

### III LBA Scientific Conference, July 27-29, 2004, Brasília, Brazil

**Title:**

Pre-harvest Tree and Vine Biomass in a Rainforest in NW Mato Grosso, Brazil

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**Abstract:**

Selective logging has become a dominant land-use in Brazilian Amazônia. Published data on forest biomass in southern Amazônia is sparse. As part of a larger study to evaluate the effect of reduced impact logging on C dynamics and nutrient stocks, forest structure, and forest regeneration potential, we conducted a pre-harvest campaign to estimate tree and vine biomass in a parcel of managed forest in northwestern Mato Grosso. The diameter at breast height (DBH) of all commercially harvestable trees  $\geq 30$  cm DBH (40+ native species) was measured in 50 x 50 m cells in a 1000 ha management unit. We calculated biomass, stem density, and basal area for each cell, and then used kriging interpolation to generate three dimensional wire-frame maps for the area. Potential commercial biomass,  $50.2 \pm 24.5$  Mg ha<sup>-1</sup>, was highly variable across the 1000 ha area. To more intensively compare pre- and post-logging biomass and forest structure, we used these maps to locate stratified sampling transects (10 x 1000 m) within the management units and measured all stems  $\geq 10$  cm DBH. Total tree biomass ( $\geq 10$  cm DBH) was  $301.5 \pm 50.2$  Mg ha<sup>-1</sup>, with commercial biomass ( $\geq 30$  cm DBH) on average 17% of the total. Tree stems with 10-30 cm DBH, often not measured in biomass estimates, represented 84% of all tree stems and 32% of the total biomass. In nested transects (2 x 1000 m) we measured DBH of all vines and estimated biomass ( $13.3 \pm 6.5$  Mg ha<sup>-1</sup>) as 4.4% of the total measured biomass. Two non-commercial tree species *Amescla* (*Trattinickia burserifolia* (Mart.) Willd.) and *Breu* (*Protium heptaphyllum* (Aubl.) March.), represented 17% of the total biomass and 37% of the stems. Using geostatistical analysis, we plan to estimate tree and vine biomass as a function of DBH size classes, soil, and landscape position over a larger area of the forest.

**Presentation Type:** Poster