

Low temperature is a major environmental constraint impacting the geographic distribution and seasonal activity patterns of insects. Written for students and academic researchers in environmental physiology and entomology, this book explores the physiological and molecular mechanisms that enable insects to cope with a cold environment and places these findings into an evolutionary and ecological context.

An introductory chapter provides a primer on insect cold tolerance, and subsequent chapters in the first section discuss the organismal, cellular, and molecular responses that allow insects to survive in the cold despite their, at best, limited ability to regulate their own body temperature. The second section, highlighting the evolutionary and macrophysiological responses to low temperature, is especially relevant for understanding the impact of global climate change on insect systems. A final section translates the knowledge gained from the rest of the book into practical applications including cryopreservation and the augmentation of pest management strategies.

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Cover illustration: frozen weta (male), *Hemideima macleayi*, from the Rock and Pillar range in New Zealand. Photograph by Hans Ramlov.

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