

ABSTRAK

ANALISIS KESEHATAN HUTAN BERDASARKAN METODE *FOREST HEALTH MONITORING* DAN *REMOTE SENSING* DI TAMAN HUTAN RAYA BANTEN

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Tekanan aktivitas manusia dan faktor lingkungan di Taman Hutan Raya (Tahura) Banten yang merupakan kawasan penyangga ekosistem berpotensi menurunkan kesehatan hutan. Metode *Forest Health Monitoring* (FHM) mampu memberikan penilaian kondisi kawasan secara langsung di lapangan sedangkan *Remote Sensing* mampu menganalisis kondisi vegetasi secara cepat dan luas, sehingga perbandingan keduanya memberikan analisis kesehatan hutan yang lebih komprehensif. Penelitian ini bertujuan menganalisis kondisi kesehatan hutan menggunakan metode FHM dan *Remote Sensing*. Pengukuran dilakukan berdasarkan parameter indikator kondisi tajuk metode FHM menggunakan 8 Klaster plot (CL) yang mewakili kawasan Tahura. Analisis *Remote Sensing* dilakukan menggunakan citra *PlanetScope* berdasarkan indeks vegetasi *Normalized Difference Red Edge* (NDRE), *Chlorophyll Index Red Edge* (CIRE), *Soil Adjusted Vegetation Index* (SAVI), dan *Normalized Difference Water Index* (NDWI). Perbandingan kedua metode dilakukan untuk menganalisis keterkaitan antara Nilai Akhir Kesehatan Hutan indikator parameter kondisi tajuk (NKH) dan indeks vegetasi NDRE. Hasil penelitian menunjukkan bahwa CL1 NKH 0,22 berkategori buruk, CL2 NKH 2,20 kategori baik, CL3 NKH 1,32 dan CL4 NKH 1,10 berkategori sedang, CL5 NKH 2,20 serta CL6, CL7 dan CL8 NKH 1,98 berkategori Baik. Analisis citra menunjukkan sebagian besar kawasan berada pada kategori vegetasi baik berdasarkan indeks NDRE seluas 930,42 Ha dan indeks CIRE seluas 1.596,00 Ha. Indeks SAVI didominasi kategori baik seluas 843,49 Ha, sedangkan NDWI menunjukkan dominasi kebasahan sedang seluas 839,90 Ha. Hasil perbandingan menunjukkan bahwa nilai NKH dan NDRE memberikan gambaran kondisi kesehatan hutan yang relatif sejalan. Rata-rata nilai NKH sebesar 1,62 dan nilai NDRE 930,42 Ha menunjukkan kondisi kesehatan hutan pada kategori baik.

Kata kunci: *Forest Health Monitoring*, Penginderaan jauh, *PlanetScope*, NDRE; Taman Hutan Raya Banten.

ABSTRACT

FOREST HEALTH ANALYSIS BY METHOD FOREST HEALTH MONITORING AND REMOTE SENSING IN BANTEN FOREST PARK

By

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The pressure of human activities and environmental factors in the Banten Forest Park (Tahura), which is an ecosystem buffer area, has the potential to reduce forest health. The *Forest Health Monitoring* (FHM) method is able to provide an assessment of the condition of the area directly in the field whereas *Remote Sensing* is able to analyze the condition of vegetation quickly and extensively, so that the comparison of the two provides a more comprehensive analysis of forest health. This study aims to analyze forest health conditions using FHM and *Remote Sensing methods*. Measurements were carried out based on the indicator parameters of the FHM method header condition using 8 plot clusters (CL) representing the Tahura area. *Remote Sensing analysis* was carried out using *PlanetScope* imagery based on the *Normalized Difference Red Edge* (NDRE), *Chlorophyll Index Red Edge* (CIRE), *Soil Adjusted Vegetation Index* (SAVI), and *Normalized Difference Water Index* (NDWI). A comparison of the two methods was carried out to analyze the relationship between the Forest Health Final Value, the crown condition parameter indicator (NKH) and the NDRE vegetation index. The results showed that CL1 NKH 0.22 was in the bad category, CL2 NKH 2.20 was in the good category, CL3 NKH 1.32 and CL4 NKH 1.10 were in the medium category, CL5 NKH 2.20 and CL6, CL7 and CL8 NKH 1.98 were in the Good category. Image analysis shows that most of the areas are in the vegetation category based on the NDRE index of 930.42 Ha and the CIRE index of 1,596.00 Ha. The SAVI index is dominated by the good category covering an area of 843.49 Ha, while NDWI shows the dominance of moderate wetness covering an area of 839.90 Ha. The results of the comparison show that the values of NKH and NDRE provide a relatively consistent picture of forest health conditions. The average NKH value of 1.62 and the NDRE value of 930.42 Ha showed that the forest health condition was in the good category.

Keywords: Forest Health Monitoring, Remote Sensing, PlanetScope, NDRE; Banten Forest Park.