

**[0560] SPECIES DIVERSITY AND FUNCTIONAL DIVERSITY OF TERMITES IN EASTERN ASIA**

**Y. Takematsu<sup>1</sup>, T. Abe<sup>2</sup>, F. Hyodo<sup>2</sup>, A. Sugimoto<sup>2</sup> & N. Kirtiburt<sup>3</sup>**, <sup>1</sup> Lab. of Chemical Ecology, Kyoto Institute of Technology, Kyoto, Japan, E-mail: takematu@ipc.kit.ac.jp, <sup>2</sup> Center for Ecological Research, Kyoto University, Kyoto, Japan, <sup>3</sup> Faculty of Agriculture, Kasetsart University, Bangkok, Thailand

Termites are widely distributed over temperate zones to the tropics, and play a crucial role in forest ecosystems as a decomposition agent. The purpose of this study is to examine how the species diversity of termites and their decomposition ability vary in the different types of forests. Eastern Asia is particularly an ideal model for this study because along its coasts there lay various types of forests from temperate forest to tropical rain forests. In this study we present the species diversity as well as functional diversity of termites in the following types of forests along the Eastern Asia coasts: tropical rain forest, dry evergreen and dry deciduous forests, and subtropical rain forest. In each type of forest, species richness of termites was assessed using the standard sampling method described by Eggleton et al. (1997). Decomposition ability was evaluated by a "comparative biomass" defined by (encounter frequency of each species)/(its wet weight) instead of actual biomass, which is very difficult to measure. Then, termites were classified into the following three functional groups according to their decomposition activities: Non fungus-growing wood feeder: Termites feeding on cellulose materials Fungus-growing wood feeder: Termites growing fungus, feeding on cellulose and lignin Soil feeder: Termites distributed in the soil, not feeding on cellulose and lignin. It was found that the species composition and functional group composition are different among forest types. The Macrotermitinae, which belongs to the fungus-growing wood feeder, was a dominant group in dry evergreen and dry deciduous forests. Soil feeding termites showed the highest diversity in tropical rain forest and decrease the species richness with increase in latitude. Non fungus-growing wood feeder was dominant in subtropical rain forest and tropical rain forest. Wood-feeder fauna of subtropical rain forest comprised Kalotermitidae and Rhinotermitidae (the lower termites), while that of tropical rainforest mainly comprised Termitidae. "Comparative biomass" was an effective index to define the tendencies of functional group diversity. It makes remarkable the dominance of fungus-feeding termites in dry areas and wood-feeding termites in subtropical rain forest. The results were related to the differences in climates and vegetations of forest.

Key words: Isoptera, species diversity, functional group, comparative biomass

**[0561] DIVERSITY OF COLEOPTERA IN A FOREST FRAGMENT, SECONDARY FOREST AND PASTURE IN THE SOUTHEAST OF ACRE, BRAZIL**

**A. P. B. W. Thomazini<sup>1</sup>, M. J. Thomazini<sup>1</sup>, M. A. Silva<sup>1</sup> & E. S. Albuquerque<sup>1</sup>**, <sup>1</sup>Embrapa Acre, P.O.Box 392, 69908-970, Rio Branco, AC., Brazil, E-mail ariane@cpafac.embrapa.br

Agricultural activities involving deforestation, in the State of Acre, Brazil, were responsible for the formation of different types of ecosystems such as pastures in several degradation levels and fallows with different regeneration ages. This research had the objective to evaluate the effect of ecological succession on the diversity of Coleoptera. Samples were collected, monthly, by light traps ("Luiz de Queiroz" model) in a fragment of primary forest with 800ha and adjacent areas of secondary forest (12 years) and pasture, from April to November of 1999. The coleopterous collected were identified at family level and separated into morphospecies. Data were analyzed using the faunistic indices of abundance, frequency, constancy, dominance, diversity and similarity quotient. Species richness was greater in the area of primary forest (502), followed by the secondary forest (429) and at last by the pasture (256). However, more individuals were collected in pasture (4126) than in the areas of secondary (1750) and primary (1734) forests. Consequently, a higher diversity index was found for the primary forest (67.16) than for the secondary forest (57.30), and for the pasture (30.61). In the three areas, most of the species was classified as rare and of accidental occurrence. Five species of the primary forest were considered predominant (higher values of constancy, dominance, frequency and abundance), belonging to Lycidae (2) to Scolytidae (2) and Platypodidae (1). Only three predominant species were found in the secondary forest, belonging to Byrridae, Scarabaeidae and Scolytidae. The greatest number of predominant species was observed in the pasture (8) belonging to Scarabaeidae (*Ataenius* sp1, sp2, *Aphodius* sp., *Digitonthophagus gazella* and *Onthophagus* sp.) Chrysomelidae (*Maecolaspis* sp.), Scolytidae and Staphylinidae. A similarity quotient of 19.5% was recorded comparing primary and secondary forest areas. Comparing secondary forest with pasture the similarity quotient was only 9.3%. The lowest similarity was obtained by comparing primary forest and pasture (6.6%). Just thirteen species, belonging to Scarabaeidae (4), Scolytidae (4), Staphylinidae (3) and Curculionidae (2) were common to the three sampled areas. It was concluded that the community of Coleoptera is different at each stage of ecological succession, with observed alterations in its composition and reduction in its diversity, mainly in the pasture area.

Index terms: faunistic analysis, tropical forest, Occidental Amazonia

**[0562] RHOPALOCEROS FROM IGUAZU NATIONAL PARK (MISIONES, ARGENTINA)**

**A.E. Tricio<sup>1</sup>, H.A. Chaves<sup>2</sup> & C.I. Fernandez Diaz<sup>1</sup>**, <sup>1</sup> Misiones Entomological Survey Project (PREM). Fac. of Exact, Chemical and Life Sciences. Universidad Nacional de Misiones. Félix de Azara 1552. (3300) Posadas - Misiones. Tel: 0054-3752-422186. Fax: 0054-3752-425414. E-mail: atricio@rector.unam.edu.ar. <sup>2</sup> Delegación Técnica Regional Nordeste Argentino. Iguazu National Park. E-mail: huguex@latinmail.com

This report presents a Rhopalocero's list including 13 months work, from October 1995 to November 1996. The observing and capture notes were taken at Iguazu Falls area, San Martín island, Palo Rosa's jungle, including some footpaths, paths inside the vegetation and occasionally any transects between the forest. Once a month, the work was made from 3 to 5 days depending on climate conditions. The butterflies were captured using net, with fruit traps, over flowers by hand, over excrement or near water's pond. During field work species were identified by direct observation. The identification in laboratory was made by comparing chromatic patterns with identified specimens from "Misiones Entomological Survey Project - PREM"'s collection and the identifications and taxonomic statements of Dr. Mielke (Parana Federal University, Brazil). This research is the result of a great effort from the participant team and the engagement between both institutions. The pictures and list can be found at Iguazú National Park. The list includes 11 families (Pieridae, Lycaenidae, Papilionidae, Nymphalidae, Heliconiidae, Morphidae, Ithomiidae, Riodinidae, Brassolidae, Hesperidae and Satyridae), 70 genera and 130 species. The butterflies can be found at PREM collection.

Index term: Rhopalocera, butterflies, Iguazú.

**[0563] DISTRIBUTION OF SOME SWALLOWTAIL BUTTERFLIES OF POSADAS, MISIONES, ARGENTINA**

**A. Tricio, S. Najle, C. I. Fernández Díaz & P. Morawicki**, Misiones Entomological Survey Project (PREM). Fac. of Exact, Chemical and Life Sciences. Universidad Nacional de Misiones. Félix de Azara 1552. (3300) Posadas - Misiones. Tel: 0054-3752-422186. Fax: 0054-3752-425414. E-mail: atricio@rector.unam.edu.ar.

The study of the wealth of species of a certain area have a great importance, not only for its historical knowledge, but also for the global comprehension of its biodiversity. Among the animals, the butterflies and the birds constitute groups of easy visualization and identification, consequently they are good indicators. The intense human activity in Posadas city, given by the urban growth and the location of Yacyretá Dam, made a deep modification to the Fluvial and Fields District of vegetation. A great part of vegetation was lost by the increasing in the amount of water in the dam lake; the new flooded land would take place, reestablishing its dynamics allowing the reappearance of the different vegetable covering in the bank of the Paraná river, where the past expression was the jungle in gallery and the grassland. Therefore, the changes in the dispersion and reproduction of the plants will be able to affect the populational structure of the butterflies. In this instance, we want to show which are the species of Papilionidae Family present in the area that will be modified. The resulting data came from the sampling methods using net and recognition during flight of the well known species during a period of time including 14 months, from August of 1997 to October of 1998. The capture places have been: Arroyo Apepú, Barrio El Laurel, Toma de Agua, Jardín Botánico and Center of the city. The Swallowtail butterflies found were *Mimoides lysithous* ssp. (Graphiini); *Heraclides anchisiades capys*, *H. astyalus astyalus*, *H. hectorides hectorides*, *H. thoas brasiliensis* (Papilionini); *Battus polydamas polydamas*, *Parides agavus*, *P. anchises nephalion* (Troidini). The greatest diversity observed was at Barrio el Laurel through the months of April, September, and December. At Center and Toma de Agua points there was no record of this family. The fragile balance among plants and animals which inhabited the Earth has survived several episodes of massive extinction after millions of years of evolution. Now once again, but this time by the human influence with destruction of their habitats, the introduction of exotic species and the intensive and not sustained use of the biological resources. In the scientific forums and of political deliberation, the process of erosion of the natural resources comes being boasted as one from the most serious problems to be faced by the human population at the end of this century.

Index Term: Lepidoptera, Papilionidae, Argentina