

ABSTRACT

Contribution of Habitat Diversity to the Biodiversity of the Spider Families Araneidae, Nephilidae and Tetragnathidae in Trinidad, W.I.

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Three orb-weaving spider families were studied in Trinidad, a biodiverse continental island. Species accumulative curves determined that five samples, each of 1 h sweep-netting and 2 h visual search, recorded the majority of species at each site. Sampling occurred at 73 sites: 55 of natural habitats, including a special study of *Mora* monodominant forests, and 18 of disturbed habitats (secondary forests, cocoa fields and farmland; of increasing disturbance intensity), and resulted in a total of 1,879 individuals of 67 species, with a sampling efficiency of 56 -57%. Out of the nine species richness estimators tested, coverage estimators performed the best while bootstrap and Michaelis-Menten performed poorly, but the median of the estimators provided the most robust estimate of species richness.

Biodiversity was measured in terms of species richness (observed and estimated), diversity, evenness, dominance and species composition. Geographic

factors had no influence on the biodiversity of both natural and disturbed habitats. In natural habitats, diversity and evenness were influenced by both vegetation structure and species composition, but only dominance was influenced by the latter. Monodominant *Mora excelsa* and multispecies seasonal evergreen forests differed only in abundance. Biodiversity differed significantly among disturbed habitats, but not from natural habitats. Mangrove and littoral woodlands and herbaceous swamp displayed characteristic species assemblages, but savanna was the most distinctive. Species composition of secondary forests and cocoa fields were similar to natural habitats confirming their possible use in conservation. Multispecies evergreen seasonal forests with similar plant species composition contained similar spider species assemblages. However, localities of monodominant *Mora* forests were very dissimilar suggesting the influence of multiple factors including; habitat structure, physical location and isolation from other localities.

Keywords: Jo-Anne Nina Sewlal; Araneidae; Nephilidae; Tetragnathidae; biodiversity; *Mora excelsa*; monodominant forests; disturbance; secondary forests; cocoa fields; farmland