

KEHADIRAN DAN POLA VOKALISASI TAKUR TENGERET PADA BERBAGAI TINGKAT KEBISINGAN ANTROPOGENIK DI HUTAN KEMUNING KABUPATEN TEMANGGUNG

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INTISARI

Kebisingan antropogenik dapat mengganggu komunikasi akustik yang memicu perubahan vokalisasi satwa. Hutan Kemuning merupakan habitat takur tenggeret yang dikelola menggunakan sistem agroforestri kopi dengan aktivitas antropogenik intensif berpotensi mengubah vokalisasi burung ini. Perubahan vokalisasi diduga menyebabkan takur tenggeret lebih mudah terdeteksi sehingga menjadikannya target perburuan utama. Penelitian ini bertujuan mengidentifikasi kehadiran dan pola vokalisasi takur tenggeret pada berbagai tingkat kebisingan antropogenik di Hutan Kemuning.

Pengumpulan data vokalisasi dan kebisingan menggunakan metode bioakustik dengan menerapkan *Passive Acoustic Monitoring* (PAM). Perekam SwiftOne dipasang di tujuh titik dengan jarak 800m antar titik. Data habitat meliputi faktor biotik dan abiotik dikumpulkan menggunakan *nested plot* dan *protocol sampling*. Identifikasi kehadiran melalui suara dianalisis menggunakan Raven Pro dan disajikan dalam grafik dan tabel. Pola vokalisasi dan kebisingan dianalisis menggunakan *Kernel Density Estimation* dan *t-test* atau *Mann Whitney U Test*. Data habitat ditabulasikan bersama data kebisingan dan vokalisasi, selanjutnya dianalisis menggunakan *Generalized Linear Model* untuk menjelaskan pengaruh kebisingan dan habitat terhadap vokalisasi.

Penelitian ini mendeteksi sebanyak 1917 kehadiran takur tenggeret dan ditemukan burung ini cenderung bersuara waktu kebisingan tinggi dibanding kebisingan rendah. Takur tenggeret menunjukkan pola aktivitas harian diurnal dengan waktu aktif antara pukul 5-17. Burung ini menggunakan tipe vokalisasi dengan pola *call-song-call* (pagi-siang-sore). Penelitian ini mengidentifikasi dua tingkat kebisingan antropogenik yaitu tinggi dan rendah. Hasil penelitian ini menunjukkan bahwa ketika kebisingan tinggi, takur tenggeret cenderung menurunkan frekuensi minimum dan maksimumnya. Kami menduga perubahan ini untuk menghindari *masking efek* atau mempertahankan kualitas komunikasi agar transmisi suaranya tetap optimal di habitat yang terganggu. Dengan demikian, diperlukan penerapan monitoring bioakustik secara berkala untuk memantau dan mendeteksi potensi ancaman pada tahap awal serta diperlukan langkah mitigasi kebisingan melalui penataan kembali ruang habitat melalui pengkonsentrasian pohon pakan di area tertentu.

Kata kunci: Vokalisasi, Takur Tenggeret, Kebisingan Antropogenik, *Passive Acoustic Monitoring*, Hutan Kemuning

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THE PRESENCE AND VOCALIZATION PATTERNS OF THE YELLOW-EARED BARBET IN VARIOUS LEVELS OF ANTHROPOGENIC NOISE IN THE KEMUNING FOREST, TEMANGGUNG REGENCY

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ABSTRACT

Anthropogenic noise can disturb acoustic communication, which triggers changes in animal vocalization. Kemuning Forest is the habitat of the takur tenggeret, managed using a coffee agroforestry system with intensive anthropogenic activity that has the potential to change the vocalization of this bird. These vocal changes may make the birds easier to detect, turning them into prime hunting targets. This research aims to identify the presence and vocalization patterns of yellow-eared barbet at various levels of anthropogenic noise in Kemuning Forest.

Data collection on vocalization and noise using bioacoustic methods was carried out by application of *Passive Acoustic Monitoring* (PAM). SwiftOne recorders were installed at seven points with a distance of 800m between points. Habitat data, consisting biotic and abiotic factors, were collected using *nested plots* and *protocols sampling*. Identification of presence through sound was analyzed using Raven Pro and presented in graphs and tables. Vocalization and noise patterns were analyzed using *Kernel Density Estimation* and *t-test* or *Mann Whitney U Test*. Habitat data were tabulated along with noise and vocalization data, then analyzed using a Generalized Linear Model to explain the effect of noise and habitat on vocalization.

This research detected 1,917 presences of yellow-eared barbet and found that this bird tends to vocalize more during times of high noise than low noise. Yellow-eared barbet shows a diurnal daily activity pattern with active hours from 5 a.m. to 5 p.m. This bird uses a call-song-call vocalization pattern (morning-afternoon-evening). This study identified two levels of anthropogenic noise: high and low. The results found that when noise levels were high, the yellow-eared barbet tended to lower its minimum and maximum frequencies. We suspect that this change is to avoid masking effects or to maintain communication quality so that its sound transmission remains optimal in disturbed habitats. Therefore, routine bioacoustics monitoring is needed to monitor and detect potential threats at an early stage, and noise mitigation measures are needed through the rearrangement of habitat space through the concentration of food trees in certain areas.

Keywords: Vocalization, Yellow-eared barbet, Anthropogenic Noise, Passive Acoustic Monitoring, Kemuning Forest

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