

SEMINAR

Thurs, 13 Oct 2022 | 4 pm | DBS Conference Room 1

Hosted by Asst. Prof Lim Jun Ying

Intraspecific niche partitioning without speciation: individual level web polymorphism within a single island spider population

Early in the process of adaptive radiation, allopatric disruption of gene flow followed by ecological specialization is key for speciation; but, do adaptive radiations occur on small islands without internal geographical barriers? Island populations sometimes harbour polymorphism in ecological specializations, but its significance remains unclear. On one hand, morphs may correspond to 'cryptic' species. Alternatively, they could result from population, developmental or behavioural plasticity. The spider *Wendilgarda galapagensis* (Araneae, Theridiosomatidae) is endemic to the small Isla del Coco and unique in spinning three different web types, each corresponding to a different microhabitat. We tested whether this variation is associated with 'cryptic' species or intraspecific behavioural plasticity. Despite analysing 36803 loci across 142 individuals, we found no relationship between web type and population structure, which was only weakly geographically differentiated. The same pattern holds when looking within a sampling site or considering only F_{st} outliers. In line with genetic data, translocation experiments showed that web architecture is plastic within an individual. However, not all transitions between web types are equally probable, indicating the existence of individual preferences. Our data supports the idea that diversification on small islands might occur mainly at the behavioural level producing an intraspecific niche partition without speciation.



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Darko D. Cotoras is an evolutionary biologist interested in the study of the historical processes that create biodiversity in conditions of isolation. His main study group are spiders and other invertebrates present around the Pacific Ocean, with special attention to volcanic archipelagos and the Gondwanic land masses. He combines field and museum work with phylogenetics, population genetics and genome assembly. Currently, he is a Humboldt postdoctoral fellow at the Senckenberg Museum and research associate at the California Academy of Sciences. Previously, as a PostDoc between the University of California, Santa Cruz and the California Academy of Sciences, he worked on improving ancient DNA methods for museum specimens in order to answer island biogeography questions. He earned his PhD from the University of California, Berkeley studying an adaptive radiation of Hawaiian spiders. His Master in Ecology and Evolution, and Bachelors in Biology are from the Universidad de Chile.