

Diversity of canopy dwelling planthoppers (Hemiptera: Fulgoroidea) in Terre Firme forests of Amazonian Ecuador

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Planthoppers of the canopy of Terre Firme forests in the Ecuadorian Amazon (Orellana province) are being investigated. The total collection encompasses approximately 16,000 specimens. Samples were collected by canopy fogging at 2 localities (Tiptuni Biodiversity Station and Reserva Etnica Waorani) in 3 seasons (wet, transitional, and dry) between 1994 and 2006. Samples are being sorted to morphospecies and tallied to develop a species-by-sample abundance matrix. Diversity statistics are being generated using EstimateS. A preliminary investigation based on a 139 sample subset indicates a total fauna of over 800 species and 15 families and a high faunal turnover among sites. All estimators failed to level off and numbers of singletons and doubletons continue to rise (Figure 1). Derbidae exhibit the highest diversity with 230 morphospecies, over 40% of observed specimens (Figure 2). A single taxon of Delphacidae (*Tetrasteira* sp.) accounts for one sixth of the total number of specimens but only 7 morphospecies.

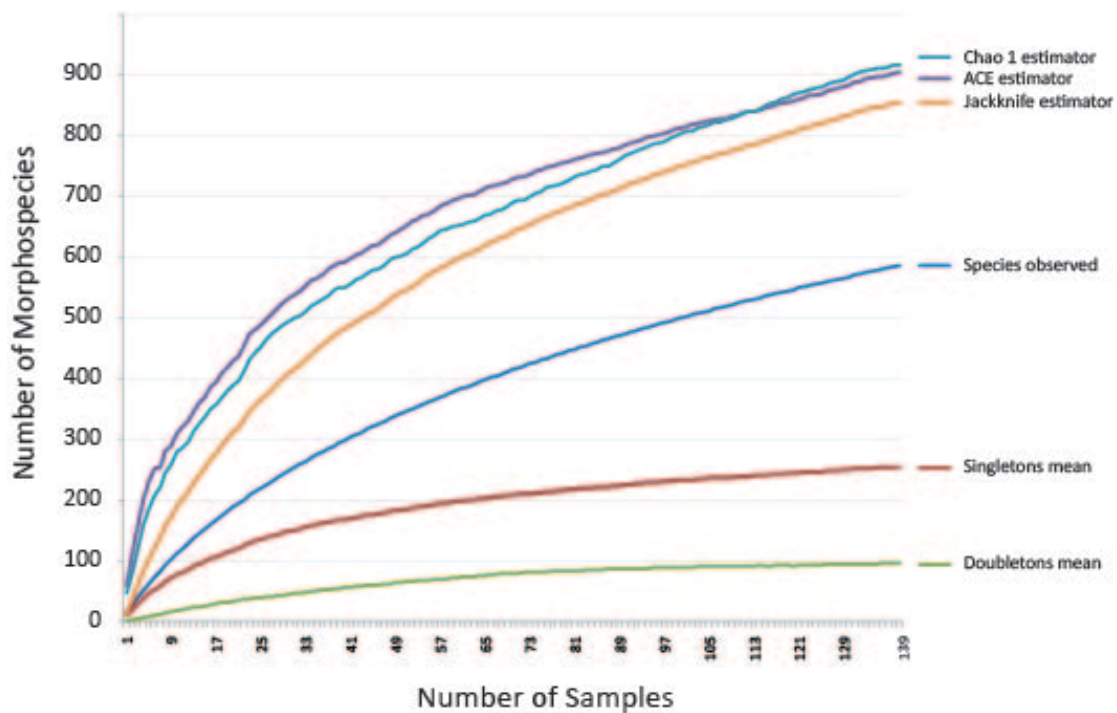


Figure 1. Preliminary species discovery curve for 139 planthopper canopy fogging samples including select estimators of diversity. Total observed species was 586, with 42% represented as singletons. Curves for species observed and diversity estimators (Chao 1, ACE, and Jackknife) failed to reach an asymptote. Further sampling is necessary for accurate estimation of total planthopper diversity of canopy Fulgoroids.

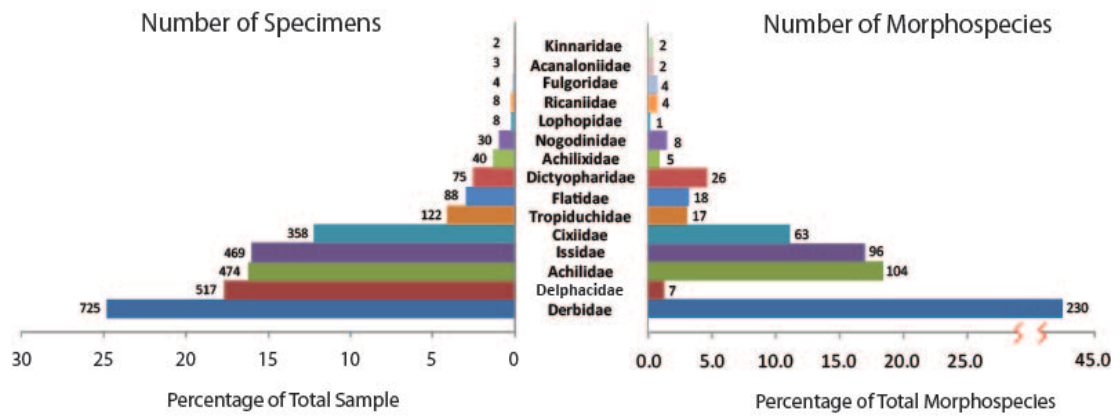


Figure 2. Composition of planthoppers by family in canopy fogging samples from the 139 sample subset. In the abundance distribution of each of the 15 represented families (left), 5 families (Derbidae, Delphacidae, Achilidae, Issidae, and Cixiidae) comprise over 80 percent of the collection; however, in numbers of morphospecies (right), the Derbidae are hyperdiverse, whereas the Delphacidae are represented by few taxa in the canopy samples.