ANALISIS KESENJANGAN EKOLOGIS HABITAT MACAN TUTUL JAWA (*Panthera pardus melas*) PADA HUTAN KONSERVASI DI BIDANG KSDA WILAYAH II BBKSDA JAWA BARAT

Listiany[1], Much Taufik Tri Hermawan[2], Hero Marhaento[2]
Mahasiswa Fakultas Kehutanan UGM[1], Pengajar Fakultas Kehutanan UGM[2]

INTISARI

Hutan konservasi di Jawa Barat menghadapi tekanan antropogenik yang menyebabkan degradasi habitat, fragmentasi lanskap, dan meningkatnya konflik antara manusia dengan Macan Tutul Jawa (*Panthera pardus melas*). Kondisi tersebut mengindikasikan adanya kesenjangan ekologis (*ecological gap*) yang menurunkan kemampuan hutan konservasi dalam mendukung keberlangsungan populasi satwa. Penelitian ini bertujuan mengevaluasi kecukupan ekologis hutan konservasi yang dikelola Bidang KSDA Wilayah II BBKSDA Jawa Barat serta mengidentifikasi kawasan di luar hutan konservasi yang berpotensi mendukung konektivitas habitat.

Penelitian menggunakan pendekatan metode campuran (*mixed methods*) melalui analisis spasial dan validasi lapangan. Pemodelan spasial dilakukan menggunakan algoritma *Maximum Entropy* (MaxEnt) berdasarkan 31 titik konflik manusia dan Macan Tutul Jawa untuk memetakan probabilitas konflik. Selanjutnya, analisis konektivitas dilakukan menggunakan *Least-Cost Path* (LCP) dengan *Linkage Mapper*, kemudian divalidasi melalui observasi lapangan dan wawancara dengan pengelola kawasan serta masyarakat.

Hasil penelitian menunjukkan bahwa sebagian besar hutan konservasi belum memiliki kecukupan ekologis untuk mendukung populasi Macan Tutul Jawa secara berkelanjutan. Sebagian besar kawasan memiliki luas habitat yang terbatas, terfragmentasi, dan mengalami penurunan kualitas habitat sehingga mendorong satwa bergerak ke luar hutan konservasi. Model MaxEnt menunjukkan kinerja yang cukup baik (Test AUC = 0,718), dengan variabel yang paling berpengaruh terhadap probabilitas konflik adalah jarak terhadap hutan (40,21%), diikuti jarak terhadap sungai (15,86%) dan jarak terhadap jalan (15,80%). Analisis konektivitas menunjukkan bahwa Hutan Lindung dan Hutan Produksi di wilayah KPH Bandung Utara dan KPH Bandung Selatan berperan penting sebagai koridor ekologis yang menghubungkan hutan konservasi yang terfragmentasi.

Penelitian ini menyimpulkan bahwa kesenjangan ekologis Macan Tutul Jawa tidak hanya disebabkan oleh keterbatasan luas habitat, tetapi juga oleh rendahnya konektivitas antarhabitat. Oleh karena itu, konservasi Macan Tutul Jawa memerlukan pendekatan berbasis bentang alam melalui perlindungan koridor ekologis, penguatan konektivitas habitat, serta pengelolaan kawasan di luar hutan konservasi secara terpadu.

Kata kunci: Kesenjangan ekologis, konektivitas lanskap, Macan Tutul Jawa, *Maximum Entropy*, *Least-Cost Path*

ECOLOGICAL GAP ANALYSIS OF JAVAN LEOPARD (*Panthera pardus melas*) HABITAT IN CONSERVATION FORESTS WITHIN REGION II OF THE WEST JAVA NATURAL RESOURCES CONSERVATION AGENCY (BBKSDA)

Listiany[1], Much Taufik Tri Hermawan[2], Hero Marhaento[2]
Student, Faculty of Forestry UGM[1], Lecturer Faculty of Forestry UGM[2]

ABSTRACT

Conservation forests in West Java are increasingly subjected to anthropogenic pressures, resulting in habitat degradation, landscape fragmentation, and escalating human-wildlife conflicts involving the Javan leopard (*Panthera pardus melas*). These conditions indicate the presence of an ecological gap that diminishes the capacity of conservation forests to support long-term population viability. This study aimed to evaluate the ecological adequacy of conservation forests managed by Region II of the West Java Natural Resources Conservation Agency (BBKSDA West Java) and to identify potential areas outside these conservation forests that could enhance habitat connectivity.

A mixed-methods approach was employed, integrating spatial analysis and field validation. Spatial modeling was conducted using the Maximum Entropy (MaxEnt) algorithm based on 31 human-leopard conflict locations to map conflict probability. Furthermore, connectivity analysis was performed using the Least-Cost Path (LCP) method via Linkage Mapper, which was subsequently validated through field observations and interviews with protected area managers and local communities.

The results indicate that most conservation forests lack the ecological adequacy required to sustain viable Javan leopard populations. The majority of these areas exhibit limited and fragmented habitats, alongside declining habitat quality, which forces the species to disperse beyond the boundaries of conservation forests. The MaxEnt model demonstrated good predictive performance (Test AUC = 0.718), identifying distance to forest cover (40.21%) as the most influential variable on conflict probability, followed by distance to rivers (15.86%) and distance to roads (15.80%). The connectivity analysis revealed that Protected Forests (*Hutan Lindung*) and Production Forests (*Hutan Produksi*) within the North Bandung and South Bandung Forest Management Units (KPH) serve as crucial ecological corridors linking fragmented conservation forests.

This study concludes that the ecological gap affecting the Javan leopard is driven not only by limited habitat extent but also by poor inter-habitat connectivity. Therefore, the conservation of the Javan leopard necessitates a landscape-based approach encompassing the protection of ecological corridors, the enhancement of habitat connectivity, and the integrated management of areas outside formal conservation forests.

Keywords: ecological gap, landscape connectivity, Javan leopard, Maximum Entropy, Least-Cost Path