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SÉMINAIRE

Demographic complexities and where to include them

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Assessing population persistence under future changes in environmental conditions requires estimating population demographic parameters (e.g. survival and reproductive rates) as accurately as possible to be able to project population dynamics over time. While the increasing versatility of modelling tools has recently allowed for ever more complex models, many studies still omit important demographic complexities such as environmental periodic patterns (e.g. seasonality), multi-level density dependence, or nonlinear reaction norms of vital rates to environmental variables. However, for species experiencing strong seasonal patterns or living in social groups, accounting for such complexities could be crucial to accurately assess population persistence. In my talk I will use case studies on mammals and plants (yellow-bellied marmots, meerkats, African lions, and dewy pines) to highlight the importance of accounting for key demographic complexities in specific environmental and social contexts. I will also share a perspective on how one could assess the importance of each complexity in determining the outcome of population viability analyses. Applied on a larger scale using the many long-term datasets available on a multitude of species with a variety of life-history specificities, assessing the sensitivity of population viability analyses to demographic complexities could provide invaluable insights on when and where to include them in our future models.