

Tues, 3 Sept 2013 | 4pm | DBS Seminar Room 1 (S2-L4)

Hosted by Prof Chou Loke Ming

Conservation of reef corals of the world: why evolutionary history matters

by **Dr. Danwei Huang**

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One-third of the world's reef-building corals are facing heightened extinction risk from anthropogenic climate change and local impacts. Extinction probabilities aside, species are not equal. Rather, evolutionary processes render each species, or species assemblage in general, unique with a distinctive history that can be characterised for conservation. My research is aimed at quantifying these patterns based on a robust understanding of the coral tree of life. In this talk, I will show that it is critical to consider species' contribution to evolutionary diversity in conjunction with their extinction risk when setting priorities to safeguard biodiversity. My analyses identify the most endangered lineages that would not be given top priority on the basis of risk alone, and further demonstrate that corals susceptible to impacts such as bleaching and disease tend to be close relatives. One of Earth's most threatened reef regions, the Coral Triangle, is also famously the most biodiverse. There is no lack of competing explanations as to why this region harbours such remarkable richness, but the dynamics underlying this pattern remain poorly understood. Here, a dynamic evolutionary model shows that the diversity gradient for corals has been driven by range expansions of species into the Coral Triangle from surrounding areas. Indeed, conservation of the world's reef corals requires protecting the historical sources of diversity, particularly the evolutionarily distinct species and relatively unspeciose peripheral regions.

