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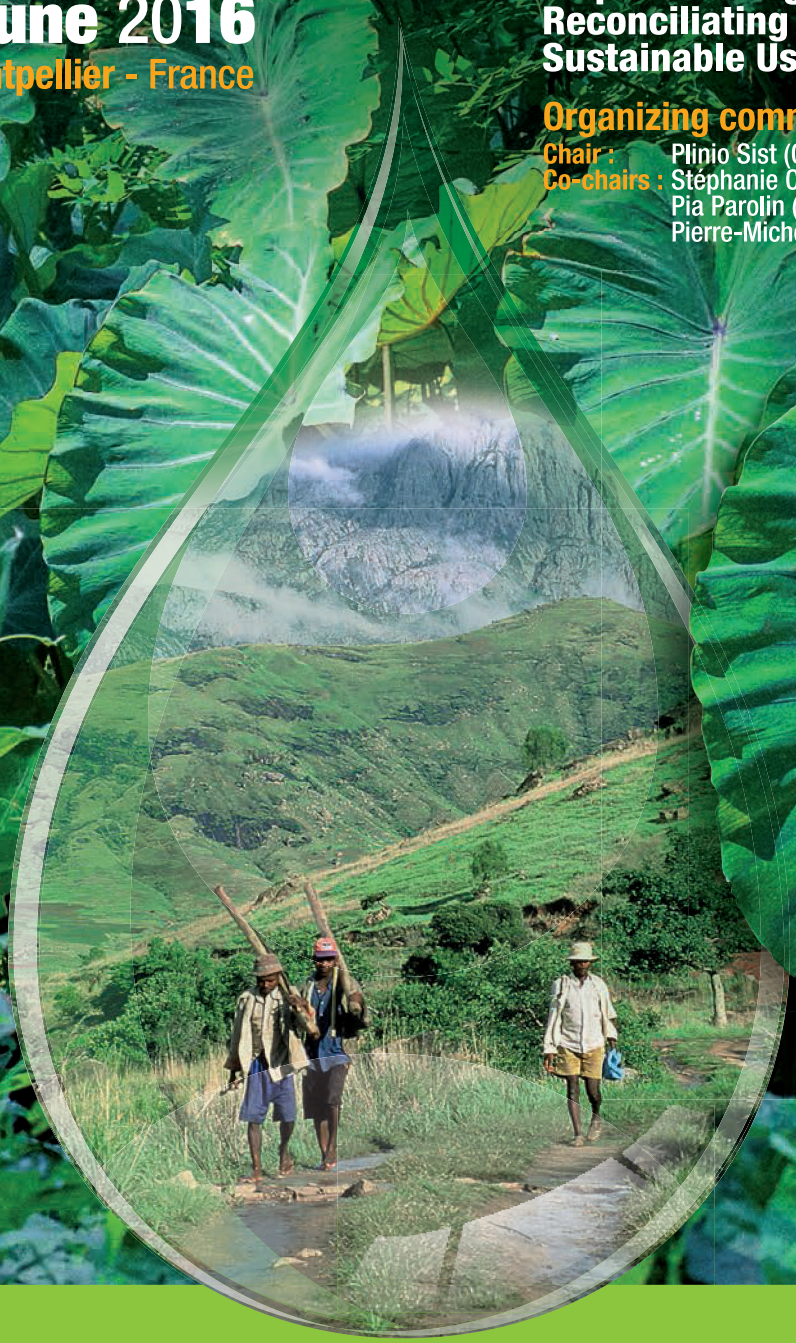

PROGRAM & ABSTRACTS

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P33-06 – S33 *Free session: The conservation of plant-animal interactions in a changing world*
17:30 – 18:30 – Joffre Area (Level 1)

Bee flora and pollen grains study for the Online Pollen Catalogue Network: basis for plant-pollinator interactions research

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Introduction: More than 90% of the flowering plants depend on pollinators for their reproduction. In agriculture, pollination is also highly important, as biotic pollination improves the quantity or quality of fruits and seeds. The annual global food production that depends of pollinators is estimated between US$235 to US$577 billion. The maintenance of natural areas that are used in the diet of the bees is highly recommended. Therefore, the identification of the plants used in the diets of bees, both adult and immature bees, has become one of the first steps in the management of natural and cultivated areas.
Material and Methods: There are basically two ways to identify plants used in the bee's diet. The first is by direct observation of the bees collecting resources from the flowers, and the second is by analysis of pollen deposited on their bodies, on their corbiculae or pollen brushes, of pollen material in the cells used to raise the young, of pollen storage pots, or even in faeces deposits found in or outside the nests. In this study, we used the pollen grains to identify the plant species used in the bee's diet. Thus, we constructed pollen libraries (reference pollen collections) of the flora in the different study areas and constructed a tool to organize and identify the plant species using an interactive key with flowers and pollen morphological characters. The data will be available in the Online Pollen Catalogue Network (RCPol – Rede de Catálogos Polínicos online) that is being developed.
Results and discussion: We have at this moment more than 500 plants species introduced in the RCPol that were identified in the diet of the bees. Currently we already have eight pollen collections participating of the network, and ten others are expected to join in the next two years. The online network allows access to interactive keys with pollen and plant descriptors, to plant species webpages that describe the main characteristics of the species, and to the specimen data, at the collection level. The study of pollen allows identification of not only the plant species used, or the most important ones, but also foraging routes, periods of resource shortages in the field and the interpretation of networks of generalist and specialist interactions established between bees and plants. Palynology has been a complementary science, supporting studies on pollinator's management and conservation, especially bees, in natural ecosystems and agroecosystems.

P33-07 – S33 *Free session: The conservation of plant-animal interactions in a changing world*
17:30 – 18:30 – Joffre Area (Level 1)

Rewiring of ant-plant mutualistic networks in tropical secondary forests is governed by land-use history

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Unprecedented tropical deforestation rates often result in vast areas of young second growth, following agricultural abandonment. The importance of these secondary forests as a 'safety-net' for tropical biodiversity in primary forests has received considerable attention in the recent literature. However, few studies have investigated how landscape structure and land-use history govern the functional maintenance of mutualisms in tropical secondary forests. Here, we examine how changes in land use and forest landscape context affect the structure and specificity of ant-plant mutualistic networks. The study was conducted at three former cattle ranch sites in Central Amazonia. In 2002 and 2003, we surveyed 27 transects, eight of which in mature forests and 19 in secondary forests of different land use histories. Land use was defined as the number of times each forest site had been clear-cut and burned. All individual ant plants were identified and surveyed for colonizing ants. We them built individual ant-plant matrices and calculated their Specialization (H') and Modularity (Q) indices. Furthermore, we determined the "Module dissimilarity" by summing all mature forest sites collapsed into a single matrix and determining the components of ant-plant modules of this matrix. We then calculated the Bray-Curtis similarity between the modules in each individual matrix and those found in the overall matrix. The composition of both ant and plant species was affected by the recurring number of fire events but not by the distance from primary forest or the geographic distance among sampling plots. Ant composition was strongly related to both plant composition and land-use history. Plant composition, combined with land-use history, was also explained the specialization and the modularity of mutualistic networks. On the other hand, the number of empty plants (not hosting ants) and the modular dissimilarity was explained by number of recurrent fires alone. Our results shows that the recolonization of a given area by an ant-plant system and the structure of mutualistic networks is conditional upon the prior colonization by the plant partner. Such colonization events are affected by both dispersal limitation and land use history. Patterns of network metrics are associated with host plant species composition, whereas the recovery of compositional similarity in modules typical of primary forests is strongly associated with land-use history.