

## Vokalisasi Takur Tulung Tumpuk (*Psilopogon javensis*) Pada Berbagai Tingkat Kebisingan Antropogenik di Hutan Kemuning, Kabupaten Temanggung

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### INTISARI

Vokalisasi merupakan salah satu perilaku bersuara burung yang memiliki peran penting dalam komunikasi, ekolokasi, reproduksi, mempertahankan wilayah, dan lain-lain. Salah satu burung yang memiliki vokalisasi yang unik adalah takur tulung tumpuk, spesies endemik Jawa yang dilindungi namun habitatnya yang menurun akibat perubahan lahan. Hutan Kemuning merupakan salah satu habitat takur tulung tumpuk yang di dalamnya terdapat kegiatan agroforestri yang menimbulkan kebisingan antropogenik yang berpotensi memengaruhi vokalisasi takur tulung tumpuk. Burung ini memiliki frekuensi vokalisasi yang rendah yang cenderung sensitif terhadap kebisingan. Penelitian ini bertujuan untuk mengetahui vokalisasi takur tulung tumpuk dan kebisingan antropogenik di Hutan Kemuning, serta variasi vokalisasinya berdasarkan tingkat kebisingan antropogenik.

Pada penelitian ini, data yang bersifat dinamis diambil menggunakan metode *Passive Acoustic Monitoring* dengan meletakkan alat perekam suara *Swift One* dan perekam suhu dan kelembaban *data logger* pada 7 titik di Hutan Kemuning. Data pendukung lainnya yaitu data habitat seperti vegetasi diambil dengan metode *nested plot*, dan *protocol sampling* untuk keterangan, ketinggian, dan tutupan tajuk. Penentuan tingkat kebisingan dilakukan dengan bantuan grafik *kernel density estimation*. Kemudian dilakukan analisis variasi vokalisasi sesuai dengan tingkat kebisingannya menggunakan uji beda. Model regresi liner digunakan untuk mengetahui hubungan antara faktor lingkungan dinamis dengan vokalisasi takur tulung tumpuk, sedangkan data habitat lainnya dianalisis dengan uji beda dan secara deskriptif.

Hasil penelitian menunjukkan vokalisasi takur tulung tumpuk di Hutan Kemuning terbagi ke dalam tiga tipe. Terdapat tujuh sumber kebisingan antropogenik di Hutan Kemuning yaitu kendaraan bermotor, *sound system*, kegiatan perkebunan, kegiatan pertanian, gergaji, orang berbicara dan kegiatan pertukangan. Terdapat variasi vokalisasi takur tulung tumpuk yaitu perbedaan nilai parameter vokalisasi pada tingkat kebisingan antropogenik rendah dan tinggi. Selain itu, kebisingan (antropogenik dan biofoni) memengaruhi frekuensi dan durasi vokalisasi takur tulung tumpuk di Hutan Kemuning.

Kata Kunci: takur tulung tumpuk, kebisingan antropogenik, vokalisasi burung, Hutan Kemuning. *Passive Acoustic Monitoring*

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*Vocalization of The Black Banded Barbet (*Psilopogon javensis*) at Different Levels of Anthropogenic Noise in Kemuning Forest, Temanggung Regency*

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**ABSTRACT**

*Vocalization is one of the acoustic behaviors of birds that plays an important role in communication, echolocation, reproduction, territorial defense, and other activities. One bird species with unique vocal characteristics is the Black Banded Barbet (*Psilopogon javensis*) an endemic and protected species of Java whose habitat has declined due to land-use changes. Kemuning Forest is one of the habitats of the Black Banded Barbet, where agroforestry activities generate anthropogenic noise that may potentially affect its vocalization patterns. This species produces low-frequency vocalizations, making it more sensitive to noise disturbance. This study aims to examine the vocalizations of the Black Banded Barbet and the anthropogenic noise in Kemuning Forest, as well as to analyze the variation in its vocalization across different levels of anthropogenic noise.*

*In this study, dynamic data were collected using the Passive Acoustic Monitoring method by placing Swift One sound recorders and data loggers for temperature and humidity at seven points within Kemuning Forest. Supporting habitat data, such as vegetation structure, were obtained using the nested plot method, while slope, elevation, and canopy cover were recorded following standard sampling protocols. Noise level classification was determined using Kernel Density Estimation graphic. Then, an analysis of vocalization variation according to the noise levels was conducted using comparison tests. A linear regression model was applied to examine the relationship between dynamic environmental factors and the Black Banded Barbet's vocalizations, while other habitat data were analyzed using comparison tests and descriptive analysis.*

*The results showed that the Black Banded Barbet's vocalizations in Kemuning Forest were divided into three types. Seven sources of anthropogenic noise were identified in the area, including motor vehicles, sound systems, agricultural and plantation activities, saws, human speech, and carpentry activities. Variation in the the Black Banded Barbet's vocalizations was observed between high and low levels of anthropogenic noise, particularly in vocalization parameters. Furthermore, both anthropogenic and biophonic noise were found to influence the frequency and duration of the Black Banded Barbet's vocalizations in Kemuning Forest.*

*Keywords: Black Banded Barbet, Anthreopogenic Noise, Bird Vocalization, Kemuning, Forest, Passive Acoustic Monitoring*

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