

Photosynthetic response of canopy species in a forest area in eastern Brazilian Amazonia

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The functional changes to experimental rainfall exclusion of a one-hectare area of primary forest in Santarém, State of Pará, Brazil, will be studied during a three-year period. The objective of the present study was to gather baseline data on the photosynthetic response of canopy (> 10m) species in the area, prior to implementation of the rainfall exclusion treatment. Measurements on individual species were made during the rainy and dry seasons of 1999, between 8:30h and 15:30h, local time, with an open portable photosynthesis system (Li-Cor LI-6400) under standard conditions. Wood towers provided access to the high forest canopy.

Mean PPFD during gas exchange measurements were 212.1 ± 323.2 (mean \pm standard deviation) and $298.1 \pm 455.7 \mu\text{mol m}^{-2} \text{s}^{-1}$ for the rainy and dry seasons.

Mean photosynthetic rates for the rainy and dry seasons were 5.37 ± 2.73 and $7.62 \pm 3.96 \mu\text{mol m}^{-2} \text{s}^{-1}$, and maximum photosynthetic rates were 21.1 and 22.7 $\mu\text{mol m}^{-2} \text{s}^{-1}$.

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