BENZOIN GARDENS AND DIVERSITY IN NORTH SUMATRA, INDONESIA

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In recent years tropical forest conservation debates have focused increasingly on traditional management systems. Some believe these systems may provide the means to meet both conservation and development goals in tropical rural areas. The study of benzoin gardens contributes to this debate by assessing the impact of this management regime at the ecosystem level, in terms of forest structure, tree species composition and diversity. Two villages were selected in the benzoin cultivation area of the North Sumatra highlands; 45 gardens were sampled in randomly distributed plots. For each garden data on establishment, management practices and productivity were collected in interviews with the garden owners. Ecological information was gathered in gardens, in secondary forest areas developing from gardens abandoned for over 30 years, and in primary forest areas. The results show that benzoin gardens represent a low-intensity disturbance of the ecosystem, maintaining a structure that allows effective accumulation of forest species.

Garden management, mainly by non-selective elimination of vegetation with a machete, allows species with a vegetative reproduction capacity to remain in the garden and reduce the effects of competitive exclusion mechanisms on species composition. Once the gardens are abandoned, tree diversity of the resultant secondary forest is similar to that in primary forest, which suggests a high resilience of this forest formation under current benzoin management practices. However, a more detailed look at vegetation composition indicates that, in primary forest, the species have a more restricted distribution and those that are characteristic of undisturbed environments occur in a higher proportion.