

Aquatic Poster Session

RESPONSE OF NON-TARGET ORGANISMS FROM ROTENONE TREATMENTS WITHIN THE EAST FORK SPECIMEN CREEK DRAINAGE, YELLOWSTONE NATIONAL PARK

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Fish removal by rotenone applications is a highly effective fish management tool. However, rotenone is nondiscriminatory and can have negative impacts on non-target aquatic organisms. In 2004 Yellowstone National Park staff began planning a native fish restoration project within East Fork Specimen Creek. We conducted pre- and post- treatment monitoring on invertebrate communities throughout the drainage and on amphibian populations in the vicinity of High Lake, a 7-ac headwater lake where initial rotenone treatments took place. In August 2006 fish in High Lake were chemically removed using rotenone (CFT-Legumine). CFT Legumine is a relatively new formulation of rotenone in the United States that doesn't contain petroleum hydrocarbon solvents that are used in traditional rotenone formulas. As a result, CFT Legumine is likely less harmful to the environment but affects on non-target organisms, such as invertebrates and amphibians, are poorly understood. Among invertebrate populations, both pre- and post- treatment studies indicated that midge larvae were the most common invertebrate groups in the stream and lake benthos with increasing densities after rotenone treatment. Results from the stream invertebrate samples indicate that mayfly, stonefly, and caddisfly larvae were most susceptible to rotenone with some taxa experiencing 100-percent mortality. One year after treatment, however, most taxa had recovered with densities exceeding pre-treatment conditions. Higher invertebrate densities could be a result of the absence of fish predation the year following treatment. Similarly, larval amphibians appeared to experience 100-percent mortality from the initial rotenone application but tadpoles were observed in greater numbers 1 yr post-treatment.