

*Sixth Workshop Dynamical Systems Applied
to Biology and Natural Sciences DSABNS 2015
Lisbon, Portugal, February 4-6, 2015*

Generalist predator can control the spatial propagation of an invasive prey.

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ABSTRACT

We investigate the following situation. A prey arrives in a new environment wherein a natural local predator already lives. This predator is a generalist in the sense that it does not need this particular prey to survive. We ask if this generalist predator may eradicate the prey.

In a first part, we study the nonspatial prey-predator system by focussing on the principal differences between a generalist predator and a specialist predator. In a second part, we explain the necessity of adding a spatial structuration which leads to a reaction-diffusion system. Using travelling waves methods, we studies the possibilities of control or nocontrol of the prey by the predator.