

Growth of different progeny of *Araucaria angustifolia* (Bertol.) O. Kuntze in Southwestern Paraná, Brazil / Crescimento de diferentes progênies de *Araucaria angustifolia* (Bertol.) O. Kuntze no Sudoeste do Estado do Paraná

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Araucaria angustifolia é considerada uma espécie ameaçada de extinção, devido à exploração indiscriminada e erosão genética historicamente ocorrida. Existe uma grande necessidade de pesquisas e melhoramento da espécie visando conservação e uso sustentável da mesma. Neste trabalho, avaliou-se o desempenho silvicultural de diferentes progênies de *A. angustifolia*, em experimento em delineamento inteiramente casualizado (DIC), implantadas em julho/2016, em 30 tratamentos (progênies) oriundas de Santa Catarina (15) e Paraná (15), com três repetições de cinco mudas cada. Este trabalho apresenta os resultados do inventário realizados aos dois anos de idade, para as variáveis: Diâmetro do colo (D); Altura (H) e Vigor (V), as quais foram submetidas a análise de variância e teste de médias de Tukey a 5% no programa SISVAR v; 5.6. Houve diferença significativa entre as progênies para H e D, onde a maior média para H foi na progênie 957PR (1,54 m) diferindo significativamente de algumas progênies como a 958PR (0,18 m) que obteve a menor altura. No D, o maior valor ocorreu na progênie 963PR (4,2 cm) e a menor foi a 954PR (0,35 cm). Quanto ao vigor (V), 96,6% apresentam o vigor médio, 2,2% baixo e 1,2% alto, mostrando que as plantas ainda estão em processo de adaptação. Ocorreram diferenças significativa entre o crescimento das araucárias, onde as progênies do Paraná (PR) apresentam-se melhor adaptadas que as de Santa Catarina (SC), principalmente as progênies 963PR e 957PR que obtiveram as melhores médias e vigor superior.

Roads with Araucarias: payment for ecosystem services project for small-scale rural producers

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Araucaria angustifolia is the symbolic tree species of Southern Brazil. However, its extensive exploitation over several decades to meet domestic and export market demands for lumber, as well as the expansion of agriculture, has resulted in a significant reduction in the species' population and its inclusion on the Brazilian list of threatened species. Through Payment for Ecosystem Services, the Roads with Araucarias Project encourages the planting of *A. angustifolia* along roadways and property lines on small-scale family farms. Rural producers plant *A. angustifolia* trees on their properties and are remunerated by private companies who use the trees as compensation for greenhouse gas emissions and to promote other ecosystem services, such as roadway landscaping, environmental protection, preservation of the *A. angustifolia* species, environmental education, production of *A. angustifolia* pine nuts (pinhões), benefits for fauna, and shade for cattle. The project also seeks to increase the population size of *A. angustifolia*. Each producer receives R\$ 1,000 (approximately US\$ 300) annually for every 200 trees that he/she plants and maintains along roadways. The project began in 2011 and includes 70 properties in the municipalities of Lapa, Fazenda Rio Grande, and Irati, Paraná, and Caçador, Santa Catarina. In the four municipalities, 20,000 trees have been planted. However, the most positive result is the dissemination of the technique to other rural property owners, particularly those that are not small-scale farmers. Producers have voluntarily adopted the practice of planting *A. angustifolia* along property lines because of the advantages these trees offer, including improved aesthetics.

Overcoming constraints for incorporating valuable-timber native species in the mesoamerican humid lowlands: recent research findings on *Roseodendron donnell-smithii*

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High diversity of tree species is a remarkable feature of humid tropical lowland landscapes; land conversion, forest degradation and overexploitation of wood are reducing populations of native valuable timber producer species. Cultivation of such species is a highly desirable goal in different forestry and agroforestry plantations; however, that is hampered by the scarcity of knowledge on their ecological requirements and feasible silvicultural treatments. This paper describes recent research on the ecology and silviculture of *Roseodendron donnell-smithii*, a valuable timber producer, native of the humid lowlands of Mesoamerica. Species remnant populations are restricted to agroforestry plantations in Guatemala, mostly on Coffee and Silvopastoral Systems due to its value for shade, ornamental and valuable cabinet-timber. Failure of monoculture plantations established in a variety of sites throughout Guatemala with government incentives during the last two decades, raised awareness on needed knowledge of the auto-ecology of the species as the foundation for proper silviculture. Species recent research addressed site requirements, genetic variability and conservation, timber yield potential and stand productivity in mixed stands with other timber species and some permanent agricultural crops as an alternative to monoculture. Research findings for *Roseodendron donnell-smithii* are demonstrating that successful cultivation of valuable tropical native species is feasible for multiple purposes including productive, conservation and restoration, as long as species ecological knowledge support appropriate design and management practices. Long-term research and collaborative efforts among different stakeholders at national and international levels is essential to enhance innovation for increasing the use of such species.

A2p: SUSTAINING ICONIC AND HIGH-VALUE SPECIES IN NATURAL FORESTS AND PLANTATIONS

Effects of the microclimate of different forest community type on the distribution of endangered fern, *Mankyua jejuense* in Jeju Island in South Korea

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Endangered plant, *Mankyua jejuense* (fern), which is distributed only in Jeju Island in South Korea, is one of the smallest one in the world. This species appears to be habitats called Gotjawl where the geology and soil of the basaltic plain are scarcely developed, and temporary seasonal wetlands are often formed by summer heavy rains. In particular, in terms of climate zone, the potential natural vegetation in this area is evergreen broad-leaved forest, but there is almost no *Mankyua jejuense* in this area. Instead, it is distributed mainly in the floor of the deciduous forest, which can be said to be the disclimax forest type of this area. In this study, we monitored and analyzed the microclimate of weather, light and soil factors in two different forests type of Jeju Island. Through this study, we tried to clarify the difference of the microclimatic conditions of the two forests type and attempt to interpret the influence of such microclimate factors on