

Jeff Sorensen

From: Mary_Richardson@fws.gov
Sent: Tuesday, September 25, 2007 11:28 AM
To: Ross Timmons
Subject: Peter's Estimates for Aravaipa

Ross:

I just sent out the minutes, which has this same exact language, but since I said I would, here is the excerpt from the minutes with Peter's estimates. Peter re-emphasized in a telephone call that these are estimates, so please keep that in mind.

Peter addressed information on population estimates for spikedace and loach minnow for Aravaipa Creek. He noted that these are not quantitative populations estimates. They are estimates using densities and distributions to provide approximations. He was working with mean population size, using averages from six years of data collection, and that the numbers developed assuredly underestimated the true population sizes. Assumptions in the analysis that were violated included that all individuals within a reach were caught (actual population sampled), that the work was done in a closed system (no immigration or emigration), and there was no bias from collecting techniques (seine versus electroshocking). The distribution for loach minnow included the entire creek above the barrier. For spikedace, approximately 4.5 miles of the stream were included based on distribution sampling from nine sites along the entire creek.

The population estimates for loach minnow, with a 95% confidence interval based on sample size, were a Spring maximum population of 3600 individuals, and a Spring minimum of 330 individuals; a Fall maximum of 5770 individuals, and a Fall minimum of 1000 individuals.

For spikedace, Peter estimated, with a 95% confidence interval, a Spring maximum of 10,000 individuals, and a Spring minimum of 6200 individuals; a Fall maximum of 11,000 individuals and a Fall minimum of 6700 individuals.

Peter concluded that the withdrawal of approximately 400 spikedace and 400 loach minnow from the stream would not have an impact on the population, and recommended that we should stagger removal of fish with an emphasis on collections in the fall, limiting overall take to 10% or less of the population. It was noted that we could collect many loach minnow from below the barrier as well.

Tony noted that spikedace and loach minnow from Aravaipa Creek currently at Bubbling Ponds were to be used in the Fossil Creek reintroduction.

Thanks,

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