Accounting for uncertainty in ecological model

Guillaume Blanchet*[1]

[1]Université de Sherbrooke [Sherbrooke] – Canada

Résumé

There are many uncertainties that can blur the understanding we have of an ecological system and thus affect our ability to make good quality predictions. These uncertainties fall in three main categories. They can be related to the biology of the studies system (process uncertainty), how it is sampled (sampling uncertainty) and how it is modelled (model uncertainty). Because process uncertainty is inherent to the system understudy, it cannot be reduced by increasing sampling effort. We must accept it as the inherent variability of the studied system. Sampling uncertainty is directly related to the amount of data available and can thus be reduced by increasing sample size. Lastly, model uncertainty is associated to using a model that does not account for all the specificity of the considered system and can be reduced by integrating known mechanisms that influence the studied system. We will illustrate how process, sampling and model uncertainties can be accounted for in biological models by studying the range limit of the sugar maple along an elevation gradient in Sutton (Québec, Canada).

Mots-Clés: modelling, ecological error, process uncertainty, sampling uncertainty, model uncertainty

*Intervenant