This study focused on the structure of the aquatic insect community in spatial and temporal scales in the Esparza River. The river was sampled for one full year throughout 2007. During the dry season low flow months, five sampling points were selected in two different habitats (currents and pools), with five replicates per sample site. During the wet season with peak rain, only the data in the "current habitat" were sampled at each site. Specimens present in the different substrates were collected and preserved in situ. A nested ANOVA was then applied to the data to determine richness and density as the response variables. The variations in temporal and spatial scales were analyzed using width, depth and discharge of the river, and then analyzed using a nested ANOVA. Only a correlation of 51% similarity in richness was found, while in spatial scale, richness showed significant variation between sampling sites, but not between habitats. However, the temporal scale showed significant differences between habitats. Density showed differences between sites and habitats during the dry season in the spatial scale, while in the temporal scale significant variation was found between sampling sites. Width varied between habitats during the dry season, but not between sampling points. Depth showed differences between sampling sites and season. This work studies the importance of community structure of aquatic insects in rivers, and its relevance for the quality of water in rivers and streams. Rev. Biol. Trop. 57 (1-2): 133-139. Epub 2009 June 30.

Keywords
Aquatic insects, community structure, water quality, Esparza River, Costa Rica.