

## **Quantification Of A Known Population Bottleneck In Rocky Mountain Bighorn Sheep In Custer State Park, South Dakota**

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*Abstract:* A population bottleneck occurred when 22 Rocky Mountain bighorn sheep (*Ovis canadensis canadensis*) were transplanted from Whiskey Basin, WY (WB) to Custer State Park, SD (CSP) to start a new herd. To quantify the bottleneck that occurred, data from five microsatellite loci from 32 CSP bighorn were compared with previously published data from WB bighorn. There was a reduction in heterozygosity from WB bighorn to CSP bighorn ( $P=0.039$ ). CSP had fewer alleles per loci than WB bighorn ( $P=0.019$ ). CSP bighorn had a heterozygote excess based on the number of alleles in the CSP population ( $P=0.016$ ) and therefore were not at mutation-drift equilibrium. A mode shift was also observed when comparing allele frequency classes of the non-bottlenecked WB population with the bottlenecked CSP population, but heterozygosity still remains higher than in most Rocky Mountain herds.