

Evaluation of an Augmentation of Bighorn Sheep at Badlands National Park, South Dakota

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Abstract: Rocky Mountain bighorn sheep (*O. canadensis canadensis*) were reintroduced to Badlands National Park (BNP) in 1964, representing the eastern most extent of the species' current and historic range. In September 2004, 23 bighorn sheep were captured at Wheeler Peak, New Mexico and released at BNP to augment the existing population of approximately 68 individuals. Because it has been recommended that introduced populations are regularly monitored to evaluate the success or failure of transplants, the objectives of this study were to: 1) document survivorship, natality, dispersal, and recruitment of introduced bighorn sheep females and their offspring, 2) estimate 95% and 50% adaptive kernel planimetric and surface area home ranges of introduced bighorn sheep females, 3) determine habitat selection of introduced bighorn sheep females, 4) compare home range size and habitat selection of introduced to resident bighorn sheep females. Eighteen of 23 introduced bighorn sheep survived/remained with the sub-population. In 2005 and 2006, the 3 month-old lamb to adult ewe ratios were 90:100 and 62:100, respectively. In June 2006, 9 of 9 surviving yearling lambs dispersed from BNP with dispersal distances ranging from 43 to 524 km. In May 2007, 3 of 8 surviving yearling lambs dispersed from BNP with a dispersal distance of 25 km. The 95 % adaptive kernel and surface area estimates of the introduced bighorns increased between years, but core home range size did not differ between years. The 95% and 50% adaptive kernel planimetric and surface area home range estimates were greater in resident than introduced sheep. Introduced and resident bighorn sheep differed in their use of habitat with introduced sheep selecting areas closer to roads, human use areas, and water. We propose that differences observed between introduced and resident bighorns may be due in part to the acclimation of the introduced sheep to the presence of humans in their former range.

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