# The Genetic Legacy of 50 Years of Desert Bighorn Sheep Translocations in Nevada

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**ABSTRACT**: Desert bighorn sheep (*Ovis canadensis nelsoni*) are an iconic western North American species that have been heavily managed throughout their range. Once thought to be the most abundant large mammal in the state of Nevada, dramatic declines in the mid 1900's reduced population sizes and restricted the range of desert bighorn sheep primarily to southern Nevada, though a few remnant populations persisted in central Nevada. To restore central Nevadan populations, the Nevada Department of Wildlife conducted several translocations of individuals from multiple southern Nevada source populations, leading to the admixture of individuals with different genetic ancestry. Here, we used a genotyping-by-sequencing approach to generate genetic information at several thousand loci for hundreds of desert bighorn sheep individuals across the state of Nevada. We found evidence for strong population genetic structure between the source populations in southern Nevada, suggesting that substantial genetic variation still exists in the state. However, almost all central Nevadan populations have genetic signatures that strongly resemble those from their translocation source populations. Finally, one central Nevadan population was genetically distinct from all other populations and is likely the last bastion of central Nevadan genetic ancestry remaining in the state.

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