1046-91-1791   **Anthony Tongen*** (`tongenal@jmu.edu`), Department of Mathematics and Statistics, MSC 1911; James Madison University, Harrisonburg, VA 22807, and **D Brian Walton**, **Deena Hannoun** and **Leslie Hindman**. *An Optimal Strategy for Energy Allocation in a Multiple Resource Environment.* Preliminary report.

We use difference equations to model a population with overlapping generations that invests energy into finding two resources essential for its survival. This population is divided into two competing subpopulations that have different energy allocation strategies for a limited amount of available resources in the environment. The goal of this project is to discover how a subpopulation can divide its energy most effectively between the two resources such that it can have more reproductive success than its competitor and can consequently dominate its niche. (Received September 16, 2008)