



50 YEARS OF DESERT BIGHORN RESTORATION

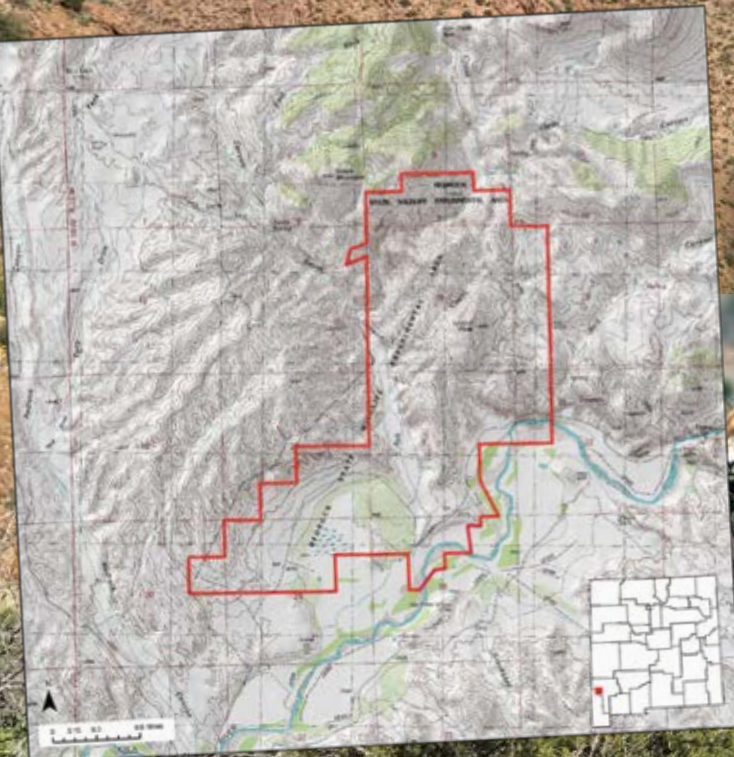
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ENDANGERED SPECIES RECOVERY FUNDED BY THE HUNTER-CONSERVATIONIST

This year marks the 50th anniversary of the completion of the desert bighorn sheep enclosure at the Red Rock Wildlife Area (RRWA) along the Gila River, north of Lordsburg, New Mexico. This facility was completed in 1972, and it has been operated continuously by New Mexico Department of Game and Fish (NMDGF) to propagate desert bighorn sheep for translocation into historic ranges.

The foresight of the conservationists involved in the decision to construct the Red Rock Wildlife Area resulted in the cornerstone of the recovery and eventual delisting of state-endangered desert bighorn sheep in New Mexico. Throughout the long history of this facility, the hunter-conservationists, backed by Pittman-Robertson funds derived from the self-imposed tax on sportsmen and women, have paid for the annual operation costs of this success story. Although there have been 11 directors of NMDGF during these 50 years, there have only been four caretakers at RRWA, each averaging more than 12 years working at this unique facility.



The RRWA is nestled in southwest New Mexico close to the Arizona-New Mexico border. It was originally designed as a 667-acre enclosure with four internal pastures. In 1989 the RRWA enclosure more than doubled in size when a fifth pasture of 790 acres was added, which included a long, deep canyon where most ewes currently lamb.



READ MORE ABOUT THE PITTMAN-ROBERTSON ACT ON PAGE 10.

COLLECTIVE CONSTRUCTION

When this enclosure was built using bulldozers, hand-crews, and dynamite at alternating postholes, there were just two herds of desert bighorn sheep remaining in the entire state of New Mexico. The first was a small remnant herd in the Big Hatchet Mountains, located in the bootheel of New Mexico and thought to number fewer than 20 animals. The second herd in the San Andres Mountains was thought to number about 200 animals but was destined for extinction by the mid-1990s. To state that the future of desert bighorn sheep was on desparate ground would not have been hyperbole.

In 1972 there were a half dozen desert bighorn sheep harvested in the San Andres herd, and the money generated from all the hunts for desert bighorn sheep in

New Mexico amounted to just a fraction of what would be needed to build a captive breeding facility at Red Rock. The state and provincial auctions for wild sheep hunting licenses, which have increased funding for management of North American wild sheep today, were still a pipe-dream. There was little doubt that an attempt to recover desert bighorn sheep in New Mexico would require a captive breeding facility. However, it would take the combined resources of NMDGF, the federal government (Bureau of Land Management—BLM), the government of Mexico (State of Sonora), and several non-governmental organizations (NGOs) to commit to funding the cost of materials needed to construct the enclosure.

The decision to build this facility occurred during a period when NMDGF was interested in the potential introduction of several exotic species, and we assume this had some bearing on the NGO funding received from two international hunting organizations: Shikar Safari and Game Conservation International (Game-COIN). A third

cooperator was a mining industry group that had a mining claim inside the proposed facility. BLM provided the land, NMDGF provided the construction crew and wild sheep capture in New Mexico and Mexico, the NGOs provided funding for the materials to build the enclosure and to relinquish the mining claim, and the state of Sonora, Mexico, provided a portion of the founding desert bighorn sheep herd.

The original design was a 667-acre enclosure with four internal pastures. Two pastures housed desert bighorn sheep with the other two pastures housing Siberian ibex and Persian ibex. The ibex populations grew quickly and were released into the wild. Siberian ibex were released into the Canadian River drainage in northern New Mexico in a translocation effort that ultimately was unsuccessful, and Persian ibex were released into the Florida Mountains near Deming, New Mexico, where a successfully established herd has been hunted since 1974. Following the removal of the ibex, desert bighorn sheep were allowed to disperse into all four pastures. In 1989 the RRWA enclosure more than doubled in size when a fifth pasture of 790 acres was added, which included a long, deep canyon where most ewes currently lamb.

FOUNDING SHEEP

The original 16 desert bighorn sheep released into Red Rock were captured by NMDGF from the San Andres herd located on the White Sands Missile Range (WSMR) and the San Andres National Wildlife Refuge (SANWR). In addition, five pregnant ewes were captured by NMDGF in Sonora, Mexico. These were the first desert bighorn to come from Mexico into the United States, and 50 years later, they remain one of just three known

translocations of desert bighorn from Mexico. These 21 bighorn were then allowed to reproduce until 1979 when the first 12 bighorn were captured to augment the Big Hatchet herd that had declined to a minimum known population of just 13.

GENETICS

Captive breeding populations, with small numbers of founders, are at risk of lower genetic diversity. Red Rock has been fortunate to have founders from two disparate populations in New Mexico and Mexico and subsequently genetic ingress from two additional sources. In 2008 three rams were observed walking the perimeter of the Red Rock enclosure shortly after a capture operation. The assumption was that these rams had somehow managed to escape during the capture. However, there was also the possibility these were Rocky Mountain bighorn sheep from a herd in Arizona or New Mexico. One of these rams was darted and a genetics sample sent for testing. This ram was determined to be a desert bighorn not of Red Rock origin, i.e., likely from the Peloncillo Mountains in Arizona, and therefore these rams were allowed to enter the enclosure. In 2011 NMDGF traded Mexico 300 pronghorn for 10 desert bighorn rams from the captive facility at the CEMEX-Pilares enclosure in Coahuila, Mexico.

PREDATOR CONTROL

Mountain lion predation has been the primary cause of mortality for radio-marked desert bighorn sheep in New Mexico, and the mortality at RRWA is no exception. Mountain lions are thought to primarily enter the enclosure via holes created by javelina when they burrow underneath the fencing. NMDGF expends considerable effort to keep these lions out, and for the last 20 years the contractors hired to manage the



The rugged terrain within the enclosure makes the helicopter net-gun the capture technique of choice.

Red Rock Wildlife Area have used lion hounds to protect the bighorn sheep within the enclosure. There have been a number of documented lion kills inside the enclosure and the hypothesis that these captive animals are not suited for release into the wild is unsubstantiated by analyses of mortality data. It seems logical that being hunted inside an enclosure would make one very wary; and relative to humans, these bighorn display all the behaviors of wild desert bighorn sheep.

ANNUAL SURVEY

Beginning in 1997, an annual survey of the enclosure has been conducted using NMDGF employees and volunteers from universities, New Mexico Chapter of Wild Sheep Foundation (NMWSF), and other interested conservationists. Hikers push the bighorn sheep in the two largest pastures allowing observers at high-points to count the moving bighorn. The three smaller pastures are surveyed via roads within the enclosure. The count derived from this annual census is what determines the number of bighorn sheep that can be removed via



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capture and translocation. Generally, the population is allowed to increase to 100-plus animals and then all ewes in excess of 25 and a similar number of rams are captured and translocated.

CAPTURES

The rugged terrain within the enclosure makes the helicopter net-gun the capture technique of choice. Captures generally occur on a biennial schedule with all surplus ewes and rams removed. This usually results in 30-45 available for translocation. Since the initial capture in 1979, there have been 23 different

captures at Red Rock. Following the capture of 46 desert bighorn sheep in November 2021, the total number of desert bighorn sheep released from RRWA has been 537. Desert bighorn sheep from Red Rock Wildlife Area have been used to establish or augment herds in eight desert bighorn sheep ranges in New Mexico.

After shooting the bighorn sheep with a net fired from the helicopter, they are placed into a sling-bag and transported via a short flight from the enclosure to the headquarters where an experienced processing crew

prepares the animals for translocation. This includes sampling for disease profiles and fitting all adult desert bighorn sheep with radio collars (recent captures have used GPS collars exclusively). Processed bighorn sheep are then loaded into a “Sheep-Shipper” and driven to the release site. Using GPS collars allows NMDGF biologists to track movements and allows for early detection of mortality events. Cause of mortality is then ascertained by visiting the mortality site.



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During the first 23 years, an average of about five desert bighorn sheep were removed from the RRWA enclosure annually; however, since 1995 this average has tripled to more than 15 bighorn sheep removed annually. During the restoration effort of desert bighorn sheep, NMDGF has also partnered with Arizona Game and Fish Department (AZGDF) to trade 50 Rocky Mountain bighorn sheep for 50 desert bighorn sheep. These desert bighorn sheep, captured on the Kofa National Wildlife Refuge (KNWR), were introduced into the San Andres Mountains in 2002 and 2005. AZGDF also provided desert bighorn sheep from KNWR during the initial translocation of bighorn sheep to the Peloncillo Mountains in 1981 and 1982.

These translocation efforts, combined with removal of mountain lions in desert bighorn sheep ranges, have resulted in the statewide population increasing from less than 170 in 2001 to more than 1,200 in 2021. This increase allowed NMDGF to remove desert bighorn sheep from the New Mexico endangered species list in 2012 and the restoration of hunting for this iconic much sought-after subspecies. Since the first statewide hunting season in 2012, there have been more than 250 desert rams harvested in New Mexico—nearly all have been progeny of desert bighorn sheep released from Red Rock. There have been more than twice as many desert bighorn sheep rams harvested in New Mexico during the last decade than there were licenses issued for desert bighorn sheep in the first 100 years of New Mexico statehood.

RESEARCH

Although RRWA was not developed as a research facility, there have been multiple research projects that have

utilized the enclosure. Research has been conducted on habitat and food habits, behavior and sexual segregation, population estimation using camera traps and distance sampling, as well as long term data sets related to desert bighorn sheep population growth rates, lamb and yearling survival, variation in body weights, sex-ratios, etc. Interestingly, the RRWA enclosure is considered to have one of the highest densities of Gila monsters in the world, and research on this rarely seen venomous lizard has been conducted at RRWA for many years.

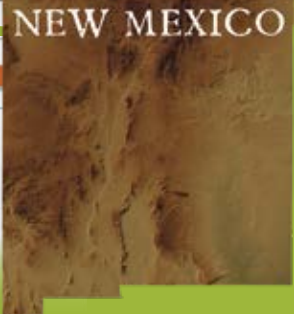
FUTURE

We don't know if the people with the vision to create the enclosure at the Red Rock Wildlife Area imagined the facility would still be in operation 50 years after being built. We do know that this conservation management action has made many of the desert mountain ranges in New Mexico far more interesting by re-establishing this important faunal component to be enjoyed by the hunting and non-hunting community alike. Funding from auction, raffle, and license sales to hunt desert bighorn sheep have generated more than \$2.6 million since the delisting of desert bighorn sheep in 2012—with the hunter-conservationist continuing to pay for the restoration of desert bighorn sheep in New Mexico. Several more mountain ranges in New Mexico remain to be filled with desert bighorn sheep, and NMDGF envisions this facility will be used to produce desert bighorn sheep for many years to come. ■



The conservation management at RRWA has made many of the desert mountain ranges in New Mexico far more interesting by re-establishing this important faunal component to be enjoyed by the hunting and non-hunting community alike.

State Record	Score	Hunter	Year
1	192 3/8	Jim Hens	2013
2	181	Clayton A. Miller	2012
3	180 4/8	Pickett Ego	1962
4	180 4/8	Pickett Ego	2000
5	180 2/8	Russell A. Young	2006
6	187 5/8	Ryle C. Kessler	2014
7	187	St. Brian Valentine	2012
8	185 8/8	Mike A. Gallo	2020



HUNTING IN NEW MEXICO

The all-time records overflow with pronghorn entries from New Mexico, and Mike Gallo's buck from 2013 is the current World's Record at 96-4/8. Not to be outdone, Coues' deer have a number of high-scoring entries, plus bighorn and desert sheep are scattered through the top 50. A handful of non-typical elk, cougar, and mule deer round out the state. While there are no Boone and Crockett categories for them, oryx, Barbary sheep, and javelina should catch your eye the next time you travel there.

Read more about Boone and Crockett State Big Game Records online and find out more about our premium online content on page 54.

