**Project Outline**

Goal: Develop concrete recommendations for incorporating interspecific interactions into structured population models.

Specific Questions:

* What are the different mechanisms/modeling approaches for incorporating interspecific interactions into structured population models
  + What are the different resolutions of interspecific interaction data that may be available (i.e. presence/absence of competitors, number of competitors, spatial location of competitors, species identity of competitors, functional group of competitors, traits of competitors, etc.)
* When is it important to include interspecific interactions in structured population models? (i.e. when does including interspecific effects make a difference for estimates of lambda, transient dynamics, etc.)
  + Is it more important to account for interspecific interactions in systems that are more or less environmentally stressful?

Model Types

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | No information  about competitors | Competitors are present or absent | Plot-level counts or % cover of competitors | Spatial proximity of competitors to focal individual (i.e. a competition kernel?) | Spatial proximity of competitors to focal individual + size of competitor (i.e. a competition kernel?) |
| Basic IPM | x |  |  |  |  |
| IPM w/ model coefficient for competitors in vital rate models |  | x | x |  |  |
| Spatially explicit IPM w/ model coefficient for competitors in vital rate models (don't know how to do this yet, but I think it is possible and would work well here) |  |  |  | x | x |

\* Note that all models have information about # of conspecific competitors (i.e. density dependence)

**Questions for next steps:**

* I think it would be helpful to have simulated data, and wanted to get any advice or ideas from folks who know more about simulated data than I do (I basically don't know anything about it in practical terms…)
* Are there additional implications or questions that you think I should consider using this framework?