

1106-92-1125 **Emily Hunt** and **Anthony Tongen*** (tongen1@jmu.edu). *A Periodic Matrix Population Model for Monarch Butterflies*. Preliminary report.

The monarch butterfly (*Danaus plexippus*) exhibits a unique migration phenomenon leaving Michoacán, Mexico in the spring and traveling as far north as Southern Canada; later generations return to the same location in Mexico the following fall. However, there is concern within the scientific community about the long-term stability of this impressive annual journey. We use periodic population matrices to model the life cycle of the eastern monarch butterfly and find that this unique migration is not currently at risk. We extend the model to address the three primary obstacles for the long term survival of this unique migration: deforestation in Mexico, increased extreme weather patterns, and milkweed degradation. (Received September 10, 2014)