

**Meeting:** 1003, Atlanta, Georgia, MAA CP M1, MAA Session on Environmental Mathematics and the Interdisciplinary

1003-M1-359      **Boris Efroimskiy\*** (boris239@bu.edu), 64 Burbank Street, Apt. 9, Boston, MA 02115, and  
**Jennifer Hanley** (jhanley2@bates.edu). *Stochastic Models of Species in a Connected Three Patch System* By Boris Efroimskiy, Boston University and Jennifer Hanley, Bates College.

We have constructed a series of models which 1) simulate the life cycle of migrating species in a system of three patches connected by varying patterns of corridors, and 2) predict the probability that a certain species will become extinct in a given system over a long interval of time. A General Model, based on the predator-prey model, was created to simulate the migration of an arbitrary predator and prey species depending upon the number of animals in all three patches. A modified version of the General Model was then used to create a set of Panther Models to simulate the behavior of the endangered Florida Panther, in an attempt to determine whether a connected three patch system would allow the population to grow and thrive. (Received September 12, 2004)