

## Source, fate and transport of *Cryptosporidium* in a rural Midwestern watershed

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### **Justification:**

*Cryptosporidium* causes cryptosporidiosis, an infectious disease in humans and animals for which chemotherapy is generally ineffective. Water is important in disease transmission and many waterborne outbreaks have been described worldwide. While this has led to the adoption of strict regulations governing *Cryptosporidium* in water, our understanding of factors affecting waterborne transmission remains limited. Molecular typing tools have supported the assignment of many *Cryptosporidium* species, most of which are host adapted and not pathogens of humans or livestock. Using this knowledge of host adaptation we are beginning to address some fundamental gaps in our understanding of the source, fate, transport, and health significance of *Cryptosporidium* in water.

### **Objectives:**

The goals of this project are to quantify the impact of the wildlife source, determine survival in river sediment, and quantify transport via drain tiles, of *Cryptosporidium* in a rural watershed. These goals will allow us to test our hypothesis that the presence and public health significance of *Cryptosporidium* in rural surface water is dynamically related to changes in wildlife abundance and shedding patterns, survival and persistence in river sediment, and transport from cropland in agricultural drain tiles.

### **Progress to date:**

A high prevalence of *Cryptosporidium* has been identified in small mammals such as voles in the watershed under study. *Cryptosporidium* genotypes associated with voles have been found to contaminate surface water.

### **Impacts:**

Data from this project are being used to clarify the specific role that wildlife play in waterborne *Cryptosporidium*.