SIR JULIAN HUXLEY LECTURE

Island time and the interplay between ecology & evolution in species diversification

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Abstract

Research on the dynamics of biodiversity has progressed tremendously over recent years, though in two separate directions - ecological, to determine change over space at a given time, and evolutionary, to understand change over time. Integration of these approaches has remained elusive. Archipelagoes with a known geological chronology provide an opportunity to study ecological interactions over evolutionary time. In this presentation I will focus on the Hawaiian archipelago and summarize the development of ecological, and evolutionary research; I emphasize spiders because they have attributes allowing analysis of ecological affinities in concert with diversification. Within this framework, I highlight recent insights from the island chronosequence, in particular the importance of (1) fusion and fission in fostering diversification; (2) variability upon which selection can act; and (3) selection and genetic drift in generating diversity. Insights into biodiversity dynamics at the nexus of ecology and evolution are now achievable by integrating new tools, in particular ecological metrics (interaction networks, maximum entropy inference) across the chronosequence to uncover community dynamics; and genomic tools to understand contemporaneous microevolutionary change. This work promises key insights into biodiversity dynamics by showing not only how diversity has been shaped in the past, but also how it will be expected to accommodate change in the future.

The meeting is open to visitors and wine will be served after the lecture to members and guests

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