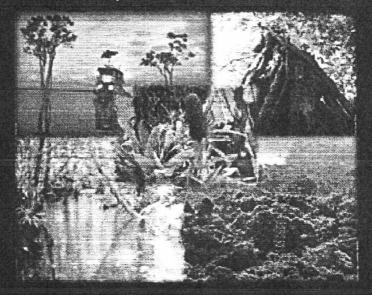


Experimento de Grande Escala da Biosfera-Atmosfera na Amazônia

## 2ª Conferência Científica Internacional do LBA 07 a 10 de Julho de 2002



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The effects of partial throughfall exclusion on the seasonal photosynthetic light response of trees in a forest area in eastern Brazilian Amazonia.

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We studied the effect of partial throughfall exclusion on the photosynthetic capacity (Amax) of seven tree species in a primary forest area, in the State of Pará, Brazil, Light response curves were measured, during the peak of the dry season (Dec 2001) and in the middle of the wet season (Mar 2002), on undamaged, mature leaves, using an infrared gas analyzer with an attached red LED light source. Measurements were made on species from three different groups: 1) canopy species: Sclerolobium chrysophyllum (Fabaceae) and Erisma uncinatum: 2) low-canopy species: Coussarea racemosa (Rubiaceae). Guatteria poeppigiana (Annonaceae) and Poecilanthe effusa (Fabaceae), and 3) pioneer Aparisthmium cordatum (Euphorbiaceae) and Miconia (Melastomataceae). For each group, curves were measured for attached leaves, between 8 and 12 h local time, at around 25, 12 and 10 m, respectively. Amax was lowest in the throughfall exclusion treatment, during the peak of the dry season, for all groups. This difference was highest for the pioneer  $(4.92 \pm 1.99 \text{ vs. } 2.66 \pm 0.76 \text{ } \mu\text{mol m}^{-2} \text{ s}^{-1}, \text{ mean } \pm$ standard deviation) and the canopy (10.07  $\pm$  1.63 vs. 5.51  $\pm$  2.32) species and lowest for the low canopy species (6.03  $\pm$  0.77 vs. 4.28  $\pm$  0.81), S. chrysophyllum and A. cordatum were the most affected species, with reductions in Amax of 73 and 72 %, respectively. In March 2002, recovery in the photosynthetic capacity was already evident for the lowcanopy  $(7.05 \pm 0.76 \text{ ys. } 7.11 \pm 0.84)$  and pioneer  $(8.14 \pm 2.65 \text{ ys. } 7.47 \pm 1.61)$  species. but less apparent for the canopy (12.15  $\pm$  0.95 vs. 8.18  $\pm$  0.56) species.