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**J Goddard, A Muthunayake and R Shivaji\*** (shivaji@uncg.edu), Dept of Mathematics & Statistics, University of North Carolina at Greensboro, Greensboro, NC 27412. *Modeling the effects of interaction-mediated dispersal on coexistence.*

We analyse positive solutions to the steady state reaction diffusion equation:

$$\begin{cases} -\Delta u = \lambda u(1 - u); & \Omega \\ -\Delta v = \lambda r v(1 - v); & \Omega \\ \frac{\partial u}{\partial \eta} + \sqrt{\lambda} g(v) u = 0; & \partial\Omega \\ \frac{\partial v}{\partial \eta} + \sqrt{\lambda} h(u) v = 0; & \partial\Omega \end{cases}$$

where  $\lambda$  and  $r$  are positive parameters,  $\Omega$  is a bounded domain with smooth boundary  $\partial\Omega$  and  $g, h \in C^1(\mathbb{R}, \mathbb{R}^+)$  are decreasing functions. We will discuss existence results via the method of sub-supersolutions. (Received January 18, 2020)