On Prey-Predator with Group Defense

A mathematical model with one prey species living in two different habitats and a predator where a prey exhibits group defense is studied. The prey species is able to migrate between two different habitats due to change in seasonal conditions. The stability analysis is carried out for a critical point of the system where all species co-exist. Using rate of conversion of the prey to predator as bifurcation parameter, conditions for a Hopf of bifurcation to occur are derived.