

Special Issue

Insect Adaptation in the Anthropocene: Responses to Contamination and Human-Induced Environmental Changes

Message from the Guest Editors

Human activity is a major driver of insect adaptation, exerting selective pressures that shape their evolutionary trajectories. Over the past few decades, humans have drastically altered ecosystems, exposing insects to a variety of stressors both directly and indirectly. Insects exhibit diverse responses to anthropogenic stressors, as some populations decline while others adapt through physiological, genetic, or behavioral changes. Notably, some species have evolved resistance to pesticides and pollutants, often benefiting pest species while harming non-target organisms, including pollinators and natural enemies of pests. These changes contribute to biodiversity loss and shifts in the balance between beneficial and pest insects, with cascading ecological and agricultural consequences. This Special Issue seeks to explore the mechanisms and consequences of insect adaptation in the Anthropocene, covering topics such as resistance evolution, detoxification mechanisms, changes in reproduction, behavior, physiology, and life cycles, biodiversity shifts, and broader ecological and evolutionary trends.

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