

When Different Species see Different Patches

Allison J. Furey

Andrew M. Zimmer

afurey1@binghamton.edu

azimmer@ups.edu

Traditionally ecological modeling has been approached with the assumption that all species view the surrounding habitat from the same perspective. This simplifies the model but may not provide as accurate interpretations of species dynamics as those which may be gained from a model that grants different species the ability to view a habitat differently. We present two models which demonstrate that species' view of habitats does impact the behavior of population dynamics. Our first model restricts a predator species to a single patch in a two patch environment. Here we show that the prey's migration behavior affects the long term population dynamics of the model. In our second model we introduce a invasive predator who is restricted to a portion of the ecosystem. We demonstrate cases where assuming all species see the habitat from the same perspective produces different results than taking into account the restriction on the invasive predator.