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**Yu Jin\*** (yj<sub>in</sub>6@unl.edu), Department of Mathematics, University of Nebraska-Lincoln, Lincoln, NE 68588. *Traveling waves for a reaction-diffusion-advection predator-prey model.*

We study a reaction-diffusion-advection predator-prey model in a river. The existence of predator-invasion traveling wave solutions and prey-spread traveling wave solutions in the upstream and downstream directions are established and the corresponding minimal wave speeds are obtained. While some crucial improvements in theoretical methods have been established, the proofs of the existence and nonexistence of such traveling waves are based on Schauder's fixed-point theorem, LaSalle's invariance principle and Laplace transform. Based on theoretical results, we investigate the effect of the hydrological and biological factors on minimal wave speeds and hence on the spread of the prey and the invasion of the predator in the river. (Received January 30, 2017)