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Au-delà des frontières: l'entomologie dans un monde en changement
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Crossing Borders: Entomology in a Changing World
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PRESENTATION



2029: Can the ecological niche concepts and models account for human exposure?

Wednesday, November 14, 2018

10:50 AM - 11:05 AM

Vancouver Convention Centre - Meeting Room 122

The past few decades have witnessed an explosion of the use of ecological niche models in the field of infectious diseases, including vector-borne diseases. Their uptake for control and prevention has been proportionately poor. Several reasons may explain this, such as the apparent complexity of these models, the lack of explicit statement of the uncertainties, and the lack of relation between environmental indicators used in these models and what decision makers monitor and control. We propose that more robust conceptual underpinnings would increase the value of these models in a broad context. We present the resource-based habitat concept, drawn from conservation science, for understanding the environmental determinants of the distribution of vector-borne and zoonotic pathogens. The resource-based habitat concept seeks to make an inventory of the function of the organisms and subsequently identifies the associated environmental resources, with consideration of the movement capacity of the organisms considered. We detail how we can further elaborate the framework to account for human exposure. Like other animals, humans make use of environmental resources or landscapes for their activities, which may expose them to infectious environments. Such places can also be monitored in the environment and included in models, although the proxies used may blur the interpretation as affecting hazard and exposure. We illustrate applications of the resource-based habitat concept with tick-borne and rodent-borne diseases in Europe.

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