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### III.13 Reclamation of abandoned pastures for crop cultivation in northeastern Pará, Brazil

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In the last decades about 25 to 30 million ha of Amazonian primary forest have been converted into pastures and cropland. More than 50 % of these pastures are considered to have reached an advanced state of degradation. In northeastern Pará, where practically no primary forest remained, secondary vegetation, called "capoeira", is the dominant vegetation cover. The vigorous re-growth of Capoeira during the fallow period allows the regeneration of the land after cultivation of annual crops. Compared to the fallow following annual crops, the regenerative potential of degraded unproductive or abandoned pastures is lower and the regeneration process much slower. Thus, this study proposes to facilitate the recuperation of abandoned pastures for productive use by enriching the re-growing capoeira with leguminous trees and shrubs. Leguminous species of different growth forms were selected according to their ecological adaptation, their potential for rapid growth and for high accumulation of biomass. The experiment was set up in March 2001 on a 8-year old *Brachiaria humidicola* pasture in the municipality of Igarapé-Açu, Pará, that had been abandoned for the last 2 years. Ten species, namely *Acacia mangium*, *Sclerolobium paniculatum*, *Leucaena leucocephala*, *Chamaecrista rotundifolia*, *Flemingia macrophylla*, *Stylosanthes guianensis*, *Pueraria phaseoloides*, *Mucuna pruriens*, *Arachis pintoi*, and *Desmodium ovalifolium*, are being tested in pure stands and combinations adding up to 24 treatments, including the two controls, unchanged pasture vegetation and capoeira re-growth without enrichment. As additional factor fertilization with phosphorous (60 kg P<sub>2</sub>O<sub>5</sub> ha<sup>-1</sup>) is considered. Each of the 48 treatments is being tested in 12 m x 12 m plots in four replications (192 plots) using a randomized block design on a total area of 3.3 ha. The following parameters will be measured: chemical and physical soil properties and biomass before planting, after 6 months, one year and two years, vegetation cover and botanical composition before planting and in six months intervals, resprouting of the natural vegetation from roots and trunks, the rate of establishment and survival of the planted species, height and diameter of trees and shrubs every two months, mass and decomposition rate of litter.