

# The impact of logging with two different minimum cutting limits on residual stand damages, beetle diversity, soil erosion, nutrient loss and water quality in the Deramakot Forest Reserve, Sabah

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**Abstract** An experiment was set up to assess the impact of 2 minimum diameter cutting limits: 1) 60 cm DBH for all commercial trees, and 2) 45 cm DBH for commercial non-dipterocarps and 55 cm DBH for commercial dipterocarps. Generally, the impact of the 2 treatments on the forest environment was similar. The use of RIL guidelines to carry out the logging is deduced to be the reason for this similarity. The study showed that the environmental damages associated with both cutting limits are acceptable according to the standards allowed under current RIL guidelines in Sabah. The acceptable detrimental impacts of logging on the residual trees and seedlings, beetle diversity, soil erosion, nutrient loss from the forest ecosystem in the form of logs removal and water quality in this study indicate good prospect for regeneration of the forest. Thus, strict compliance with reduced-impact logging (RIL) guidelines is effective in limiting logging damage in logged-over lowland mixed dipterocarp forest and could sustain the productivity of the tropical forest not only in producing timbers but also in providing other services such as producing clean water, as habitat for biodiversity, aesthetic values, and stabilising climate (as carbon sink).