Back from the Brink

New Mexico Desert Bighorn

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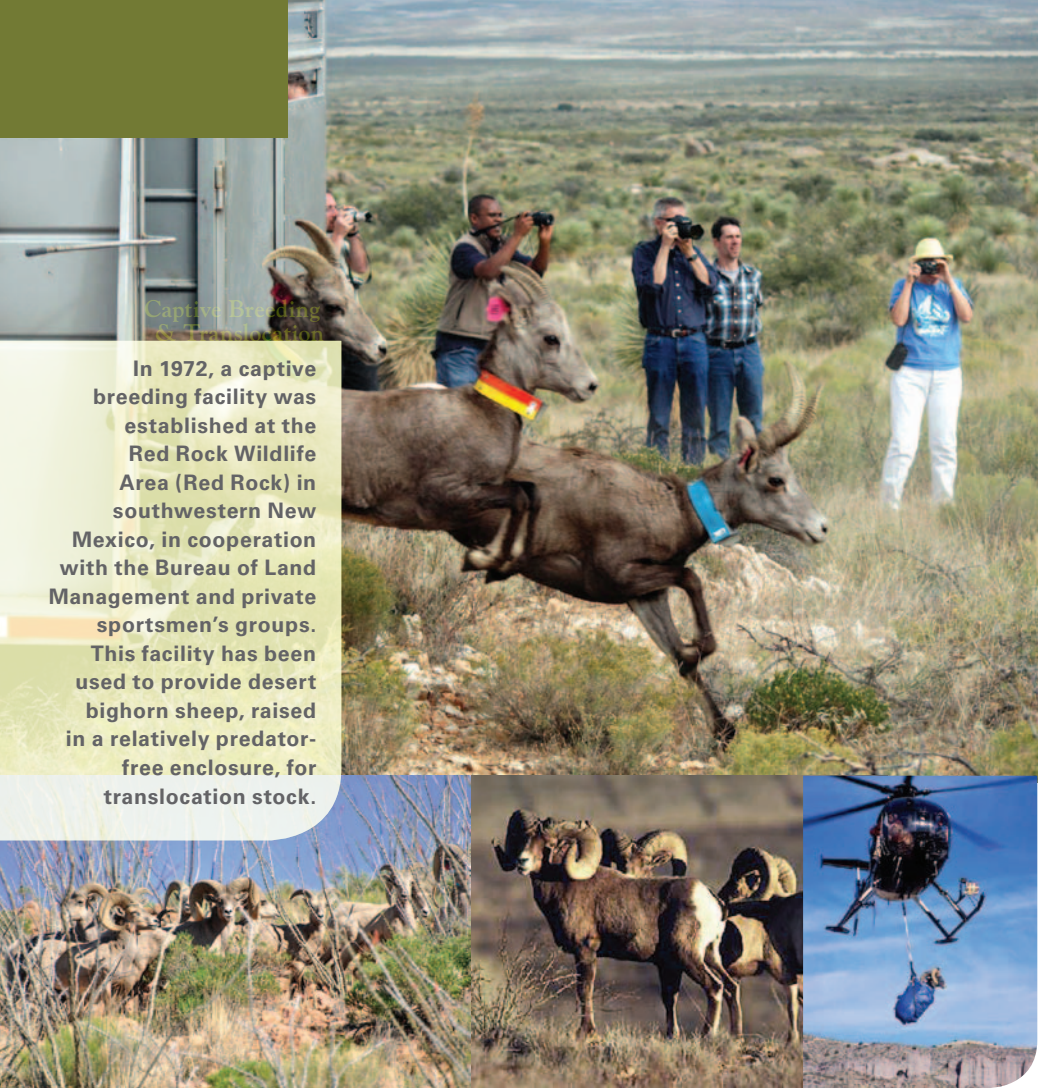
Photos provided by author

Sheep

Archeological data suggest that bighorn sheep, dispersing from glacial refugia, colonized the arid Southwest not long before *Homo sapiens* colonized the North American continent. The first written reports of desert bighorn sheep in New Mexico are from the log entries of the conquistador Francisco Vasquez de Coronado in 1540. The presence of desert bighorn sheep has been documented in at least 14 separate ranges in New Mexico, and although historical numbers are speculative, it is hypothesized that there may have been the potential for 14,000 to 28,000.

The mountain man James Pattie reported multitudes of wild sheep in the historical desert bighorn habitat in the San Francisco River drainage during an expedition to trap furbearers in 1825. Although market hunting certainly contributed to the decline of desert bighorn sheep, the extirpation in nearly all historical ranges was almost certainly related to the pneumonia complex associated with contact with domestic sheep. This old-world bacterial disease that is transmitted to wild sheep following comingling with domestic sheep continues to hinder the recovery of wild sheep throughout historical ranges in the West.



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Recent Decline

During the 20th century, desert bighorn sheep were extirpated from Texas and several states in Mexico. By 1946, desert bighorn sheep distribution in New Mexico had contracted to just two populations in the San Andres and Big Hatchet mountains. The near extinction in New Mexico was exacerbated by a scabies mite outbreak during the late 1970s in the San Andres population and the decline to fewer than 15 desert bighorn sheep in the Big Hatchets. The statewide population low during this century came in 1979 when fewer than 80 desert bighorn sheep remained. In 1980, desert bighorn sheep in New Mexico were listed as a state-endangered species in a last-ditch effort to stave off extinction. They remained on that list for the next 30 years.

Captive Breeding/Translocation

New Mexico Department of Game and Fish (NMDGF) recognized that because of very low numbers, few if any desert bighorn sheep would be available for translocation from the two remaining wild herds. In 1972, a captive breeding facility was established at the Red Rock Wildlife Area (Red Rock) in southwestern New Mexico, in cooperation with the Bureau of Land Management and private sportsmen's groups. This facility has been used to provide desert bighorn sheep, raised in a relatively predator-free enclosure, for translocation stock. This facility was expanded in 1990 to nearly 1,300 acres from the original design of 640 acres.

As has occurred throughout the history of big game restoration in North America, the American sportsman has paid most of the freight. In the case of bighorn sheep, this effort was accelerated following the establishment of the Foundation for North American Wild Sheep, now known as the Wild Sheep Foundation. This organization and other like-minded, hunter-conservation organizations, including the Boone and Crockett Club, have lead the way in funding restoration efforts under the over-arching North American Model of Wildlife Conservation.

The 18 desert bighorn sheep 'founders' in Red Rock were from the San Andres Mountains of New Mexico and from the Mexican state of Sonora. The first translocation from Red Rock occurred in 1980. Because the facility is comprised of more than two square miles of mountains and canyons, a helicopter net-gun crew is employed for each capture. Since 1980, 388 desert bighorn sheep have been gathered in 17 capture operations and released to establish or augment eight herds in New Mexico.

In 2001 and 2003, desert bighorn sheep from the Kofa National Wildlife Refuge in Arizona were traded for Rocky Mountain bighorn sheep from northern New Mexico herds. This trade was implemented to assist both states in their respective recovery efforts and was instrumental to the New Mexico recovery. Although the high-fence at Red Rock precludes the escape of desert bighorn sheep, nearly 50 mountain lions have been removed in and around the enclosure since its establishment in 1972. This high level of harassment by mountain lions has resulted in captive-raised animals that, once released in the wild, have no higher mortality rates due to predation than do desert bighorn sheep captured in the wild. One can only imagine that being hunted by a mountain lion while residing in a pen increases one's vigilance.

Between 1980 and 2000, translocation and monitoring were the primary management tools employed by NMDGF. As monitoring efforts intensified during the mid-1990s, biologists determined that despite the release of more than 200 desert bighorn sheep, statewide numbers were not increasing, and in fact by 2001, populations had declined. Estimates put desert bighorn populations at fewer than 170 animals. NMDGF made a considerable effort to maintain a high proportion of radio-collared adults in the wild population by radio-collaring all individuals released from Red Rock, as well as capturing and collaring desert bighorn sheep in the wild. These desert bighorn sheep were then radio-tracked from a fixed-wing aircraft during monthly flights. In addition, radio-collared desert bighorn sheep were monitored from the ground and during helicopter surveys. All detected mortalities were recovered to determine the cause of death.

Predator Control

In 1957, a panel discussion at the annual meeting of the Desert Bighorn Council found that field biologists were in general agreement that predation from mountain lions had a minimal influence on the population dynamics of desert bighorn sheep throughout the West. However, beginning in the mid-1990s, this historical paradigm shifted dramatically. Mountain lion predation was determined to be the primary proximate cause of mortality for desert bighorn sheep herds in California, Texas, Nevada, Colorado, and New Mexico.

The data from New Mexico indicated that approximately 85 percent of the known-cause mortality of radio-collared desert bighorn sheep was mountain lion predation

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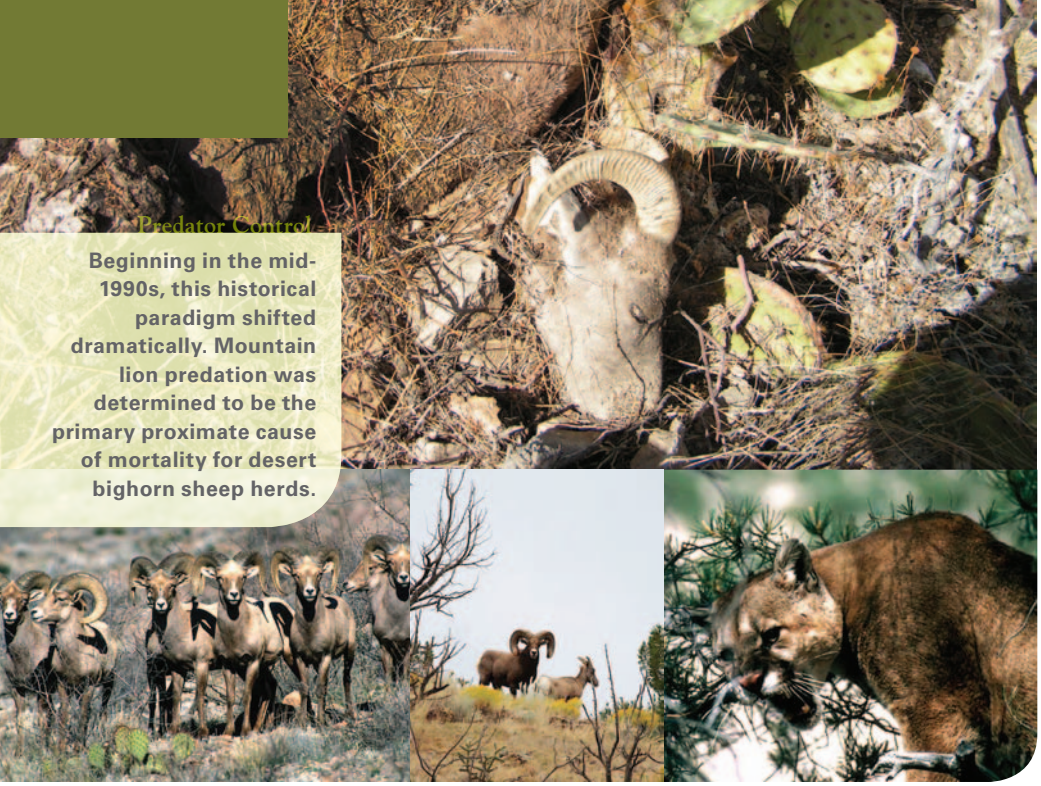

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and that small herds were particularly vulnerable with very high extinction probabilities calculated using the Vortex computer model. By 2001, virtually all the desert bighorn sheep populations in New Mexico were on the verge of extinction. Only a single population had more than 15 ewes and several populations had either gone extinct or had fewer than 10 ewes.

This dramatic increase in mountain lion predation may have many associated causal factors. Mountain lions did not become a regulated big game animal until 1971 in New Mexico. Prior to this, mountain lions in New Mexico, and throughout much of the West, were considered varmints without regulated bag limits. Additional factors that may have kept mountain lion numbers considerably lower than the density documented in recent years include the widespread use of traps by both agency trappers and private ranchers and the widespread use of poisons including 1080 prior to 1970. Because many ranchers in historical desert bighorn sheep ranges raised domestic sheep or goats, the pressure on mountain lions, and predators in general, was intense. The effective deployment of agency trappers, both state and federal, during this era cannot be overstated.

As desert bighorn sheep numbers declined, along with associated desert mule deer populations, a puzzling phenomenon emerged. Why was there no evidence of declining mountain lion populations in response to these much-reduced numbers of native prey? In fact, predation rates on desert bighorn sheep remained extremely high despite their declining numbers. Research in Arizona on the diets of mountain lions in desert habitat shed light on a plausible answer to this conundrum.

Mountain lions in the Aravaipa Canyon region were preying on domestic livestock, primarily beef calves. Domestic cattle comprised about 44 percent of the diet biomass of these mountain lions. Beef calves were essentially subsidizing the diets of these mountain lions and hypothetically allowing higher numbers of mountain lions to persist than if preying solely on low numbers of native prey, i.e., deer and bighorn. It is hypothesized that the same predator-prey relationship exists in New Mexico and that the ability of mountain lions to switch prey between domestic livestock and native ungulates results in unsustainable predation rates on small populations of desert bighorn sheep.

In 1999, based on the large data set on cause-specific mortality rates of desert bighorn sheep, the director of NMDGF along with the New Mexico State Game Commission, made the decision to attempt to cull mountain lions in desert bighorn sheep ranges in an attempt to stave off extinction. The control effort was to occur on less than one percent of the estimated statewide mountain lion habitat. During the period of non-control, the annual mortality rate was 17 percent. Following control efforts, this mortality rate declined to 5 percent, and statewide populations increased dramatically.

This five percent mortality rate on desert bighorn sheep tells us two important things; first, the cause-specific mortality rate declined to less than one-third of that documented prior to control, and second, mountain lions were never eliminated from the desert bighorn sheep habitat as they continued to kill on average five percent of the radio-collared animals in these herds annually. Mountain lions persisted in these ranges but lowered numbers of mountain lions were exerting substantially less predation pressure on these desert bighorn sheep populations. The reduced mountain lion predation rate, combined with continued translocation from Red Rock and Arizona, resulted in the statewide population estimate increasing from less than 170 in 2001 to approximately 700 in early 2011.

Delisting and Beyond

In 2008, desert bighorn sheep in New Mexico were down-listed to a state-threatened species, and in 2011 desert bighorn sheep are to be de-listed and returned to the status of a regulated big game species. This conservation success story is the result of the combined efforts of professional biologists, hunting and non-hunting conservationists, land management agencies, private landowners, non-governmental organizations, and many other groups and individuals working together to restore an integral faunal component to the desert landscapes of New Mexico.

The de-listing process is but a step in the continued restoration of this icon of the desert Southwest. NMDGF plans to continue translocations, habitat improvement projects, and where required, effective predator control to restore desert bighorn sheep to the remaining historical ranges in New Mexico. An international trade with Mexico that exchanges New Mexican pronghorn for Mexican desert bighorn sheep rams is to be completed in 2011. These rams are to be introduced into the Red Rock facility to become the primary breeding rams.

It is hoped that 2012, the centennial of New Mexico statehood, will mark the year that a modern-day statewide desert bighorn sheep hunt will occur for the first time. Many of the bighorn sheep skulls recovered from Red Rock have scored higher than the minimum Boone and Crockett requirement for entry into the records book. These include two skulls that scored 188-4/8 and are tied for 13th place in the 12th Edition of Boone and Crockett Club's book, *Records of North American Big Game*. With the potential for 12 or more desert bighorn sheep hunting permits in herds with high ram-to-ewe ratios and record-class rams, New Mexico will be the place to apply for the foreseeable future. The hunting and non-hunting communities agree that bringing desert bighorn sheep back from the brink of extinction has averted a biodiversity travesty in the desert mountain ranges of New Mexico. ■

BEST OF 2011

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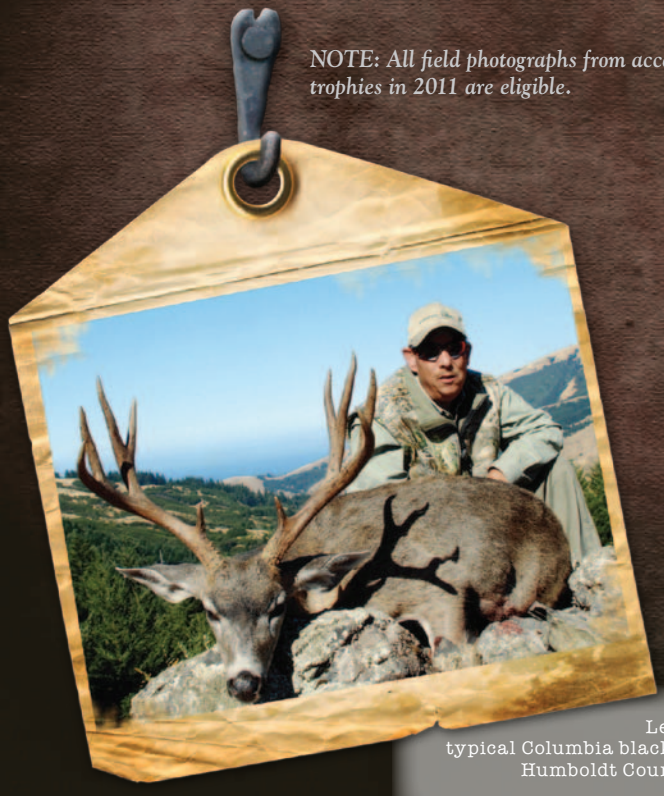
The hunting experience is remembered and reflected back upon in many ways. In the old days, just the meat, head skins, hides, horns, antlers, or tusks were salvaged as mementoes of successful hunts. With the advent of the camera, photographs were added to what we could carry with us across time to remember the hunt and honor the animals taken.

The Boone and Crockett Club has a tradition of honoring trophies and the fair chase hunts that produce them, including photographs from the field. In keeping with this tradition, the Club, and our friends at Swarovski, thought it would be a good idea to take this one step further and celebrate some of the best examples of field photography, and share them with you in each issue of *Fair Chase*.

For the third year, our editors will be sifting through hundreds of field photos looking for exemplary trophy field photography. **The most outstanding examples will be featured in the Spring 2012 issue with the top three being awarded prizes provided by Swarovski Optik.**

NOTE: All field photographs from accepted trophies in 2011 are eligible.

Zac B. Waters
non-typical mule deer – 225-1/8
Iron County, Utah
October 2009



Len H. Guldman
typical Columbia blacktail – 130-7/8
Humboldt County, California
August 2010

Devin J. Hubble
barren ground caribou – 434-4/8
Scotty Lake, Alaska
September 2010

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