NUS National University of Singapore | Department of Biological Sciences, Faculty of Science

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SEMINAR

Fri, 6 Mar 2026 | 10 am | S3-05-02 Conference Room 1

Hosted by Prof Antonia Monteiro

From Sexual Selection to Sustainability: Leveraging Insect Reproduction to Understand Biodiversity and Develop Applied Solutions

By Nalini Puniamoorthy

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Reproductive Evolution Lab

Insects represent a vast majority of animal biodiversity, yet most species, particularly in the tropics, remain undescribed. Reproduction often lies at the heart of this diversity: Fitness is determined by contributions to the next generation and reproductive traits can evolve rapidly under environmental change. In this talk, I will examine how genotype–environment interactions and host–microbe associations shape insect reproductive strategies and mediate patterns of gene flow. I will also discuss how these insights from fundamental biology can inform the development of applied solutions for sustainability and public health challenges.

Dr. Nalini Puniamoorthy is an evolutionary biologist in the Department of Biological Sciences (NUS), where she leads the Reproductive Evolution Lab. Her team investigates how reproductive traits evolve and contribute to insect biodiversity. Their work integrates field studies, morphometrics, quantitative genetics, behavioural assays with next-generation ‘omic techniques in several ecologically relevant insects, including mosquitoes, dung beetles and black soldier flies.