscapes

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Abstract: This proposed project involves the recording and analysis of the acoustic ecology of various areas of preserved natural significance in Michigan’s Upper Peninsula—specifically Isle Royale National Park and regions protected by the Keweenaw Land Trust—with the aim to promote the importance of their continued preservation through an artistic multimedia-based exhibit.

Background: The field of acoustic ecology was primarily founded by R. Murray Schafer with his groundbreaking work in the book “The Soundscape: Our Sonic Environment and the Tuning of the World” (Schafer, 1977). Schafer created the terminology and methods of analysis upon which the field works from, breaking down soundscapes into three basic categories called keynotes, signals, and sound marks. Keynotes are the foundation of the soundscape and are not listened to consciously, for they are often continuous and fill out the background. Signals are

sounds that draw our attention and force us to listen consciously. Finally, sound marks are unique sounds of an area that help to define the soundscape, much like a landmark defines a geographic location.

Following in the footsteps of Schafer, Bernie Krause continued to study soundscapes with an increased focus of their use in analyzing the health of an ecosystem. Through his work, Krause (2012) was able to see that the fauna found in an ecosystem all create sound at their own range of frequencies, with unique rhythms that make themselves easily heard by their respective species. Krause made this discovery through the analysis of spectrograms, which are visual representations of the intensity of frequencies over time in a given recording. In the spectrograms shown in Figure 1, the various frequencies are represented by the y-axis of the graph and time is represented on the x-axis.

Intensity of the sound is represented by color, in this case the darker the sound the higher the intensity. In a healthy ecosystem at peak times of the day the spectrogram will be full of sound across a wide range of frequencies. Krause’s work also showed the impact that unnatural human interference can have on the biophony—the sounds

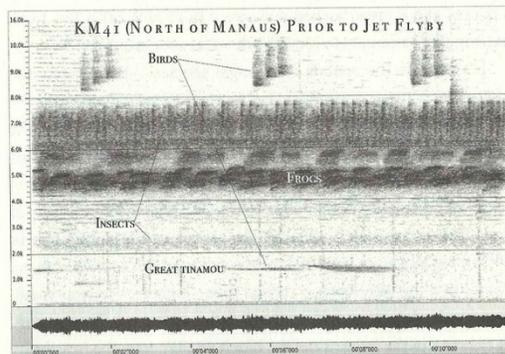


Figure 12. Amazon dawn-to-midmorning transitional biophony.

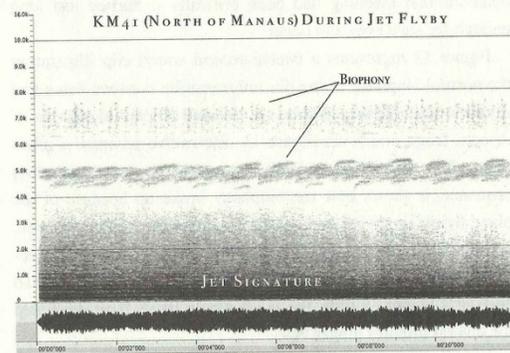


Figure 13. Same site as Figure 12 two minutes later, during multiengine jet flyover.

Figure 1: Example of two spectrographs showing the effect that noise outside of biophony can have in destroying a soundscape, even soundscapes as robust as the Amazon. (Krause, *The Great Animal Orchestra*, 2012, p. 182)

of the area's fauna—of a given environment. Even small human interactions, such as a jet flying over the environment, can cause drastic changes to the acoustic ecology (see Figure 1).

Significance: Krause frequently talks about the rapid rate at which natural environments around the world are being destroyed. It is important to the overall health of the planet and its ecosystems that we make a change to help protect and preserve the environments that still remain. People often think that we can only determine the health of an environment based on physical counts and scientific statistics, but often times we can tell the status of the ecosystem based on its biophony alone.

Methods: To effectively gather soundscapes from all across the area, I will be traveling to various nature preserves within the Keweenaw Land Trust as well as to both the north and south ends of Isle Royale. Recording in such a variety of places will give the overall set of recording a breadth that will create a much wider view of the Western Upper Peninsula than recording in just a single location. When on site, the recording will take place at peak hours of the biophony which are known as the dawn chorus and dusk chorus. Based on observations during my time in each location, additional recordings will take place to capture other moments that well represent the acoustic ecology. For effective analysis, all recordings will be geographically tagged and cataloged based on time of day. Post recording, sounds will be analyzed for their biophony and geophony and edited for use in the exhibit. The editing process will use the computer program Izotope Iris to disassemble soundscapes based on their spectrogram by using only certain portions of the frequencies, thus highlighting particular elements of the biophony. In addition to the pieces being used in my exhibit, this editing will give me the creative freedom to be able to create my own compositional piece that will use the recordings I've created like an instrument.

Artistic Goals: The ultimate goal of this project is to create a multimedia exhibit using the recorded soundscapes that emphasizes the importance of the protection of the natural world and encourages participants to go out into the world and enjoy these protected areas. Inspired by John Luther Adams' (2009) work in *The Place*—an exhibit combining compositional work, photography and soundscapes of Alaska—the exhibit will be focused on the blending of the soundscapes of the field recordings with orchestral compositions; these will be paired with photographs of the regions to create an artistic representation of the environments. My recordings will also be used for the National Endowment for the Arts project being worked on by my mentor Christopher Plummer and other VPA faculty, Elizabeth Meyer and Kent Cyr. Finally, all of my recordings will be added to the VPA department's sound library that is available to all students within the department to be used on projects as they see fit; this is a valuable resource to students in the sound program.

Timeline: My recording process will start with short surveys of various preserves within the Keweenaw Land Trust to find optimal recording positions and test field recording techniques. Each location within the Keweenaw Land Trust that is selected will be recorded at the same times of day for dawn and dusk choruses for three days to keep continuity between locations. The three days for each location will not be consecutive as giving time in between recordings provides the chance for the biophony to change and create new interesting soundscapes. The time spent on Isle Royale will take place over two separate five day trips with one based on the north end of the island and one on the south end. The time allotment of five days gives me the chance to travel a more sizable distance around each end of the island and to record a robust set of soundscapes for each location. After recording is finished and the soundscapes are compiled work on the exhibit will begin.

Bibliography

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