The origins of biodiversity

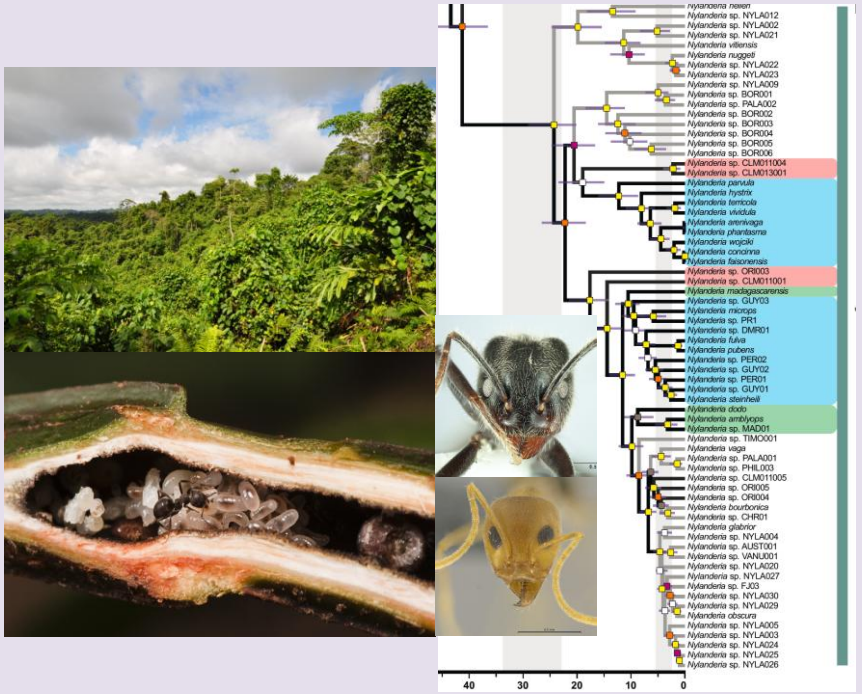
Ever wondered why the tropics are so blooming in life? This is your opportunity to contribute in research trying to figure out what may explain the astonishing diversity of species we observe today!

The research project consists on estimating the evolutionary history of two ecologically distinct groups of ants. These ants, despite being evolutionarily closely related, show remarkable differences in life histories: the genus *Anonychomyrma* is enrolled in mutualisms with plants, prefers moister environments, and are typically arboreal; ants in the genus *Iridomyrmex* are aggressive scavengers, prefers drier environments, and nest primarily in soil.

The study region is Melanesia and Australia, a region that has been tremendously re-shaped since the past 20 million years by tectonics, climate, and sea level changes. Such dynamism is expected to have had an impact in the distribution and evolution of the ants, but due to the different ecologies of ants, their responses to newer environments may have been distinct.

The aim of the study is to estimate such responses (timing and direction of dispersal) and to find out whether those responses happened as a result of adaptations (evolved mutualisms, nesting in dry habitats). Altogether, the conclusions of the study will be important for our understanding of biodiversity and evolution in one of the most diverse regions of the planet.

The successful applicant will get access to a unique DNA-sequence dataset of ants collected in remote places (Melanesia) over more than 10 years. In addition, it will be the ideal opportunity to create a network with leading research groups studying Tropical Biogeography (Antonelli Lab, GU) and Tropical Ecology (Novotny group, Czech Republic and Papua New Guinea).



Schedule of the project

Month 1: Literature Review

Month 2: Data processing (edition and alignment of DNA sequences)

Month 3: Phylogenetic analyses (species delimitation, systematics, divergence times)

Month 4: Macroevolutionary analyses (biogeography, trait-dependent diversification)

Months 5–6: Presentation of results (seminar, thesis)

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