

DINAMIKA KOMPOSISI LANSKAP DAN HUBUNGANNYA DENGAN KOMUNITAS BURUNG, HERPETOFAUNA, DAN MAMALIA DI KABUPATEN ACEH TENGAH

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Intisari

Dinamika perubahan tutupan lahan di Aceh Tengah akibat aktivitas antropogenik mengancam integritas ekosistem dan habitat satwa liar. Penelitian ini bertujuan untuk menganalisis dinamika komposisi lanskap periode 2015–2024, mengidentifikasi struktur komunitas satwa (burung, herpetofauna, dan mamalia) pada berbagai tipe penggunaan lahan, serta mengidentifikasi faktor lingkungan penentu kehadiran kelompok satwa tersebut.

Penelitian dilaksanakan pada Maret 2024 menggunakan data spasial BPKH Wilayah XVIII Aceh. Analisis lanskap dilakukan dengan software *Fragstats 4.2.681* melalui tiga metrik utama. Data satwa liar dikumpulkan berdasarkan kelas (burung, herpetofauna, mamalia), sementara data vegetasi dan fitur habitat diambil menggunakan metode *Nested Sampling* dan *Protocol Sampling*. Analisis data mencakup Indeks Shannon-Wiener (H'), Indeks Evenness (E), dan *Generalized Linear Model* (GLM) menggunakan *R Statistics 4.5.1*.

Hasil analisis metrik lanskap menunjukkan bahwa Aceh Tengah mengalami peningkatan fragmentasi lahan yang ditandai dengan nilai *edge density* (ED) yang lebih tinggi pada lahan terbuka. Keanekaragaman jenis ($H' = 1-3$) dan kemerataan jenis ($E = 0,40-0,67$) satwa liar tergolong kategori sedang hingga tinggi yang didominasi oleh spesies generalis. Hasil GLM mengonfirmasi bahwa tutupan tajuk, volume daun strata menengah, dan akses terhadap air merupakan faktor penentu kehadiran yang lebih krusial dibandingkan luas lahan semata. Strategi konservasi harus difokuskan pada perlindungan habitat inti dan pengembangan koridor hijau pada perkebunan campur untuk menjaga konektivitas lanskap secara lebih efektif.

Kata Kunci: Aceh Tengah, Dinamika Lanskap, Fragmentasi, GLM, Satwa Liar

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DYNAMICS OF LANDSCAPE COMPOSITION AND THEIR RELATIONSHIP WITH BIRD, HERPETOFAUNA, AND MAMMAL COMMUNITIES IN CENTRAL ACEH REGENCY

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Abstract

Changes in land cover dynamics in Central Aceh due to anthropogenic activities threaten the integrity of ecosystems and wildlife habitats. This study aims to analyze landscape composition dynamics for the 2015–2024 period, identify the community structure of wildlife (birds, herpetofauna, and mammals) across various land-use types, and identify the environmental factors determining the presence of these wildlife groups.

The study was conducted in March 2024 using spatial data from the XVIII Aceh Regional Forestry Office (BPKH). Landscape analysis was performed using Fragstats 4.2.681 software through three main metrics. Wildlife data were collected by class (birds, herpetofauna, mammals), while vegetation and habitat feature data were obtained using the Nested Sampling and Protocol Sampling methods. Data analysis included the Shannon-Wiener Index (H'), the Evenness Index (E), and the *Generalized Linear Model* (GLM) using *R Statistics 4.5.1*.

The results of the landscape metric analysis indicate that Central Aceh is experiencing increased land fragmentation, characterized by higher edge density (ED) values in open areas. Species diversity ($H' = 1-3$) and species evenness ($E = 0.40-0.67$) of wildlife fall into the moderate to high categories, dominated by generalist species. GLM results confirm that canopy cover, mid-story leaf volume, and access to water are more critical determinants of species presence than land area alone. Conservation strategies should focus on protecting core habitats and developing green corridors within mixed plantations to maintain landscape connectivity more effectively.

Keywords: Central Aceh, Landscape Dynamics, Fragmentation, GLM, Wildlife

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