# From deer gut to deer fear: the underappreciated consequences of predator absence on ecological interactions

Jean-Louis Martin*[1]

[1]Centre d'écologie fonctionnelle et évolutive (CEFE) – Université Paul Valéry - Montpellier III, Université Montpellier I, Université Montpellier II - Sciences et Techniques du Languedoc, CIRAD : UMR101, CNRS : UMR5175, Ecole Pratique des Hautes Etudes, Montpellier SupAgro – CEFE 1919 Route de Mende 34293 MONTPELLIER CEDEX 5, France

**Abstract**

We document the profound effects of absence of predation risk on the foraging ecology, behavior and ecological trophic effects of a large mammalian terrestrial herbivore, the Sitka black-tailed deer. We used a unique natural experiment provided by deer introduction to a remote archipelago in western Canada. We combined behavioral, ecological and isotopic data from a natural and manipulative long-term experiment to produce coherent evidence on the links between predation risk, selection pressure on deer behavioral profiles, and changes in their diet and habitat use.
In a nutshell, we suggest that the absence of predation risk was key to explain the magnitude of loss in plant and animal diversity caused by abundant deer populations. Absence of predation risk facilitated behavioral changes that allowed deer to adjust to a habitat their browsing had progressively impoverished in quantity and quality of available forage.

*Co-authors to this presentation: Jean-Louis Martin*, Anne Salomon, Ilhem Bentaleb, Simon Chamaillé, Soizic Le Saout, Chris Darimont, Mathilde Schlaeflin, Veronica Gomez-Pourroy, Maurah Van Impe, Annick Lucas and Jake Pattisson.*
* author intending to deliver the talk

*Speaker