

**PENGARUH BIOGEOFISIK TERHADAP SIMPANAN KARBON  
KAWASAN HUTAN PRODUKSI DAN LINDUNG DI RPH SAMBIROTO,  
BKPH KEDIRI, KPH KEDIRI, DIVISI REGIONAL JAWA TIMUR**

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**INTISARI**

Hutan berperan penting sebagai penyimpan karbon dalam menghadapi perubahan iklim saat ini. Melalui fotosintesis, hutan menyerap CO<sub>2</sub> dari atmosfer lalu menyimpannya dalam biomassa tumbuhan dan tanah melalui akar. Proses ini membantu mengurangi CO<sub>2</sub> atmosfer dan dampak perubahan iklim. Penelitian ini bertujuan untuk mengetahui simpanan biomassa, karbon, dan serapan CO<sub>2</sub> yang ada pada hutan produksi dan hutan lindung di RPH Sambiroto, BKPH Kediri, KPH Kediri.

Penelitian ini dilakukan pada hutan produksi dan hutan lindung Perum Perhutani RPH Sambiroto, BKPH Kediri, KPH Kediri pada kelas perusahaan pinus dan kelas perusahaan rimba campur. Pendugaan biomassa tegakan pinus dilakukan secara non-destructive menggunakan total 30 plot ukur berbentuk persegi dengan luas 0,04 ha. Persamaan alometrik yang digunakan adalah persamaan allometrik dari Ketterings, (2001) yaitu  $B = 0,11 * \rho * (D^{2,62})$ . Kadar karbon dari biomasa menggunakan angka 47% seperti yang disarankan di dalam (SNI 7724, 2011), dan serapan CO<sub>2</sub> dihitung dengan mengalikan angka 3,67 dari simpanan karbonnya.

Hasil penelitian menunjukkan bahwa pada kawasan hutan produksi memiliki potensi biomassa sebesar 208,245 ton/ha, simpanan karbon 97,875 ton/ha, serapan CO<sub>2</sub> 357,815 ton/ha dan SOC sebesar 713,949 ton/ha. Sedangkan pada kawasan hutan lindung memiliki potensi biomassa 155,578 ton/ha, simpanan karbon 73,122 ton/ha, Serapan CO<sub>2</sub> 268,357, dan SOC sebesar 544,146. Besaran angka biomassa, simpanan karbon, serapan CO<sub>2</sub> dipengaruhi oleh faktor biogeofisik yang ada pada setiap kawasan hutan.

*Kata kunci: hutan produksi, hutan lindung, biomassa, simpanan karbon, serapan CO<sub>2</sub>, Soil Organic Carbon, biogeofisik*

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***BIOGEOPHYSICAL IMPACTS ON CARBON STORAGE OF PRODUCTION  
AND PROTECTION FOREST AREAS IN RPH SAMBIROTO, BKPH  
KEDIRI, KPH KEDIRI, EAST JAVA REGIONAL DIVISION***

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***ABSTRACT***

*Forests has an important role as carbon stores in the face of climate change. Through photosynthesis, forests absorb CO<sub>2</sub> from the atmosphere then store it in plant biomass and soil from root. This process helps reduce atmospheric CO<sub>2</sub> and the impacts of climate change. This study aims to determine the biomass, carbon and CO<sub>2</sub> uptake in production and protected forests in RPH Sambiroto, BKPH Kediri, KPH Kediri.*

*This research was conducted in the production and protected forests of Perum Perhutani RPH Sambiroto, BKPH Kediri, KPH Kediri which are allocated to the pine company class and mixed forest company class. Estimation of pine stand biomass was conducted non-destructively using a total of 30 square-shaped measuring plots with an area of 0.04 ha. The allometric equation used was that of Ketterings, (2001),  $B = 0.11 * \rho * (D^{2.62})$ . The carbon content of the biomass was 47% as suggested in (SNI 7724, 2011), and CO<sub>2</sub> uptake was calculated by multiplying 3.67 from the carbon storage.*

*The results showed that the production forest area has a biomass potential of 208,245 tons/ha, carbon storage of 97,875 tons/ha, CO<sub>2</sub> uptake of 357,815 tons/ha and SOC of 713,949 tons/ha. Meanwhile, protected forest areas have potential biomass of 155,578 tons/ha, carbon storage of 73,122 tons/ha, CO<sub>2</sub> uptake of 268,357, and SOC of 544,146. The amount of biomass, carbon storage, CO<sub>2</sub> uptake is influenced by biogeophysical factors that exist in each forest area.*

*Keywords: production forest, protection forest, biomass, carbon storage, CO<sub>2</sub> sequestration, Soil Organic Carbon, biogeophysics*

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