

in a sub-alpine habitat of North-Central China over 7 years (2008–2015, except for the year 2012) with point dendrometers in this study. The results showed the following. (1) We estimated that approximately 53% of the variability in the annual radial increments is attributable to the rate of radial increment and approximately 47% to its duration. (2) The contribution of cessation time to the annual increments was more than three times that of the initiation time. (3) The initiation of radial increment was primarily controlled by soil temperature and warmer soil temperature could advance the initiation time. The cessation and rate of radial increment were mainly influenced by thermal and light-related environmental factors. During growing seasons, low temperatures and insufficient light caused by many rainy and cloudy days at the high altitudes of the Luya Mountains may result in earlier cessations and lower rates of radial increment. Overall, our results may have further applications in modeling the responses of tree stem growth to climate change in a sub-alpine habitat of North-Central China.

Dendrochronology applied to urban afforestation management


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Trees in urban area present their own responses to environmental pressures when compared to those in native forests. Monitoring these trees is essential for urban planning and security. Jacaranda mimosifolia D. Don is an exotic species in Brazil but widely used in urban afforestation. Tree falls of this species in urban area have been related to fungal infection. In this work, a dendrochronological study of a wood disc of *J. mimosifolia* that fell in an urban square (Joaçaba, Santa Catarina state) was carried out. The tree was flowering and apparently healthy. A disk with a diameter of 58 cm was collected one meter above the ground. It was polished (sands from 80 to 2000 grains) and five radii were dated, photographed with a reference scale and the growth rings measured in image software. Dating was checked in Cofecha and dendrochronological parameters were generated in Arstan. The estimated age was 37 years, and the correlation between the radii was $r = 0.563$ and the sensitivity of 0.255 (Cofecha), with $r_{bar} = 0.451$ (standard chronology). The average width-rings was 7.96 mm (0.74 to 16.89 mm). Areas with rot caused by fungi and routes caused by termites were observed. One hypothesis is that the fungal infection occurred for some injury between the tree's 17 and 20 ages (years 1998 to 2001) facilitating insects entry. The rot compromised about 2/3 of the disk, causing tree weakening and probably its fall.

Dendroecology and wood anatomy of a rare species *Dinizia jueirana-facao* (Fabaceae), “Tabuleiros” Atlantic Forest, Brazil

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The great diversity of tree species present in the tropics results from the high quantity of rare species. Therefore, understanding their ecology is critical to the conservation of these complex tropical ecosystems. Dendrochronology can retrieve valuable information from tree rings analysis. We characterize the wood anatomy of *Dinizia jueirana-facao*, a rare tree species recently described, occurring only in semi-deciduous Atlantic rain forest in Espírito Santo State, Southeastern Brazil. Preliminary results of dendrochronological studies are also presented. For microscopic analysis of growth-ring boundaries and dendrochronology, we prepared samples of five adult trees by standard techniques in each area. *Dinizia jueirana-facao* has growth rings visible to the naked eye, but sometimes with difficulty, demarcated by thin marginal parenchyma bands. It shows fiber wall thickness variation sometimes resulting in distinct tangential fiber zones in the latewood. Confluent parenchyma bands are especially frequent sometimes masking the tree-ring boundaries. Despite difficulties in some samples, we crossdating five trees (10 rays). The correlations within the trees were 0.40 up to 0.80, among trees of $r = 0.538$, $r_{bar} = 0.277$, $EPS = 0.81$ and mean sensitivity of 0.551. Although preliminary, the results obtained so far demonstrate the dendrochronological potential of the species can already be verified. The high synchronicity and sensitivity of the growth rings in the investigated population shows that this rare tree species is affected by recurrent variations in the environment. After completing crossdating, we will test the chronology with local and global climate data.

Dendroanatomy of *Copaifera pubiflora* and the prospect of oleoresin production

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Copaifera pubiflora Benth. (Fabaceae) is a medium-sized tree species recorded in Brazil, only in Roraima state, on river Branco Savannas, where it is observed in forest islands and gallery forests. It can also be found in small patches of tropical rainforests at its Southern boundary, in a transition area between the savanna formation and tropical rainforests. The word copaiba comes from the Tupi “kupa ‘iwa” and means “tank tree”, referring to the fact that the species produces and stores an oleoresin in its trunks. This oil is collected solely from native forests, mainly in Amazon. In spite a large number of studies conducted on copaiba oleoresin chemical composition and pharmacological activities, aiming the definition of potential applications, there are still gaps in species ecological aspects that must be filled to define its productive potential, contributing to the establishment of management plans and practices. In this work, preliminarily, we used a dendroecological approach to characterize *C. pubiflora*'s growth rings and its annual formation from non-destructive samples collected in two phyto-ecological units, in Roraima. With ring dating and data synchronization, we hope to quantify the secretory structures occurrence and density in *C. pubiflora*'s timber over time, relating them to oleoresin production (liters) and trees functional and structural attributes (age, diameter at breast height, total height, commercial height, crown area), from a dendroanatomic analysis. Funding: This work was supported by Embrapa through Kamukaia III Project – “Appreciation of non-timber forest products in the Amazon” [grant number SEG 12.13.07.007.00.00].

Prediction of tree-ring widths using climate data time-series modeling approach

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Dendrochronology is a scientific discipline that performs dating of historical events allowing better understanding of environmental processes and human induced changes including past weather, forest fires, landslides, insect outbreaks, etc. Tree-rings, central paradigm of Dendrochronology, may be well used also