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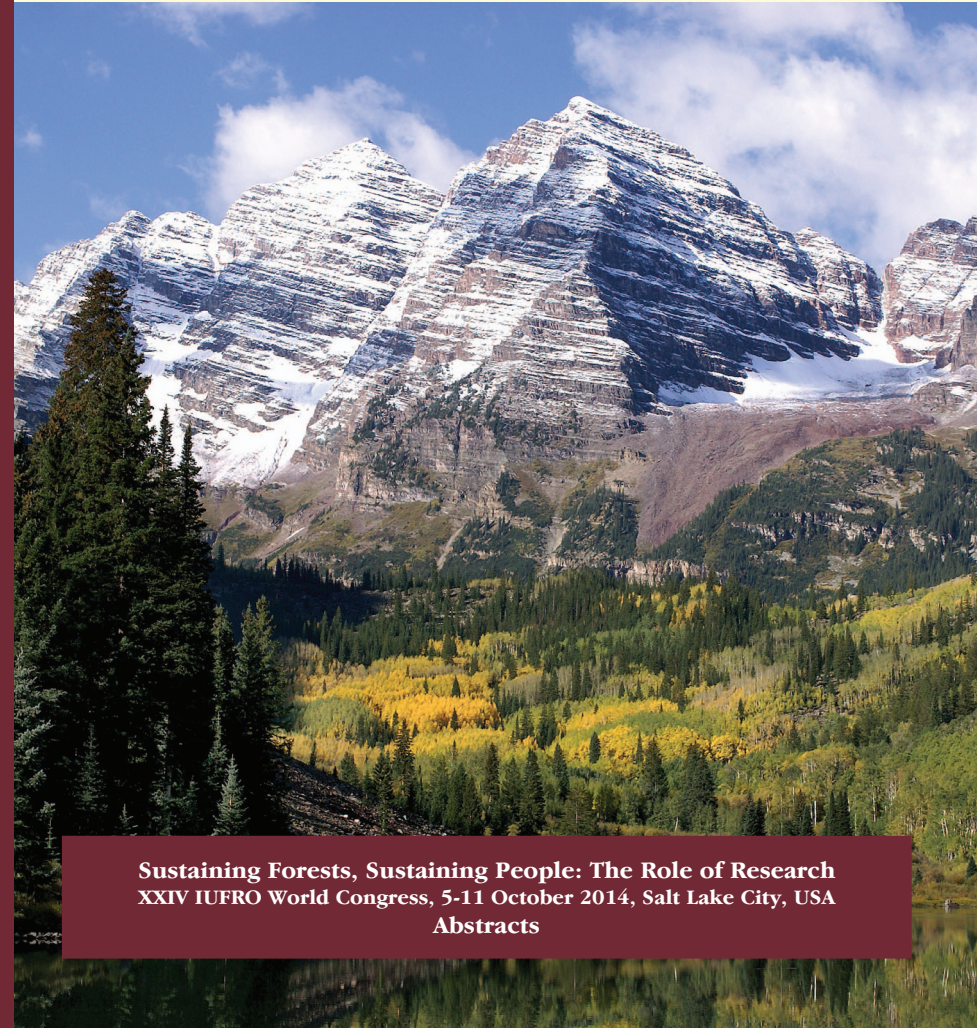
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The International Forestry Review



Sustaining Forests, Sustaining People: The Role of Research
XXIV IUFRO World Congress, 5-11 October 2014, Salt Lake City, USA
Abstracts

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The Role of Research**

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Abstracts

EDITORS

JOHN A. PARROTTA, CYNTHIA F. MOSER, AMY J. SCHERZER,
NANCY E. KOERTH and DARYL R. LEDERLE

Post-logging stand dynamics of a tropical rain forest in the Brazilian Amazon. de Avila, A. (University of Freiburg, Germany; angela.de.avila@waldbau.uni-freiburg.de), Ruschel, A. (EMBRAPA, Brazil; ademir.ruschel@embrapa.br), de Carvalho, J., Silva, J. (Federal Rural University of the Amazon, Brazil; olegario@pq.cnpq.br; silvanatalino734@gmail.com), Mazzei, L. (EMBRAPA, Brazil; lucas.mazzei@embrapa.br), Castro, T. (Federal Rural University of the Amazon, Brazil; ccastro.tatiana@gmail.com), Bauhus, J. (University of Freiburg, Germany; juergen.bauhus@waldbau.uni-freiburg.de).

Sustainable forest management requires an understanding of forest dynamics following logging disturbance. In this study we analysed the effects of four disturbance intensities on stand dynamics compared to the structure before logging and to a control treatment. Trees ≥ 5 cm DBH were measured on eight occasions in 41 permanent sample plots (0.25 ha) located in the Tapajós National Forest, Pará. Disturbance intensities, which comprised logging (1982) and thinning (1993–1994), ranged from 19 to 53% of basal area reduction in relation to its original value. Stand basal area returned to similar levels within 30 years except for the highest disturbance intensity. Number of stems per hectare increased with disturbance intensity. In disturbance levels $< 20\%$, the self-thinning process that started in dense stands after logging reduced density to levels similar to those before logging. Mortality was high soon after logging but following this period recruitment exceeded mortality for about 5 years. Annual mortality/recruitment rates declined over time but they were still higher than in the unlogged forest. Although these results indicate that the forest appears to recover its general structure under certain disturbance intensities, further studies are needed to evaluate the recovery of other ecological and productive features.

Mezilaurus itauba sustainable management in the Brazilian Amazon. Canetti, A. (EMBRAPA, Brazil; alinecanetti@gmail.com), Braz, E. (EMBRAPA, Brazil; evaldo@cnpf.embrapa.br), Mattos, P. (EMBRAPA, Brazil; patricia.mattos@embrapa.br), Oliveira, M. (Federal University of Paraná, Brazil; marianaferraz.floresta@gmail.com).

The specific understanding of the structure and growth of each species is the key to successful management in the Brazilian Amazon. *Mezilaurus itauba* was selected to be studied because its timber is very important to the economy of the state of Mato Grosso, in the Amazon region. It was sampled on 100 ha, where the growth of all commercial species were measured both before and 6 years after logging. The recruitment, mortality, and diameter structure of the species were measured at the study site. First, a matrix model was used to simulate species recovery within the cutting cycle (35 years) leaving aside 10% of commercial trees as mother trees, following the Brazilian forest legislation for native forests. The simulation indicated a recovery rate of only 14% of the original stock. Then, we tested a reduction of 33% of the cut rate, maintaining all the trees between 55 and 65 cm of diameter class center. The simulation in this case indicated a recovery of 78% of the original stock. These analyses showed that it is necessary to introduce in the Brazilian legislation the possibility of considering new alternatives for the management of the natural forests.

Natural regeneration management of pau-mulato in Amazonian estuary floodplains forests. Carneiro Guedes, M. (EMBRAPA, Brazil; marcelino.guedes@embrapa.br), Furtado Castilho, N. (Federal University of Amapá, Brazil; nubiaabrobio@gmail.com), de Sousa Rodrigues, D. (State University of Pará, Brazil; dani_enflor23@yahoo.com.br).

The pau-mulato (*Calycophyllum spruceanum* (Benth) K. Shum.) is one of the important species of Amazonian estuary floodplain forest, representing 25% of the wood processed at small, family riverine sawmills. Its wood (density=0.7 g/dm³) is commonly used in house construction. In the area of the Florestam project (forests of the Amazonian estuary), in the floodplains of the municipality of Mazagão-AP, Brazilian Amazon, we studied the potential for pau-mulato natural regeneration and evaluated the effect of thinning on growth. The pau-mulato density (63 220 trees/ha) was high in fallows derived from shifting cultivation, when prepared with fire, and in early succession (10–18 months), forming a true monospecific pau-mulato stand. After the thinning treatment, maximum (1.71 cm/year) and minimum (0.11 cm/year) diameter growth occurred at densities of 125 and 1 416 trees/ha (control), respectively. Pau-mulato responded positively to thinning, improving development after selective removal. The regeneration management allowed the choice of best individuals, without the costs of planting seedlings. The results confirm the potential to manage pau-mulato for wood supply and income to riverine sawmills in the Amazonian estuary, due to a guaranteed market and traditional use by families, and its rapid growth and high regeneration.

The vegetation recovery of tropical rain forests under different commercial logging methods on Hainan Island, China. Ding, Y., Zang, R. (Chinese Academy of Forestry, China; ydingcaf@gmail.com; zangrung@caf.ac.cn).

In this study, we assessed the natural recovery after commercial logging with three different methods, including repeated logging, selective logging, and managed selective logging in tropical montane rainforest of Hainan Island. Our results showed that commercial logging enhanced the number of species in recovered communities in the tropical montane rainforest, due mainly to the increase of species richness of small stems (< 10 cm DBH). There were significantly more stems in logged forests than in old-growth forests, but the basal area of logged forests were apparently less than old-growth forests. Rates of species accumulation of saplings and young trees in forests after logging were less than those in old-growth forests. After approximately 20–25 years of recovery, the community structure of forests after managed selective logging was similar to the old-growth forest. The long-lived pioneer species richness, stem density, and basal area increased significantly in the forests after logging, especially after repeated logging. However, there was little variation in species richness proportion of late succession and shade-tolerant species among different forest communities. Forests harvested with selective logging and managed selective logging had higher recovery potentials and rates, but it took time to recover to pre-logged levels.

Eucalyptus stocking and soil preparation in a frontier region of northern Brazil: necessity of changing concepts from traditional regions. Hakamada, R. (University of São Paulo, Brazil; rodrigo_hakamada@yahoo.com.br), Lemos, C., Almeida, A., Silva, R., Batistuzzo, G. (International Paper, Brazil; Cristiane.Lemos@ipaper.com; adriano.almeida@ipaper.com; renato.meulman@ipaper.com; guilherme.batistuzzo@ipaper.com).

The northern region of Brazil is a forest plantation frontier, with projections of 3 million ha of new plantations by 2020. There have been many studies worldwide regarding stocking and soil preparation in *Eucalyptus*, but none have been reported about this