

III Conferência Científica do LBA

Anais de Trabalhos Completos

27 a 29 de julho de 2004

Academia de Tênis Resort

Brasília, Brasil



III LBA Scientific Conference

Abstract Book

July 27-29, 2004

Academia de Tênis

Brasília, Brazil

microbacias 2 e 4. Os conteúdos de carbono exportado foram respectivamente 667, 554, 830 e 465 g de carbono/ha para as microbacias 1, 2, 3 e 4; provavelmente em função da maior precipitação nesses meses. O estudo também mostrou que o conteúdo médio do carbono exportado pela liteira foi de 42,4%, sendo que os menores valores foram encontrados no mês de novembro.

27.8-P: Coarse Woody Debris Remineralization Rates in an Undisturbed Forest and Selective-Logged Areas at the FLONA Tapajos, Santarem

Hudson Silva, University of New Hampshire, Complex Systems Research Center, hsilvaus@yahoo.com (Apresentador / Presenting)

Patrick Michael Crill, University of New Hampshire, Complex Systems Research Center and Stockholm University, Department of Geology and Geochemistry, patrick.crill@unh.edu

Michael M. Keller, University of New Hampshire, Complex Systems Research Center and USDA Forest Service, International Institute of Tropical Forestry, Rio Piedras, Puerto Rico, michael.keller@unh.edu

Coarse woody debris pool (CWD) has a major role on tropical forest carbon fluxes because of high rates of tree mortality and decomposition processes observed in tropical forest. Despite its importance, the dynamics of this pool is poorly understood. The present study aims to capture the efflux rates of carbon dioxide (CO₂) from CWD and the main parameters on controlling that CO₂ flux. An undisturbed area at the FLONA Tapajos is being studied together with a nearby site in the same forest that was selectively logged from 1999 through 2003. In an undisturbed forest located at the km 67 at BR-163, efflux rates from CWD pool averaged $1.95 \pm 1.95 \mu\text{mol CO}_2 \text{ m}^{-2} \text{ wood.s}^{-1}$, $n = 51$ and for selective logged areas at km 83, the fluxes reached $2.61 \pm 1.44 \mu\text{mol CO}_2 \text{ m}^{-2} \text{ wood.s}^{-1}$, $n = 537$. A chronosequence of Five years of selective logging have been studied and flux variation among species was observed as a result of decay processes. Three species of commercial timber with different densities were studied to capture differences in decay rates. Respiration rates from CWD were strongly correlated to wood water content showing a decrease in CO₂ flux with increasing of moisture content and increasing wood densities (0.63, 0.74 and 0.9 g.cm⁻³) seem to have an effect on retarding decay processes.

27.9-P: Carbon, Nutrient, Light Interception and Soil Water Dynamics of Secondary Forests and Agroforestry Systems on Degraded Pastures

Steven A. Welch, Dept. Crop and Soil Sciences, Cornell University, Ithaca, NY 14853 USA, saw16@cornell.edu (Apresentador / Presenting)

Karen A. McAffer, Dept. Crop and Soil Sciences, Cornell University, Ithaca, NY 14853 USA, kam26@cornell.edu

Erick C.M. Fernandes, Dept. Crop and Soil Sciences, Cornell University, Ithaca, NY 14853 USA, ecf3@cornell.edu

Susan J. Riha, Dept. Earth and Atmospheric Sciences, Cornell University, Ithaca, NY 14853 USA, sjr4@cornell.edu

Elisa Wandelli, Embrapa-Amazonia Occidental, Manaus, Amazonas, Brazil, elisa@cpaa.embrapa.br

In the Brazilian Amazon, primary forest and degraded pastures represent polar extremes of carbon stocks, nutrient cycling, light interception, and deep soil water cycling. Plant succession on degraded pastures is expected to change these values, and the extent to which secondary forest (SF) restores these processes is a high priority research objective. This research quantifies Carbon (C) and nutrient stocks and accrual rates of 4 post-pasture landuses (LU) including 9 yr old SF and 3 agroforestry systems (AFS). All LU had carbon and nutrient stocks greater than values for recently abandoned pastures, but far less than nearby primary forest. Greatest C stocks were sequestered in aboveground biomass by SF (53.8 Mg C/ha) followed by the Palm AFS (41.7), Fruit AFS (34.3), and timber pasture (16). Light interception and soil water dynamics were monitored on these LU and on two additional SF of different ages (6- and 12-yr) and on traditional grazed pasture (GP). Light interception by SF of all ages (LAI 3.3) exceeded all other LU: Palm AFS (3), Fruit AFS (2.7), TP (2.5) and GP (2.2). Soil water content (SWC) dynamics follow the same trend as LAI with deepest SWC depletion by SF, followed by Palm, Fruit and TP AFS. SF 6-yr gained access to deeper SWC during the course of our study which corresponded with the closing of the upper canopy in this parcel. This suggests that in this environment, SF with closed upper canopies have a hydrology distinct from patchier tree canopies. This relationship might prove useful interpreting remotely sensed data.

B_Nutrientes (B_Nutrients)

28.1-P: Influência da puerária (Pueraria phaseoloides), sobre a transformação microbiana de nitrogênio do solo em sistemas agroflorestais do Projeto RECA em Nova Califórnia-RO

Patrícia Miranda Dresch, INPA/MCT, pdresch@uol.com.br

Regina Celi Costa Luizão, INPA/MCT, rcci@inpa.gov.br

Katell Uguen, INPA/MCT, katell@inpa.gov.br

Sonia Sena Alfaia, INPA/MCT, sonia@inpa.gov.br (Apresentador / Presenting)

O estudo teve como objetivo avaliar a influência da puerária (Pueraria phaseoloides), associada ou não à correção da acidez do solo, sobre as transformações de nitrogênio no solo em sistemas agroflorestais, em áreas de pequenos produtores do Projeto RECA (Reflorestamento Econômico Consorciado e Adensado), em Nova Califórnia, na divisa dos Estados de Rondônia e Acre.

Para abranger o efeito da sazonalidade sobre a atividade dos organismos envolvidos nos processos de transformação do N no solo, foram feitas coletas em três diferentes estações do ano. Os tratamentos selecionados foram: sistema agroflorestal; sistema agroflorestal com puerária; sistema agroflorestal com puerária mais adição de calcário; e floresta primária como controle.

O tratamento que recebeu calagem não apresentou mineralização do N e a nitrificação diferenciadas em relação aos outros tratamentos, provavelmente devido a uma boa adaptação dos microrganismos do solo às condições de baixo pH e altas