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LITTER AND SOIL ARTHROPOD COMMUNITY ASSEMBLAGE IN ENVIRONMENTALLY CRITICAL AREAS NETWORK OF PALAWAN ISLAND, PHILIPPINES

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ABSTRACT – The Environmentally Critical Areas Network (ECAN) is a graded system of protection and development control adopted in Palawan through the Republic Act 7611. It divided the province's terrestrial component into Core Zone (CZ), Buffer Zone (subdivided into Restricted Use Area [RUA], Controlled Use Area [CUA], Traditional Use Area [TUA]), and Multiple Use Zone (MUZ). The assemblage (abundance, species richness, diversity, evenness and composition) of litter and soil arthropods across land use types (LUT) under ECAN was investigated to determine their conformity with the expected pattern (CZ ≥ RUA > CUA > TUA > MUZ) and the potential indicator groups. A representative LUT of each ECAN zone (grassland for MUZ, marginal forest for CUA, residual forest for RUA, coffee plantation for TUA, and primary forest for CZ) was selected where litter and soil samples were collected to extract the arthropods and sorted by class, order and further assigned to morphospecies. None of the overall assemblage variables of litter and soil arthropods conformed the expected pattern of ECAN zoning but they appeared to be affected by unwanted human disturbance. The overall abundance and species richness of litter and soil arthropods significantly discriminated the ECAN sites. The species composition and abundance structure of both litter and soil arthropods were distinct across ECAN sites and conformed the ECAN zoning except for the abundance structure of soil arthropods. Of the arthropod taxa, the abundance and species richness of litter and soil Acari and Coleoptera significantly differ among the sites and more or less conformed the ECAN zoning, making them the potential indicator groups. Strict implementation of the law through close monitoring of human activities in each ECAN zone is recommended to avoid faunal collapse.

Key words: soil and litter arthropods, community assemblage, land use, Palawan

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