Soil Information Linking to the Amoeba-Plague relation within Prairie Dog Colonies

Brandon Lemire and Steven R. Fassnacht
ESS-Watershed Science, Colorado State University

David Markman
Biology, Colorado State University

Abstract. The composition of soil and varying scales of spatial-information dictate the flow of water through an ecosystem. These factors may be linked to the presence of amoeba that can carry the plague and other diseases deadly to wildlife. Positive plague sites were found in the Pawnee National Grasslands that have been tied to existing prairie dog colonies. Though the plague and prairie dog colony relation have been extensively researched, the presence of amoeba within positive test sites is the topic of the new research. Soil samples and moisture measurements were taken from June to August 2015 at each positive site and compared to samples taken at non-plague sites within the same colony boundary. In-situ soil composition data was extracted from the Soil Survey Geographic Database (SSURGO) database to evaluate larger-scale soil characteristics. Soil composition and moisture were correlated to the presence of amoeba and plague infection. The findings highlight the need to integrate regional hydrologic data into the model to determine the importance that water plays in amoeba and plague movement within the prairie dog colony.