1106-92-254   **Jan Rychtar*** (`rychtar@uncg.edu`), Department of Mathematics and Statistics, Greensboro, NC 27412, and **Mark Broom**. *Habitat selection game in structured populations.*

The important biological problem of how groups of animals should allocate themselves between different habitats has been modelled extensively. Such habitat selection models have usually involved infinite well-mixed populations. In particular the problem of allocation over a number of food patches when movement is not costly, the ideal free distribution (IFD) model is well-developed. Here we generalize (and solve) a habitat selection game for a finite structured population. We show that habitat selection in such a structured population can have multiple stable distributions (in contrast to the equivalent IFD model that is practically unique). We also define and study a "predator dilution game" where unlike in the habitat selection game, individuals prefer to aggregate (to avoid being caught by predators due to the dilution effect) and show that this model has a unique solution when movement is unrestricted. (Received August 15, 2014)