

The IBISCA programme: spatio-temporal distribution of arthropods in tropical rainforests

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Distribution patterns of tropical forest arthropods and underlying processes are still poorly understood. The IBISCA-Panama project is currently the most complete investigation of the spatio-temporal distribution of arthropods in a tropical rainforest: it includes multiple sites (n=9), multiple strata (between the soil and the canopy), multiple focal taxa (n=60) and 4 seasonal replicates between Oct.2003 and Oct.2004. State of the art techniques (e.g., a crane, a balloon, the SolVin-Bretzel) were used to access the canopy. In total, half a million specimens were collected by 15 complementary sampling methods. The resulting dataset, which has no equivalent, should be available in the course of 2006. Preliminary results suggest that arthropod abundance follows a bimodal distribution, with highest abundance near the ground and in the upper canopy, and that the patterns of stratification differ among taxonomic and ecological groups, some being ground- or canopy-dominant. In ants and termites for example, the ground-dwelling community is clearly distinct from the arboreal-dwelling one. Other projects based on the IBISCA-Panama approach are planned for the near future and will constitute pilot studies to initiate an ambitious programme of census of rainforest arthropods.

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Seasonal variation in female morph condition of a damselfly (Odonata: Zygoptera)

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Female-limited colour polymorphism occurs frequently in damselflies. Typically, two distinct female morphs are encountered in natural populations. One female phenotype resembles the conspecific male's body colouration (andromorph), while the other has a distinct colour (gynomorph). Recent studies indicate that selection is involved in the maintenance of both morphs and sexual conflict has been promoted as the main driving force. Several hypotheses suggest that female phenotypes differ in costs and benefits under different male densities and/or female morph frequencies. Densities and frequencies not only differ among populations, but also in time within a population. In our study we evaluated whether female morph condition is affected by changing densities and frequencies. Thus, we studied different indices of condition in female morphs of the damselfly *Enallagma cyathigerum*, which were collected every two weeks over an entire season. We included several measures, indicative of individual condition during different periods within an individual's lifetime. Body size and developmental stability (fluctuating asymmetry) reflects past (larval) history, whereas short-term signals depend on current nutritional status and are highly sensitive to changes in the environment. The relevance of fitness differences will be discussed in relation to the coexistence of the two colour morphs.