1100-92-276 **Amy J. Ekanayake*** (aj-ekanayake@wiu.edu) and **Dinesh B. Ekanayake**. *The combined impact of the Allee effect and seasonality on disease dynamics.*

The Allee effect, together with seasonal migration and breeding, influences dynamics of infectious diseases and can force extinction of species in patchy environments. Analysis can provide useful insight into: the importance of seasonal factors in driving ongoing disease dynamics; the role of the Allee effect on extinction and persistence; the possibility of managing an endangered species; and control of invasive species and disease populations. The Allee effect has been studied together with dispersal in the literature and the results have important implications for predicting the survival of threatened populations. Yet only a few studies have considered the Allee effect under seasonal conditions and dispersal in a multi-patch environment. These dynamics are present for epidemics such as the sylvatic plague among prairie dogs. In this research, we study epidemic population models with the Allee effect under seasonal birth and migration in a patchy environment. We discuss conditions for the existence of a strong Allee effect under the influence of season behavior, conditions for stability of a disease free positive periodic solution, and how the model can be used to evaluate control methods in a wildlife population. (Received February 09, 2014)