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Predator-prey-subsidy population dynamics on stepping-stone domains with dispersal delays

Ragna M. Eide, Andrew L. Krause, Nabil T. Fadai,
Robert A. Van Gorder

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Highlights

- Impact of access to food resources on the stability and behaviour of the predator-prey-subsidy system is investigated
- We focus on how incorporating travel time changes the temporal dynamics
- Travel time is incorporated as discrete delay in the network diffusion term in order to model time taken to migrate between spatial regions
- Temporal delay alone does not push species into extinction, but rather may stabilize or destabilize coexistence equilibria.
- Incorporation of dispersal delay has a regularizing effect on dynamics, suggesting that dispersal delay can be proposed as a solution to the paradox of enrichment

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