Using Genetics To Study Otter Connectivity And Population Size In Northwestern Montana

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River otters (*Lontra canadensis*) have begun to recover in the Upper Clark Fork River (UCFR) after decades of mining and smelting activity severely impacted the population. An initial project in 2009 showed otters occur throughout the UCFR but at seemingly lower densities than other rivers in Montana. We are working to estimate otter population size in the UCFR and determine connectivity between other geographically close rivers. We are using 11 microsatellite loci amplified from tissue samples collected from trapped otters to look at connectivity between 5 rivers: the Bitterroot River, Blackfoot River, Clearwater River, UCFR, and Lower Clark Fork River. We are using heterozygosity and Fst values to indicate population substructuring as well as using principle component analysis to visualize any differentiation. Additionally, we are using hair collected from hair snares to genetically estimate population size in the UCFR. Initial results from tissues indicate that otters in the 5 rivers are highly connected, and no one population is more connected to the UCFR than another. These results are based on a small samples size; additional samples currently being analyzed will enhance our ability to interpret this situation. Additional samples will be collected in 2011 to strengthen the population estimate. This is one of a few projects, and the first in Montana, to use genetics to look at population substructuring in otters.