

INTRODUCTION

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The study of life history traits in tropical insects is still in its infancy. We are just beginning to appreciate that tropical insects do not all develop and reproduce continuously throughout the year. Developmental and reproductive events may be as highly seasonal in tropical species as they are in insects from the temperate zone. Yet, little is known about the evolutionary forces that shape the life history traits of tropical species. What are the developmental options and what dictates which option is expressed? What are the ultimate factors determining whether a species will diapause or develop without interruption? What other life history traits are linked to the decision to diapause or not to diapause? What environmental cues are utilized by tropical insects to regulate seasonal cycles, and how are these cues translated into meaningful hormonal signals that direct the insect's development fate? What life cycle adaptations permit the insect to cope with the desiccating effects of a hot dry season or the periodic flooding characteristic of the rainy season? How can a poikilotherm afford the energetic expense of dormancy during a season of high temperature? How do life history traits change as a tropical species invades the temperate zone or when temperate species move into the tropics? The

tropical environment is far from uniform, and movement from one type of tropical environment to another will often necessitate changes in life history traits. From the few insects that have been examined, it is apparent that different species occupying the same geographic area may respond quite differently.

Tropical insects offer a rich and exciting resource for the study of life history traits. Our symposium participants, representing diverse tropical study areas and insect systems, attest to this richness in their research contributions. Research discussed in the symposium includes work on crickets, beetles, moths, butterflies, flies, true bugs and a species of the Apterygote family Meinertellidae. The study sites include Brazil, Panama, Costa Rica, Mexico, Australia, Indonesia and other regions of South-East Asia. Yet, in this symposium we can provide only a tantalizing preview of the exciting questions that can be addressed. As new workers, especially scientists from tropical regions of the world, are attracted to the subject, a much more complete and holistic view of the life history traits of tropical species should emerge. Both applied and basic aspects of tropical entomology will benefit by expansion of this vital field of research.