be initiated immediately. Although natural forests will not be able to supply alone the timber market demand, they will play a major role in environmental services (including biodiversity protection and conservation, climate change mitigation rather than solely for timber provision while they will continue to provide necessary income to forest communities that depend on the forests for their livelihoods.

Population management of *Juniperus procera* tree from Ethiopia

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In this study we evaluated the sustainability of *Juniperus procera* timber management from two important dry afromontane forests (Chilimo and Wofwasha) in Central Ethiopia. A total of 141 major sample plots were established. We used dendrochrological techniques and stand class projection model. The cutting cycle simulated was 30-year. Due to the higher population disturbance in Chilimo forest three scenarios were simulated: disturbance ceased; remain at the same intensity and increased by 25%. For Wofwasha forest we only considered the current situation. For both forests the diameter limit was simulated varying between 50 and 60 cm, seeking the optimal harvestable diameter and ensure a more sustainable structure. In Chilimo forest it would be possible to produce 0.76 m^3 ha^{-1} year-1, stabilizing after 5 cutting cycles. The continuity of undue exploitation in the forest following the same pattern will lead to a reduction in 37% of timber volume production. And increasing the exploitation by 25% will lead to a 76% reduction, potentially destroying the capacity of the forest to recover, and it was considered unsustainable. In Wofwasha forest simulations resulted in 0.63 m^3 ha^{-1} year-1 of timber production. The simulations also showed that population structures of both forests become similar after the sixth cycle, suggesting that these forests have the same forest formation. The differences today appear to be due to the disturbance level or interventions by local communities and history of logging in each forest.

Implications of silvicultural interventions for sustainable forest management: case study of Bobiri Forest in Ghana

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Silvicultural interventions are necessary for regulating tropical forest growth and productivity. This paper describes experiments carried out in Bobiri forest in Ghana through the tropical shelterwood system (TSS), post-exploitation system (PES) and the girth limit selection system (GLS) to simplify the forest structure and species composition to enhance productivity. Stand basal area was reduced from about 30 m2 ha^{-1} to 12 – 15 m2 ha^{-1}. After 40 years data on height, diameter and species were collected for all trees with DBH > 10 cm from six one-hectare plots in each treatment. The results showed that the forest was capable of recovery in terms of structure, species diversity, and productivity to the pre-intervention state. There was no significant difference between treated and unlogged forest (c2= 26.3; df = 21; P = 0.196). However, stand density was higher in the silviculturally-treated stands relative to unlogged forest (F = 7.62; df = 3; P = 0.002). A total of 176 tree species were recorded in 38 families; the 10 most common species between treatments accounted for > 50% of the species, but < 46% in unlogged forest, with no significant shifts in species composition. The treated stands attained structural and compositional attributes similar to unlogged forest after 40 years, but commercial basal area was higher in the treated forest. In conclusion, silvicultural interventions (including harvesting) can improve both commercial productivity and species composition, depending on intensity and frequency of interventions.

Population dynamics of *Mezilaurus duckei* van der Werff (Lauraceae) in a managed forest in the Eastern Amazon region / *Dinâmica da população de Mezilaurus duckei van der Werff (Lauraceae) em uma floresta manejada na Amazônia Oriental*

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Estudos ecológicos são primordiais para avaliar a sustentabilidade do manejo florestal, pois indicam o estado de conservação das espécies exploradas. Com a finalidade de inferir sobre a conservação da população de Mezilaurus duckei, avaliou-se a sua dinâmica no período de 33 anos após a exploração. A pesquisa foi realizada na Área Experimental km 67, na Floresta Nacional do Tapajós (02º 53' 03,09'' S; 54º 55' 30,10'' W). Os dados são provenientes de inventário contínuo realizado em 36 parcelas permanentes (50 x 50 m) instaladas em 1981 em 64 ha que foram explorados em 1979. Foram medidas as árvores com DAP ≥ 5 cm em 9 ocasiões no período 1981-2012. Analisou-se a abundância, dominância, distribuição diamétrica, taxas de ingresso e mortalidade. A abundância (1,1 indivíduo ha-1 em 1981) aumentou 10% em 31 anos e a dominância (0,051 m² ha-1) aumentou 39%. Não houve mortalidade no período, mas houve ingresso de 10%. Por isso, em relação à distribuição diamétrica houve acúmulo de indivíduos no período avaliado, sendo 54,5% na classe DAP < 25 cm, 36,4% na classe DAP 25-45 cm e 9,1% na classe DAP ≥ 45 cm. Comparando as distribuições diamétricas de 1981 e 2012, observa-se claramente a passagem de indivíduos das classes inferiores para as superiores. *M. duckei* aumentou gradativamente seu estoque na área explorada, demonstrando que pode se recuperar e garantir futuras colheitas de madeira. Recomenda-se a aplicação de tratamentos silviculturais na área para estimular o recrutamento, crescimento e evitar a sua extinção local. (Embrapa, CNPq, UEMASUL).

The influence of initial stand structure on plant community composition and diversity in eucalypt forest

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Effective forest management and conservation require knowledge of the structure and composition of forest stands and how they change over time. Disturbances are important drivers of these forest stand dynamics, providing opportunities for recruitment, shifts in relative dominance of species, and changes in the trajectory of stand development especially in Southeastern Australia. The type of disturbance, its intensity, and any interactions with previous disturbances all influence how individual species respond and will shape the post-disturbance development patterns. Forest structure has a substantial influence on plant community composition. The structure of vegetation plays a vital role in shaping biodiversity. The recruitment of target species in managed forests following harvesting is a crucial objective of sustainable