**Impact of Natural Phenomena on Population Persistence**

|  |  |  |
| --- | --- | --- |
| **Alexis VanderWilt**  Dakota State University  alexis.vanderwilt@trojans.dsu.edu  820 N Washington Ave  Madison, SD 57042 | **Dr. Mark Spanier**  Dakota State University  mark.spanier@dsu.edu  820 N Washington Ave  Madison, SD 57042 | **Dr. Jeffrey Palmer**  Dakota State University  jeff.palmer@dsu.edu  820 N Washington Ave  Madison, SD 57042 |

Persistence of a species on the landscape can result from a variety of factors. For example, dispersal from stable source populations and/or immigration from outside regions can maintain local population densities. However, some species may respond to or even depend upon the formation of transient habitat patches that form on the landscape, e.g. Black-backed Woodpeckers and fires in the Black Hills of South Dakota or waterfowl populations and temporary wetlands in the Prairie Potholes. We have formulated a stochastic simulation of a population on a structured landscape that incorporates the formation of transient “super territories”. The model includes explicit habitat structures that influence relevant biological parameters such as dispersal, reproductive, and survival rates. We investigate the effect of the formation of these transient “super territories” on the density and persistence of the population on the landscape.