



# Impact of forest management systems on diversity and abundance of butterflies at Asenanyo forest reserve, Ghana

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## ABSTRACT

*Objectives:* Every forest management practice characteristically affects the structural elements of forests, which eventually influences the habitat conditions of biodiversity living in it. These practices, which may represent various forms of disturbance regimes could influence butterfly species richness, abundance and relationship with their hosts. This study was conducted in the Asenanyo River Forest Reserve in the Ashanti Region of Ghana to determine the impact of forest management systems on the diversity and abundance of butterflies in the forest reserve.

*Methodology and Results:* The transect method using standard fruit baited traps were employed to capture butterflies in an unlogged, selectively logged and plantation forest management zones. Eight trap net stations spaced at 100 m interval on a 1 km transect were used for the butterfly sampling. This was replicated each other month in all the study areas for a period of six months; each transect was located about 500 m from each other. Shannon-Wiener and Simpson's diversity indexes were used to analyze species richness and diversity of butterflies. The selectively logged forest zone recorded the largest number of butterflies (968) while the plantation recorded the least number of butterflies (466). Shannon-Wiener and Simpson's indices for the selectively logged forest and unlogged forest were similar. Shannon-Wiener and Simpson's indexes were however significantly higher in the unlogged than in the plantation forest ( $P < 0.05$ ).

*Conclusion and application of findings:* The findings of the study indicated that selective logging could be considered as a good alternative to preserve butterflies in production reserves.