

## **Wildfire Recovery To Provide Optimal Habitat For Bighorn Sheep In The Douglas Creek Bighorn Sheep Herd**

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**ABSTRACT:** In fall 2020, the Mullen Wildfire burned 176,000 acres in the southern half of the Snowy Range, 30 miles west of Laramie, Wyoming. Burned lands were dominated by lodgepole pine, which had succumbed to a mountain pine beetle epidemic over 20 years ago, and provided fuel loading for large scale wildfire events. Pre-wildfire, bighorn sheep within the Douglas Creek herd were only found in small portions of their historic ranges where open escape terrain could be found. Wildlife managers had identified conifer encroachment as a limiting factor for bighorns in this herd for the last 40 years. High proportions of the Mullen Wildfire scar were categorized as “High Burn Severity”, and managers quickly grew concerned post-wildfire about the threat of invasive vegetative species pioneering into burned areas. Through extensive vegetation monitoring and modeling efforts, 10% of the burn scar was deemed to be at medium to high risk of cheatgrass invasion. The Medicine Bow-Routt National Forest and the Wyoming Game and Fish Department secured over \$1 million in grant funding to complete aerial herbicide (Rejuvra®) applications in 2021 and 2022, enough to treat over 14,000 acres. Importantly, the Medicine Bow-Routt National Forest was able to gain clearances for one time treatments within the Platte River and Savage Run Wilderness Areas. Intensive vegetative monitoring plots were established, and will continue to be monitored to determine the effectiveness of treatments, as well as when and where re-treatments may be needed in future years. Nine bighorn ewes within the Douglas Creek herd were captured and fitted with Global Positioning System collars in 2019 (prior to the Mullen Wildfire), and 14 bighorn ewes captured and collared in 2022, including five individuals from the pre-wildfire sample, allowing for an evaluation of habitat use and movements pre- and post-wildfire. Already, bighorns are foraging into previously unoccupied areas recently made available by the Mullen Wildfire. It will be valuable to track the continued response of this bighorn sheep herd following the type of habitat altering event that has been desperately needed for decades.

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**KEY WORDS:** bighorn sheep, pre and post-fire habitat use, vegetation monitoring, wildfire, Wyoming.