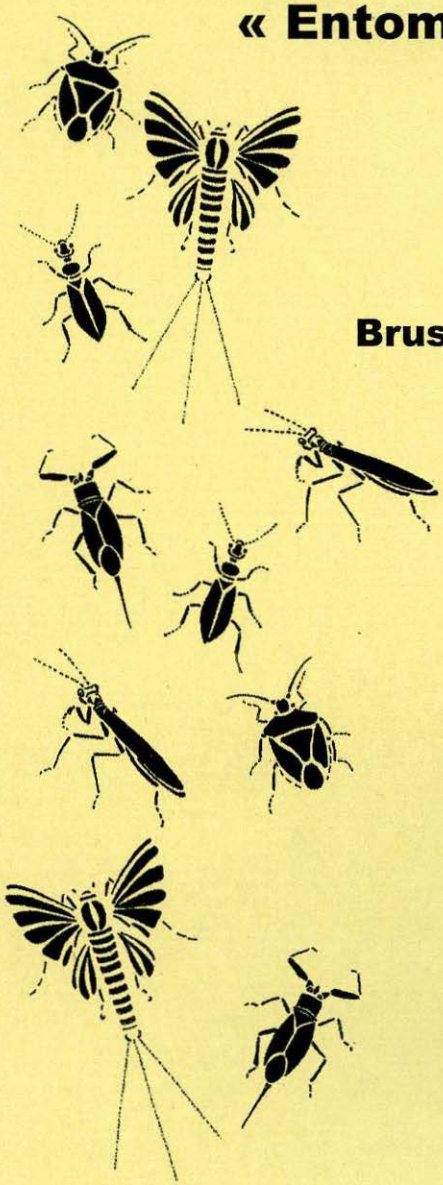
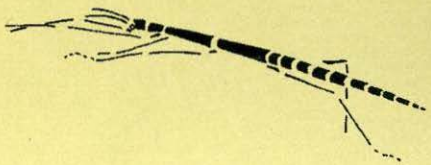
Symposium
« Entomology in Belgium »



Brussels, November 28 2014

Société royale belge
d'Entomologie

Koninklijke Belgische
Vereniging voor Entomologie



Symposium «Entomology in Belgium 2014»

November 28, 2014, Brussels

Organized by

Wouter DEKONINCK

Royal Belgian Entomological Society

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Ant mosaics in primary rainforests across four continents

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The existence of ant mosaics, or the mutually exclusive distribution of numerically dominant ants (NDA) in tropical tree canopies, has been demonstrated for plantations but remains contentious concerning primary forests mostly due to the difficulty in collecting and observing ants in trees that grow up to 30m in height. Our goal was to overcome this problem and study the three-dimensional distribution of NDA in primary rainforests across four continents. We developed the baitline method allowing us to collect arboreal ants every 5 meters along tree trunks and to conduct aggressiveness tests between ants collected from neighboring trees. These direct observations allowed us to define ant numerical dominance, species coexistence and to delineate NDA spatio-temporal extension. Ant colonies were mapped in quarter hectare forest plots in French Guiana, Brazil, the Democratic Republic of the Congo (RDC), Mozambique, Laos and Papua New Guinea (PNG). Our results indicate that territorial NDA species are found in every lowland forest site investigated. However, there seems to be a gradation in the ant mosaic structure according to the high (e.g. in PNG, RDC) to low (e.g. in Laos) prevalence of NDA on the trees. In some instances (e.g. in Mozambique or in PNG), *Crematogaster* supercolonies completely dominated the plots. Trees where NDA only forage intermittently can be observed at the border of a large NDA territory (e.g. that of *Azteca* in French Guiana) and create temporary gaps. Two mutually aggressive NDA are sometimes briefly observed on the same tree (e.g. the vertical segregation of *Crematogaster* and *Oecophylla* foragers along a tree trunk in PNG). These results emphasize the three-dimensional and dynamic structure of ant mosaics. They also stress that, in the absence of behavioral observations, statistical analyses of species co-occurrence on individual trees, often used to detect ant mosaics, must be interpreted with care.

Focus Stacking: a low budget semi-automated approach allowing high quality mass digitization

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In the framework of the AGORA3D project we tested a focus stacking system, composed of commercial photographic equipment. The system is inexpensive compared to high-end commercial focus stacking solutions. We tested this system and compared the results with several different software packages and high-end focus stacking solutions. The resolution of the extended focus pictures is much higher than those from the high end solutions. The flash lighting inside the set-up creates an evenly illuminated picture, without struggling with filters, diffusers, etc. The largest benefit is the price of the set-up which is approximately € 3000, which is 8 to 10 times less than the high-end set-ups respectively. Overall, this enables institutions to purchase multiple solutions or to start digitising the type collection on a large scale even with a small budget.