Variasi Vokalisasi Paok Pancawarna (*Hydrornis guajanus*) pada Berbagai Tingkat Kebisingan Aktivitas Masyarakat dalam Pengelolaan Hutan Kemuning, Kabupaten Temanggung

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INTISARI

Paok pancawarna merupakan burung dilindungi yang memiliki peran penting sebagai pengendali hama di Hutan Kemuning. Namun, aktivitas manusia dalam pengelolaan Hutan Kemuning berpotensi menimbulkan kebisingan, dimana dapat mengganggu vokalisasi burung yang berfrekuensi rendah serta berdurasi pendek, seperti paok pancawarna. Penelitian ini bertujuan untuk mengetahui kebisingan akibat aktivitas manusia (antropogenik) serta mengidentifikasi variasi vokalisasi paok pancawarna pada tingkat kebisingan aktivitas manusia di Hutan Kemuning.

Data vokalisasi dan kebisingan didapatkan melalui metode *Passive Acoustic Monitoring* (PAM). SwiftOne sebagai alat perekam diletakkan di 7 titik dengan jarak antar titik 800 meter. Data suhu dan kelembaban diambil pada titik PAM, data vegetasi diambil dengan metode *nested plot*, dan *protocol sampling* untuk tutupan tajuk, kelerengan, dan ketinggian. Suara diidentifikasi dengan software Raven Pro 1.6 dan disajikan dalam tabel dan grafik. Waktu aktif vokalisasi dan kebisingan di analisis dengan *kernel density estimation.* Data habitat ditabulasikan di Microsoft Excel dan disesuaikan dengan suara paok pancawarna dan kebisingan yang didapatkan. Analisis variasi vokalisasi menggunakan uji beda *Mann Whitney Test* dan *Kruskal Wallis Rank,* sedangkan untuk uji pengaruh kebisingan dengan *Generalized Linear Model*.

Hasil penelitian menunjukkan terdapat dua tingkat kebisingan antropogenik yaitu tinggi dan rendah. Ditemukan juga perbedaan vokalisasi paok pancawarna pada dua tingkat kebisingan antropogenik. Kebisingan antropogenik memengaruhi frekuensi, durasi, durasi interval, dan energi suara paok pancawarna. Pada kebisingan antropogenik tinggi, burung ini cenderung meningkatkan frekuensi dan memperlama durasi vokalisasi untuk mengatasi gangguan suara, serta mengurangi interaksi dengan kebisingan antropogenik dengan memperpanjang durasi interval dengan tujuan untuk memastikan sinyal vokalisasi tetap terdengar oleh sesama individu dalam kondisi bising.

Kata kunci: *Passive Acoustic Monitoring*, Kebisingan Antropogenik, Paok Pancawarna, Variasi Vokalisasi, Hutan Kemuning

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Vocalization Variations of The Javan Banded Pitta (*Hydrornis guajanus*) at Different Noise Levels from Human Activities During Management of Kemuning Forest, Temanggung Regency

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ABSTRACT

The javan banded pitta is a protected bird that plays an important role as a pest controller in the Kemuning Forest. However, human activities in the Kemuning Forest have the potential to cause noise, which can interfere with the vocalizations of birds with low frequency and short duration, such as the javan banded pitta. This study aims to determine the noise caused by human activities (anthropogenic noise) and to identify variations in the vocalizations of the javan banded pitta at different levels of human activity noise in the Kemuning Forest.

Vocalization and noise data were obtained using the Passive Acoustic Monitoring (PAM) method. SwiftOne recorders were placed at seven points, with each point spaced 800 meters apart. Temperature and humidity data were collected at PAM points, vegetation data were collected using the nested plot method, and sampling protocols for canopy cover, slope, and altitude were followed. Sound files were identified using Raven Pro 1.6 software and presented in tables and graphs. Active vocalization and noise times were analyzed using kernel density estimation. Habitat data were tabulated in Microsoft Excel and correlated with Paok Pancawarna vocalizations and the recorded noise. The data of vocalization variation were analyzed using the Mann Whitney Test and Kruskal Wallis Rank test, while the effect of noise was tested using the Generalized Linear Model.

The results showed two levels of anthropogenic noise, high and low. There was a variation in vocalizations of the javan bended pitta at both high and low levels of anthropogenic noise. Anthropogenic noise affected the acoustic parameters, including frequency, duration, interval duration, and energy of the javan banded pitta's vocalizations. In conditions of high anthropogenic noise, these birds tend to increase the frequency and prolong the duration of their vocalizations to overcome the noise interference. Additionally, they extend the interval duration between vocalizations to ensure their signals are heard by other individuals in noisy conditions.

Keyword : Passive Acoustic Monitoring, Anthropogenic Noise, Javan Banded Pitta, Vocalization Variation, Kemuning Forest

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