



Mardi 23 janvier 2024, 11:00

Grande salle + visio

MODELLING THE DISPERSAL OF INVASIVE SPECIES USING LANDSCAPE VARIABLES

par

Pedro Nunes, Postdoc, CBGP

- 👤 For this seminar I will begin with an introduction of myself and my academic and research background.
- 👤 Following this, I will present my most recent and relevant research work, from my PhD, including three modelling approaches of invasive species dispersal using landscape variables. The models were applied to two highly relevant invasive species for Europe, the Pine wood nematode (PWN) and the African citrus psyllid, vector species of the greening disease.
- 👤 The first model studied the role that landscape heterogeneity may play in slowing down the spread of the PWN. Least-cost path analysis was used to estimate the vector species dispersal trajectories in response to the surrounding landscape elements. For this a mark-release-recapture essay was conducted in a heterogenous forest.
- 👤 For the African citrus psyllid, two different models were developed to study the species recent invasion dynamics in Portugal. In the first model, to understand the rapid invasion observed across Portugal's territory, we developed a spatio-temporal dispersal model at the country scale. For this, we combined a reaction-diffusion model to a stochastic long-distance dispersal model. The second model regarding the psyllid invasion was a spatio-temporal epidemiological cellular based model at a local scale. This model used the chain of tree infections to explain the species spread across a heterogenous agriculture landscape. For the two models, the role of the distribution of isolated urban host trees was studied along with the role of human-aided dispersal in the first model and human management strategies in the second model.
- 👤 Finally, I will end the talk with an overview of my future work in the framework of the ANR BEYOND project, here at CBGP (with Christine Meynard) and in collaboration with PHIM (with Virginie Ravigné & Nicolas Sauvion), highlighting its main objectives and expected outputs.

👤 Contact : christine.meynard@inrae.fr