Conserved peatland in Northern Ostrobothnia Finland, May 2023

Suon Laulu (Song of the Swamp): Soil Data Sonification of Post-Human Landscapes

Anne Yoncha (US), Hannah Selin (US), Satu Korpi (Finland), Brian Givens (US), Anne Tolvanen (Finland), Oili Tarvainen (Finland), Anna-Liisa Välimaa (Finland)

Metropolitan State University of Denver, Temple University, Natural Resources Institute Finland, Tuira Chamber Choir | https://anneyoncha.com , ayoncha@gmail.com

Abstract

Suon Laulu (Song of the Swamp) is a graphic score, choral performance, and programmed video visualizing and sonifying 160 years of soil data from post-extraction peatland landscapes. This research is part of *Re:Peat*, a multifaceted eco-art project. In 2019-2020, Anne Yoncha worked with scientists at Natural Resources Institute Finland (Luke) to study restoration techniques for peatland extraction sites. Using a hyperspectral camera, she accessed data about soil health from soil core samples which we are unable to see with the naked eye.

The piece moves from past to present. Variations in water content, temperature, and level are mapped onto musical staves, the upper staff representing a restored study plot, and the lower, an unrestored plot. Composer Hannah Selin translated these into a choral composition for the Tuira Chamber Choir, inserting 50 human voices into the data translation process, evoking our enmeshment with soil and the non-human species living in it. Accompanying is a video programmed by Brian Givens with Processing visual coding language. In it, the false-color hyperspectral camera image is the hidden "seed image", rearranging pixels in the visible image from the stereo microscope. The data both obscures and reveals information about our non-human, soil-dwelling neighbors.

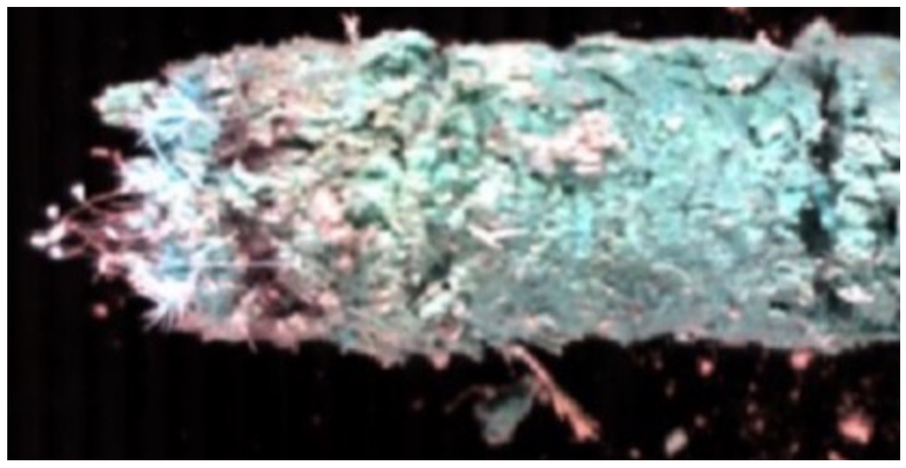
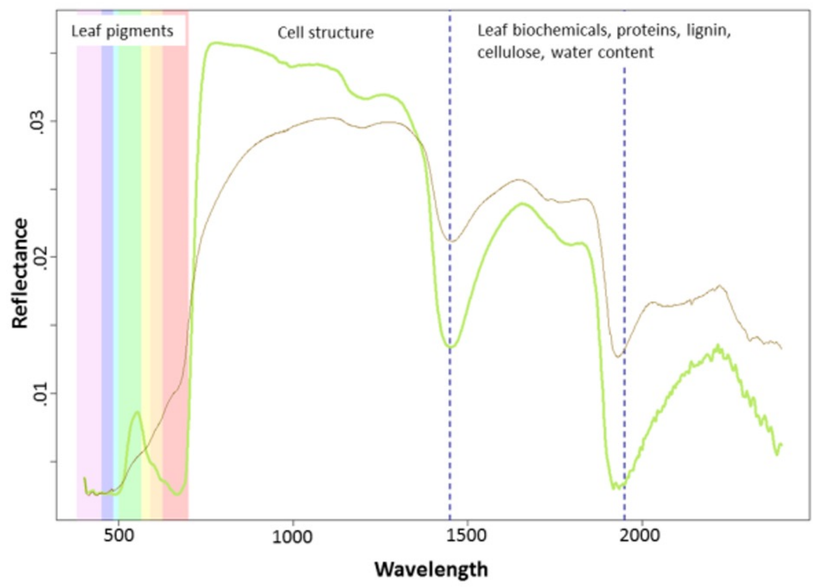


Figure 1 (left): A false-color image of one of Anne Yoncha's soil cores samples made with a hyperspectral camera (Specim FX 17, Specim, Spectral Imaging Ltd) ©Anne Yoncha.

Figure 2 (right): A graph showing reflectance by wavelength of a healthy plant, including 1450nm water absorption band. The graph was generated using Spectrometer PSR+ © Gerard Sapés, University of Florida.



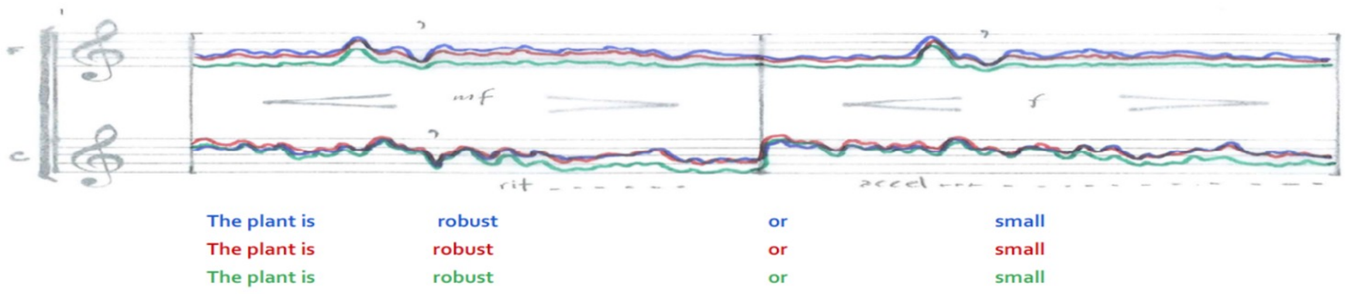


Figure 3 (left): Part of a page of graphic score using reflectance data collected with Specim FX-17 camera, lyrics sourced from a taxonomy of Finnish *sphagna* species ©Anne Yoncha.

Figure 4 (right): Video still from Processing visualization ©Brian Givens and Anne Yoncha.

My work combines experimental art and ecological science to explore mechanics of plant physiology. By translating these processes into artworks, I aim to build affinity with unfamiliar ecologies apparently out of sight or possessing different temporalities than our own. My practice combines digital sensing technology, such as bio-data sonification, and analog processes including painting with ink I make from locally-sourced plant matter – so the materials used in the piece add another layer of data. When public understanding of ecological problems is limited, creative artists have been historically successful in uncovering background narratives, thereby shaping how scientifically-declared emergencies are perceived and acted upon. How do we balance a sense of urgency in the time of climate change with potential unintended consequences of our interventions?

Acknowledgements: Thank you to Fulbright Finland Foundation for their support of this research.