

KOMPOSISI DAN STRUKTUR VEGETASI BAWAH PADA TANAH BEKAS TAMBANG BAUKSIT DI KOTA TANJUNGPINANG KEPULAUAN RIAU

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INTISARI

Kerusakan tanah, hilangnya bahan organik, serta peningkatan kandungan logam berat aluminium dan kromium yang bersifat toksik bagi tanaman disebabkan oleh penambangan bauksit secara terbuka. Akibatnya, kesuburan tanah menurun dan proses revegetasi alami terhambat. Penelitian ini ditujukan untuk mengidentifikasi komposisi dan struktur vegetasi bawah, dilakukan perhitungan terhadap indeks nilai penting, diversitas, kemerataan, kesamaan, serta dianalisis pengaruh faktor fisik-kimia tanah, defisiensi unsur hara, dan kandungan logam berat terhadap indeks ekologis di lahan bekas tambang bauksit di Kota Tanjungpinang, Kepulauan Riau. Metode secara deskriptif-kuantitatif dengan pembuatan plot berukuran 1 m×1 m secara acak di bekas tambang bauksit Dompok dan Senggarang, serta lokasi tanpa naungan di Senggarang. Data dikumpulkan meliputi jumlah individu, identifikasi morfologi dan taksonomi, serta analisis tanah (pH, C-organik, N, P, K, kadar air, porositas, dan kandungan Al dan Cr). Sebanyak 24 spesies dari 17 famili vegetasi bawah ditemukan, didominasi oleh Cyperaceae dan Poaceae, dengan nilai penting tertinggi cf. *Festuca* sp., *Palhinhaea cernua*, dan *Dicranopteris linearis*. Indeks diversitas berkategori sedang, kemerataan tinggi, dan kesamaan rendah, yang menunjukkan heterogenitas komunitas antar lokasi. Tanah bekas tambang teridentifikasi sangat masam dan miskin hara, dengan kandungan Al sangat tinggi dan Cr rendah. Beberapa spesies berfungsi sebagai akumulator Al dengan kandungan pada jaringan tanaman. Faktor fisik-kimia tanah, unsur hara, dan logam berat berpengaruh positif terhadap indeks ekologi. Strategi reklamasi disarankan disesuaikan dengan karakteristik tanah untuk meningkatkan keberhasilan revegetasi menggunakan tumbuhan akumulator Al antara lain cf. *Festuca* sp., *Dianella ensifolia*, *Palhinhaea cernua*, *Digitaria* sp., dan *Dicranopteris linearis*.

Kata kunci: komposisi, struktur, Tanjungpinang, vegetasi bawah, bauksit

COMPOSITION AND STRUCTURE OF UNDERSTORY VEGETATION IN FORMER BAUXITE MINING LAND IN TANJUNGPINANG CITY RIAU ISLANDS

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ABSTRACT

Soil damage, loss of organic matter, and increased levels of heavy metals, aluminium and chromium, which are toxic to plants, are caused by open-pit bauxite mining. As a result, soil fertility decreases and natural revegetation processes are hampered. This study aimed to identify the composition and structure of understory vegetation, calculate the importance value index, diversity, evenness, and similarity, and analyze the influence of soil physical-chemical factors, nutrient deficiencies, and heavy metal content on ecological indices in former bauxite mines in Tanjungpinang City, Riau Islands. The descriptive-quantitative method was employed by randomly creating 1 m × 1 m plots in the former bauxite mines of Dompok and Senggarang, as well as in non-bauxite mine sites within Senggarang. Data collected included the number of individuals, morphological and taxonomic identification, and soil analysis (pH, organic C, N, P, K, water content, porosity, and Al and Cr content). A total of 24 species from 17 understory vegetation families were found, dominated by Cyperaceae and Poaceae, with the highest importance value cf. *Festuca* sp., *Palhinhaea cernua*, and *Dicranopteris linearis*. The diversity index was categorised as moderate, characterised by high evenness and low similarity, indicating community heterogeneity across locations. The post-mining soil was identified as highly acidic and nutrient-poor, with very high aluminium (Al) and low chromium (Cr) content. Several species function as Al accumulators due to their high content in plant tissues. Soil physical and chemical factors, nutrients, and heavy metals have a positive effect on the ecological index. Reclamation strategies should be adjusted to suit soil characteristics to enhance the success of revegetation using Al-accumulator plants, including cf. *Festuca* sp., *Dianella ensifolia*, *Palhinhaea cernua*, *Digitaria* sp., and *Dicranopteris linearis*.

Keywords: composition, structure, Tanjungpinang, understory vegetation, bauxite