

ABSTRACT BOOK

IUFRO

Interconnecting Forests,
Science and People

125th Anniversary
Congress 2017



125TH ANNIVERSARY CONGRESS 2017

18 – 22 September 2017
Freiburg, Germany



www.iufro2017.com

Poster Exhibition Monday

119 - Quantifying disturbance effects and post-disturbance dynamics with repeatedly measured plots

KG II - HS 2121 (Uni Freiburg)

IUFRO17-516 **Dynamic of a tropical forest submitted to reduced impact logging in Belterra, Pará, Brazil**

Kroessin, A. (1); Brum Rossi, L. M.* (2); de Oliveira Melo, L. (3)

(1) UFAM, Manaus, Brazil; (2) Embrapa Amazonia Ocidental, Manaus, Brazil; (3) Universidade Federal do Oeste do Pará, Santarém, Brazil

Abstract: The Amazon has a great biodiversity that needs research to ensure its development without the extinction of its natural resources. This study aims to increase understanding of changes in dynamics (recruitment, growth and mortality) of a natural forest under low impact forest logging over a period of six years. The data used in this study came from measurements of the permanent plots of forest management of the Coomflona Cooperative project (Ambé project), located in the Tapajós National Forest, Belterra, Pará, Brazil, where all individuals were measured with diameter at breast height equal or larger than 10 cm (DBH \geq 10 cm). A forest area of 300 ha was selected, where six plots with a size of 50 x 50 m were installed, obtaining a sampling area of 1.5 ha installed with a completely randomized design. A total of 129 species were found in the forest in the first inventory (2006) and 136 species in 2012. During the monitored period, from 2006 to 2009, the forest showed a decrease of 6.46% in the number of individuals; for the period from 2009 to 2012 there was an increase of 5.78%. The results for the basal area were 30.36 m² ha⁻¹, 29.35 m² ha⁻¹ and 29.19 m² ha⁻¹ for years 2006, 2009 and 2012, respectively. The volume declined by 3.16% between 2006 and 2009, and by 1.68% between 2009 and 2012. The Periodic Annual Diameter Increment for the period from 2006 to 2012 was 0.38 cm year⁻¹. The growth values in basal area and volume for the period from 2006 to 2012, considering all species were 0.49 m² ha⁻¹ year⁻¹ and 6.06 m³ ha⁻¹ year⁻¹, respectively. Considering the whole monitored period, the forest presented a negative balance (0.09%), with the number of dead trees being 12.5 trees ha⁻¹ year⁻¹ and the recruitment 11.9 ha⁻¹ year⁻¹.

Forest management, mortality, growth, recruitment

KG II - HS 2121 (Uni Freiburg)

IUFRO17-3919 **The impact of forest fire on survival and growth of the survived scots pine trees**

Donis, J.* (1); Snepsts, G. (1); Senhofs, R. (1); Zdors, L. (1)

(1) LVMI Silava, Salaspils, Latvia

Abstract: Background: Wild fires can influence the growth of forest stand at least in two ways: by killing trees and by changing the course of growth of the survived trees.

Aim of study: The present study evaluates stand factors affecting growth of the trees after wild fire.

Area of study: Region throughout Latvia.

Material and methods: Data from the 33 pine stands affected by fire was used. In each stand were measured at least 50 trees. For each tree was assessed degree of impact - burn height, level of root exposure, level of crown damage. Survival of trees was assessed for four seasons. The Cox proportional hazards regression model was used. Eight to ten years after fire 30 trees per stand were cored and radial increment was measured using LINTAB IV. As the control trees for BACI design were used trees growing in the same stand at least 30m outside fire affected area or in the similar stand nearby. For growth similarity assessment method elaborated by I. Liepa (1996) was used. Calibration period (Before fire) was set to 10 years.

Main results: Majority of trees died within first 2 years. Mean 5 year additional cumulative diameter increment (MACDI) of survived trees was negative in all age groups: age group 31-60 years MACDI is -0.96 ± 0.56 (\pm SE)cm, age group 61-90 years MACDI is -1.57 ± 0.56 (\pm SE)cm, age group 90< years MACDI is -1.60 ± 0.66 (\pm SE)cm. Statistical analyses showed that the reduction in the radial increment is a related to height of stem burning. If mean burning height is less than 2m stands can have positive MACDI, while if mean burning height is higher than 2m MACDI is negative. Level of root exposure as well negatively influenced MACDI, despite root exposure was relatively low for survived trees. Annual changes in additional diameter increment varies between stands - from clearly negative trend up to positive trend.

Scots pine, fire, survival, growth
