



Tropentag, September 14-16, 2010, Zurich

“World Food System —
A Contribution from Europe”

Evaluation of Insect Biodiversity in Various Agroforestry Systems in Peruvian Amazon

JITKA KRAUSOVA¹, BOHDAN LOJKA¹, GOLDIS PERRY DAVILA²

¹*Czech University of Life Sciences Prague, Institute of Tropics and Subtropics, Department of Crop Sciences and Agroforestry in Tropics and Subtropics, Czech Republic*

²*National University of Ucayali, Department of Agronomy, Czech Republic*

Abstract

Agroforestry systems are nowadays more and more applied in tropical degraded lands for reforestation, soil improvement, production and also for biodiversity conservation. According to Schrot (2004) agroforestry systems are able to conserve biological diversity. Our research was focused on biodiversity evaluation and its comparison among several types of agroforestry plantations established during last seven years in the zone of Campo Verde (region Ucayali) in Peruvian Amazon. For the evaluation was chosen class Insecta for its important role in the ecosystem, easy and standard collection and good manipulation. Data collection was realised in 2007, 2009 and last collections are in realisation till July 2010. Our hypothesis was that multistrata agroforestry systems have higher potential of biodiversity conservation than other types. There were used malaise traps, emergent traps, sweeping nets and direct collection methods. Treatments were realised in multistrata systems with *Inga edulis*, piper plantation with bolaina trees (*Guazuma crinita*), till July 2010 continues data collection in agroforestry systems with cacao (*Theobroma cacao*). During the years the highest average values of biodiversity shows multistrata systems: the Simpson's diversity index was higher in systems with *Inga edulis* (38,2) and also higher species richness (243). Data from agroforestry system with piper plantation shows lower biodiversity index (21,4) and also species richness is lower (189). Observations had confirmed that biodiversity values are very affected by changing rainy and dry season during the year, when the abundance declines rapidly in the dry season. The multistrata agroforestry systems shows relatively high biodiversity indexes after six years of existence because the many of the plots are composed by fast growing and developing trees planned for wood logging after some 15 or more years. We supposed that multistrata systems with cacao plantation can reach higher diversity because its production period is up to 30 years without logging disturbance. Our vision to the future is to evaluate biodiversity of various agroforestry systems and to investigate the positive impact of these systems on the pest species natural reduction and its application in local agriculture of Ucayali region.

Keywords: Agroforestry, insect biodiversity, multistrata systems, species richness