

1046-YY-1362

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Vocal Identification is a relatively new approach to tracking animal species in the wild, and is an alternative to current "catch and release" methods. In this study we explore the process of applying wavelet analysis techniques to the signal processing aspects of vocal identification. We will set up and describe the problem, discuss the necessary preliminary work including denoising and normalizing signal vectors, highlight the limitations of traditional Fourier analysis, and discuss the advantages of wavelet analysis to this type of applied mathematical problem. (Received September 15, 2008)