
IS HABITAT TYPE A USEFUL PREDICTOR OF THE OUTCOME OF INTERACTIONS BETWEEN *TUBIFEX TUBIFEX* AND *MYXOBOLUS CEREBRALIS*, THE CAUSATIVE AGENT OF SALMONID WHIRLING DISEASE?

Julie D. Alexander and Billie L. Kerans, Department of Ecology, Montana State University, 310 Lewis Hall, Bozeman, Montana 59715

Todd M. Koel, Yellowstone National Park, PO Box 168, Yellowstone Park, Wyoming 82190 todd_koel@nps.gov

The aquatic oligochaete *Tubifex tubifex* is the intermediate host for the parasite, *Myxobolus cerebralis*, which causes salmonid whirling disease (WD). Although the relationship between WD severity in salmonids and infection in *T. tubifex* is not well understood, previous research suggests that variation within local stream populations of *T. tubifex* may be an important determinant of parasite success. Our goals were to examine relationships among habitat features, abundance, infection prevalence, genetic diversity and susceptibility of *T. tubifex*, and WD risk in Yellowstone cutthroat trout spawning tributaries in Yellowstone National Park, where *M. cerebralis* was detected in 1998. Abundance of tubificids and *T. tubifex*, and infection prevalence in *T. tubifex* were higher in unconfined habitat types than in confined habitat types. *Tubifex tubifex* belonging to mtDNA lineages III, which are considered moderately susceptible to *M. cerebralis*, were also more abundant in unconfined habitats than confined habitats. We assessed the susceptibility of four genetically distinct strains of lineage III *T. tubifex* to *M. cerebralis* in the laboratory. Strains were established from field collected *T. tubifex*. All strains were susceptible to infection by *M. cerebralis* and strains from unconfined habitats amplified the parasite only slightly more than strains from confined habitats. These results suggest habitat type may influence variability in WD risk by affecting the outcome of interactions between *T. tubifex* and *M. cerebralis* in the field.