

Adding value to forest products of secondary atlantic forests in Southern Brazil

Alexander Christian Vibrans¹, Alfredo Celso Fantini², Daniel Augusto da Silva¹, Heitor Felipe Uller¹, Aline Renata Klitzke¹, Geferson Piazza¹, Jackson Roberto Eleotério¹

¹Fundação Regional de Blumenau, Blumenau, Brasil; ²Universidade Federal de Santa Catarina, Florianópolis, Brasil (acv@furb.br; alfrdeo.fantini@ufsc.br; danefflorestal@gmail.com; heitor.uller.florestal@gmail.com; klitzkealine@gmail.com; gefersonpiazza@gmail.com; eleoterio@furb.br)

Perception of the importance of secondary forests has grown recently. Their role as carbon sink, provider of ecosystem services and multiple forest products both for smallholders and for large scale industrialization has been recognized. However, legal restrictions on sustainable use are still hindering innovative practices within the Atlantic Forest Biome. We report the experience of a pilot management project in a 40 year old restored secondary stand of subtropical evergreen moist forest in Santa Catarina state. Native tree species had been originally planted in the 1970s; nowadays its composition and structure is similar to a natural secondary forest. Different management strategies and harvesting intensities have been tested since 2012. Early secondary species like *Miconia cinnamomifolia* are harvested at their final age and with DBH up to 35 cm; long-lived secondary species like *Hyeronima alchorneoides*, *Cedrela fissilis* and *Nectandra* sp. are submitted to selective logging: poor quality trees are harvested, future crop trees are favoured. Harvesting damages, canopy cover parameters, increment of adults, regeneration and gap colonization are continuously monitored. The harvested timber is processed in the stand owner's sawmill. Boards and other sawnwood products achieve competitive prices, consisting in an important revenue for the landowner. In addition, local craftsmen transform small pieces of hardwood species like *H. alchorneoides*, as leavings from the harvesting process (stumps, branches and damaged trunks) and others from the sawmill processing, into unique and individualized artefacts used in indoor architecture, designed by associated architects and for an increasing local market for innovative and high standard habitations.

Ilex microdonta Reissek (Aquifoliaceae) trees in high summits of Serra do Mar mountain range in Southern Brazil: a first approach for climate reconstructions

Bruno Palka Miranda¹, Carlos Vellozo Roderjan¹, Paulo Cesar Botosso², Tomaz Longhi-Santos¹

¹Universidade Federal do Paraná, Curitiba, Brasil; ²Embrapa Florestas, Colombo, Brasil; ¹Universidade Federal do Paraná, Curitiba, Brasil (brunopalka@gmail.com; roderjan@ufpr.br; paulo.botosso@embrapa.br; longhi@ufpr.br)

For climate reconstructions we need a network of climate stations with good, long, concise and high-quality data, that is current unavailable in the Serra do Mar mountain range, Paraná, Brazil. As so, tree-ring chronologies can provide important data on climate, that can be reconstructed to understand the temperature variability in these mountains. The most important species of the tropical cloud forests in Paraná State, *Ilex microdonta*, form distinct tree rings and are sensitive to climate change, playing an important role in these communities. The objective of this research is to reconstruct the minimum temperatures in Serra do Mar and indicate the applicability of the technique in this region. The 30 trees for the chronology building (1802-2016) were sampled in Mãe Catira and Sete peaks (1,430 m a.s.l.), and the climate data for reconstruction were obtained by CRU temperature dataset (25,5° S; 49° W). We used PCR methodology with minimum AIC criteria for the best model evaluation. We were able to reconstruct 100 years of late spring and summer minimum temperatures, with RE and CE ≥ 0.498 and $R^2 = 0.32$. Although the results indicate low statistics for climate reconstruction, this was the first approach with tree rings in the Tropical Montane Cloud Forests in Serra do Mar, representing an important contribution for this study field. We also reinforce the need to improve climate research in these areas, in order to better understand the impact of global climate change local and regionally.

C5v: FOREST PRODUCTS

Evaluation of the effect of species and varnish on the quality of surface finish of some amazonian woods

Rosilani Trianoski¹, Christophe Belloncle², Mark Irle², Setsuo Iwakiri¹, Franck Michaud²

¹Universidade Federal do Paraná, Curitiba, Brasil; ²École Supérieure du Bois, Nantes, France (rosilani@ufpr.br; christophe.belloncle@ecoledubois.fr; mark.irle@ecoledubois.fr; setsuo@ufpr.br; franck.michaud@ecoledubois.fr)

The Amazon Rainforest is one of the main producers of tropical timber, covering an area of 550 million hectares. From this amount, 320 million (60%) are within the Brazilian territory. Besides, it houses about 50% of the world's biodiversity and 50% of the world's tropical timber reserve, with variability of up to 300 wood-producing species per hectare. Due to this variability, many species are still technologically unknown and consequently they are not commercially used, especially for high value-added products. Good surface finish will improve the look and durability of these products. Thus, this research evaluated the quality of surface finishes on Amazonian wood species; namely, *Byrsonima crispera*, *Eschweilera odora*, *Eschweilera coriacea*, *Manilkara amazonica* and *Inga alba*, harvested from the Experimental Station of Tropical Silviculture, INPA. Specimens with the dimensions 10x150x650mm were cut and prepared by planing and sanding (60-320). Alkyd, Acrylic Water Based, Nitrocellulose, Polyurethane varnishes were applied with specifications for internal use. Statistical analysis (Anova/Tuckey) was applied to evaluate the effect of species/varnish factors. The properties of the finishes were evaluated via gloss, adhesion and abrasion resistance tests (ABNT 14535:2008). The adhesion was classified as G1, with up to 5% of the detached film area, the polyurethane presented the lowest performance. The abrasion wear rate, adhesion and gloss were affected only by the varnish factor. Regarding the abrasion test, the nitrocellulose and polyurethane presented the lowest and highest performances, respectively. Therefore, it was concluded that the species factor had no effect on the properties of finishes.

Physical, mechanical, and chemical characteristics of piãozinho wood (*Micrandropsis scleroxylon* W. Rod. Euphorbiaceae) / Caracterização física, mecânica e química da madeira piãozinho (*micrandropsis scleroxylon* w. Rod. Euphorbiaceae)

Roberto Daniel de Araujo¹, Cristiano Souza do Nascimento¹, Joaquim dos Santos², Claudete Catanhede do Nascimento³, Estevão Vicente Cavalcanti Monteiro de Paula⁴

¹Programa de Pós-Graduação em Ciências de Florestas Tropicais, Instituto Nacional de Pesquisa da Amazônia, Manaus, Brasil; ²Instituto Nacional de Pesquisas da Amazônia, CDAM, Manaus, Brasil; ³Instituto Nacional de Pesquisas da Amazônia, Cotei, Manaus, Brasil; ⁴Universidade do Estado do Amazonas, Manaus, Brazil (rdanielrda@gmail.com; s-nascimento@hotmail.com; joca@inpa.gov.br; catanhed@inpa.gov.br; estevaompaula@gmail.com)

Na Amazônia, madeiras efetivamente explorada para fins comerciais estão restrita a pouco mais de uma dezena de espécies, entretanto, a floresta produz uma grande variedade, com elevada densidade populacional. A espécie *Micrandropsis scleroxylon* ocorre com grande frequência em florestas de terra firme no Amazonas/Brasil, entretanto, seu baixo diâmetro e a falta de informações técnicas impossibilitam uma aplicação dessa biomassa. O trabalho teve como objetivos