

1138-92-184

Yu Jin* (yj_{in}6@unl.edu), Department of Mathematics, Lincoln, NE 68588. *Spatial population dynamics in meandering rivers.*

We present a novel model that considers the longitudinal variation as introduced by the sinuosity of a meandering river where a main channel is laterally extended to point bars in bends. These regions offer different habitat conditions for aquatic populations and therefore may enhance population persistence. Our model is a nonstandard reaction–advection–diffusion model where the domain of definition consists of the real line (representing the main channel) with periodically added intervals (representing the point bars). We study population persistence as the (in-) stability of the trivial solution and population spread as the minimal wave speed of traveling periodic waves. We conduct a sensitivity analysis to highlight the importance of each parameter on the model outcome and find that sinuosity can enhance species persistence. (Received February 09, 2018)