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Models and empirical evidence for the use of memory in animal movement patterns

Animal movement modelling provides unique insight about how animals perceive their landscape and how this perception influences their space use. This subject has recently been investigated by a variety of theoretical models from the perspective of pattern formation using coupled partial differential equation models. However, most of these models lack a solid empirical foundation. In this talk I focus on empirical evidence for the use of memory by animals while being tracked via radiotelemetry and how the data can incorporated into a step-selection function that can potentially connect back to partial differential equation models. I focus on patrolling behaviour in wolves (*Canis lupus*) in the foothills of the Rocky Mountains and on foraging behaviour in brown bears (*Ursus arctos*) in the Canadian Arctic.