Termites (Order Isoptera) are one of the most abundant invertebrates in tropical forests and they play ecologically important roles in litter decomposition. This study considers the effects of land use and environmental variables on termite diversity, abundance and assemblage structure. In Togo, (West-Africa), one old natural forests and two secondary forests (teak plantations) aged 4 and 10 years, respectively, were surveyed for termites using a standardized protocol. Environmental conditions and vegetation were assessed at each site. Species were identified using molecular barcoding (COI and COII) and phylogenies were constructed to do phylogenetic community analyses. Generic richness and abundance of termites were highest in old natural forests, and decreased in secondary forest sites. The highest species richness (29 species) occurred in natural forests followed by the 10 year old teak plantation (8 species) and least species were found (6 species) in young plantation. Our data will show how anthropogenic disturbance, environmental variables and random factors interact in structuring local termite assemblage of West-African forests.