EXPLORING THE SOUNDS OF NATURAL AND URBAN TERRESTRIAL LANDSCAPES IN THE PHILIPPINES

Balais, Marilyn M.

Institute of Environmental Science and Meteorology, University of the Philippines

Diliman, Quezon City, Metro Manila 1101

ABSTRACT

This study aims to characterize the soundscapes of a natural forest and an urban greenscape in the Philippines. Focusing on two sites in Luzon Island, the study will analyze the acoustic recordings of Palanan, Isabela's old secondary-growth forest (2016), and the green spaces at the National Science Complex at the University of the Philippines Diliman (2020-2023). Recordings will be selected through random, stratified temporal subsampling: two 5-minute record samples per hour for 24 hours monthly. Nine specific acoustic indices will be computed for describing soundscape patterns: Acoustic Complexity Index (ACI), Acoustic Diversity Index (ADI), Acoustic Evenness Index (AE), Bioacoustic Index (BI), Acoustic Entropy Index (H), Median, and Normalized Difference Soundscape Index (NDSI) with its components Anthrophony and Biophony. The indices will analyzed using various methods, including Principal Component Analysis (PCA), to reduce their dimensionality and determine the principal components with the highest variance. A total of 256 hours of sound data will be assessed using Generalized Additive Mixed Models (GAMMs) to examine soundscape variations. Using acoustic indices to describe soundscape patterns and dynamics, this study intends to assess the acoustic activity within Philippine terrestrial landscapes and explore the potential of soundscapes as indicators of their health.