

# SEMINAR

Tues, 9 Mar 2021 | 9 am | Online Zoom Session

Hosted by Prof Prakash Kumar

## Defaunation and the future of Southeast Asian tropical forests: a holistic approach



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The dispersal of seeds by fruit-eating animals influences the structure and composition of many ecosystems, but many ecosystems have undergone defaunation (the decline or loss of animal populations) over thousands of years, a process that continues today. However, the degree to which natural ecosystems have responded to past extinctions (i.e., the global loss of megafauna at the end of the Pleistocene) is unclear, and the magnitude of future impact that present-day ecosystems face remains unexplored at the global scale. Understanding how past defaunation has affected fruit-frugivore interactions will provide insights into the long-term consequences of defaunation on future ecosystems. Here, I present recent work that approaches these questions using a macroecological perspective: by looking at global patterns of palms and their relationship with mammalian frugivores in the present-day and in the past. I also model the impact of future defaunation on palm communities and examine what defaunation may mean for the future of animal-dispersed plant groups. My results suggest that long-term consequences of defaunation are likely to be context-specific and highlight the need for a more holistic approach that studies all aspects of plant population dynamics -- from seed dispersal to recruitment and mortality. Moving forward, I propose a research program that will shed new light on the long-term impacts of defaunation with a focus on Southeast Asian forests, by combining field-based observation and experiments, machine learning and statistical predictive models of plant-animal interactions, and the development of better simulation and analytical models that will allow for future projections of forest structure and diversity.

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