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Long term Impact of logging on carbon storage and tree diversity in the Amazon Basin

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Currently, 350 million hectares of tropical moist forests worldwide are designated as production forests. Sustainable management of tropical forests for timber production has been proposed as a potential tool for the conservation of large areas of tropical forest. The key is to identify practices that promote repeated extraction of forest goods (timber and non timber forests products) without compromising important forest services such as biodiversity and carbon. However, Forest management guidelines applied in the Amazon basin are based on very general rules such as a unique minimum diameter cutting limit for all timber species and a rotation cycle of 30 years. These guidelines generally ignored the broad variation of forest types in the region. For example, the Amazon region shows a strong East-West gradient in both floristic composition and forest dynamics. This paper presents the results of the long term impact of logging on carbon storage and tree diversity in three different locations, one in French Guiana and two in the Brazilian Amazon. The main objectives are (i) to compare among the three sites the long term impact of logging intensities on forest dynamics and floristic composition, (ii) to propose research priorities to improve forest management guidelines so that they better reflect the gradient of forest types across the region.