1003-49-500   **Suzanne Lenhart***, University of Tennessee, Math Dept, Knoxville, TN 37996-1300, **Rene Salinas**, Appalachian State University, and **Louis Gross**, University of Tennessee. *Optimal Control of a Metapopulation Model for Bears.*

We consider an optimal harvesting problem for a metapopulation model for bears. The model is a system of 3 ODEs representing the populations in park, forest, and "outside" regions. The model is designed to represent the black bear population in east Tennessee and western North Carolina. We assume that harvesting is allowed in the forest region but not in the park region. We seek to minimize the population in the "outside" region. We consider how the amount of shared border between the park and forest regions affects the harvest strategy. (Received September 17, 2004)