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Impact of timber exploitation in the genetic diversity and demography of *Manilkara huberi* (Ducke) A.Chev: generation of indicators for sustainable management

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Amazon tropical forest has experienced high rates of deforestation in the last decades. This forest represents an invaluable heritage of several countries and its diversity of ecosystems hosts an infinity of plants. Due to this high diversity, policies focus on reducing impacts on the management for a given forestry product are difficult to evaluate and measure. This project aimed to evaluate the consequences of timber exploitation in one of the most exploited timber trees, *Manilkara huberi*. Microsatellite markers showed high levels of polymorphism. For adults, juveniles and seeds (pre-logging) the following values were obtained: $H_e=0.867, 0.840, 0.811$, respectively. The fixation indexes for the three generations were all different from zero ($f=0.221, 0.303$ and 0.237), although not statistically different between each other (95% CI). After logging, the fixation index in the seedling generation was significantly reduced ($f=0.069$). Logging led to the loss of 11,6% of the total amount of alleles. The significant spatial genetic structure observed at the unexplored population (450m) was not detected after exploitation. The same result was observed for the commercial individuals. Eco-gene simulation model was used to evaluate the long-term impact in genetic diversity and demography. Several scenarios (13), combining different cutting diameters (45, 55 and 65 cm dbh), cycles (30, 60 and 90 years) and residual amount of adult trees (10, 30 and 50%) were tested. At the end of the simulated period the basal area was strongly reduced under all conditions. In only one scenario the species was able to recover its basal area following logging (90 years cycle). The species also showed a loss of alleles and genotypes and an increased genetic distance. However, effective number of alleles, expected and observed heterozygosities, and the fixation index were little affected by the logging simulations. It becomes clear the importance of knowledge regarding the biology of the species in order to define efficient management programs.