

AGE MODERATED EFFECTS OF FINTROL® (ANTIMYCIN) ON LARVAL AMPHIBIANS

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The use of piscicides to remove competing and hybridizing non-native fish has become a commonly considered option in conservation programs focused on preserving and restoring native salmonid fishes in the intermountain west. However, piscicide projects have been criticized, especially by opposed publics, as heavy handed, with unintended and harmful effects on non-target organisms – primarily aquatic macroinvertebrates and amphibians. Past experiments and field observation have generally shown field level dosages of Fintrol®, an antimycin based piscicide, to have relatively little effect on larval (tadpoles) and adult amphibians. In 2003, while conducting a piscicide treatment, we observed mortality of western toad (*Bufo borealis*) larvae in side-channel water that had been sprayed with Fintrol®. In 2004 *in situ* bioassays were conducted during a stream application of Fintrol® (10µg/L for 7-8 hrs) to determine the effect of treatment on amphibians. Adult, sub-adult, and larval Columbia spotted frogs (*Rana luteiventris*), as well as larval western toads, were placed in live cars in the treatment section. All spotted frog age-classes survived until release 48 hrs post-treatment; however, western toad larvae experienced 100-percent mortality. From 2005

to 2007 we conducted a series of laboratory experiments (water pH of 7.5-8.0 and 21 °) with these two species to better determine if the mortality we observed in the field was specie age, or dosage related. Amphibian larvae were exposed to a series of Fintrol dosage (0 120 µg/L) at different stages of maturity in a total of 141 aquaria exposure trials. Mortality was high for both species at field level dosages (5-20 µg/L) at early post-egg larval stages (Gosner stage 22-24). Mortality decreased as larvae aged and by Gosner stages 29-30 both species seemed relatively resistant, at least as measured in terms of direct mortality, to moderate dosages of Fintrol®. After Gosner stage 30 very high dosages of Fintrol (60-80 µg/L) were required to cause mortalities > 50 percent. These results suggest that carefully timed Fintrol treatments might have minimal effects on at least these two species of amphibians. However, treatments conducted under different water quality conditions may lead to different results.