

**Current Program Update: May 12, 2011**  
**Kofa NWR Desert Bighorn Sheep Herd Update**  
For immediate updates, check the "[press releases](#)" section.  
[Please see archived updates for additional background]

**Project Objective:**

The purpose of this joint Arizona Game and Fish Department and U.S. Fish and Wildlife Service effort is to restore the Kofa desert bighorn sheep herd to numbers that will once again support the herd's critical and historic role as a source of animals for translocation to resurrect herds throughout the southwestern United States. Many herds were extirpated during the late 19th and early 20th centuries, causes are attributed to the unregulated market-hunting to support frontier development and diseases transferred from domestic livestock. However, through regulated hunting, concerned sportsmen, and the department's translocation program, Arizona's bighorn sheep herd is estimated at nearly 6,000 animals. Additionally, because of the program, two species of bighorn sheep now call Arizona home - the desert bighorn and Rocky Mountain bighorn.

**Herd Survey Update:**

The last annual Kofa NWR bighorn sheep herd survey was conducted in October 2010. That survey estimated the population on the refuge at 402 animals. ([news release](#))

Biologists' analysis of the past five surveys indicates no significant decline or improvement to the herd's population. Wildlife agencies and conservationists remain concerned about the decline in bighorn sheep populations on the refuge, especially in comparison to the estimated 812 animals from the 2000 survey.

Historical averages for the herd based on survey data before the significant decline in 2006 and using the same survey methods, put the herd at an average estimate of 800 animals (1981-2000 survey data).

The official joint news release of the survey results issued on Nov. 24, 2010 is [available here](#). The next annual survey is tentatively scheduled for October of 2011. Results will be posted in the press release section of this site.

**Water Management**

The range water conditions as of the spring of 2011 are adequate. The rainfall during the winter of 2010-11 filled some waterholes. Frequent inspections of all priority waters have begun and will continue throughout the summer months. If it becomes necessary to maintain water availability at all priority locations, supplemental water will be hauled to these sites.

High Tank #3 - In April 2010, the Arizona Desert Bighorn Sheep Society (ADBSS) partnered with the U.S. Fish and Wildlife Service / Kofa NWR (Refuge) and the Arizona Game and Fish Department (Department), to reseal the White Dike Tank (aka High Tank #3) due to excessive leaking.

Hidden Valley Tank - The Kofa National Wildlife Refuge, Arizona Game and Fish Department, and the Yuma Valley Rod and Gun Club are planning to clean out and reseal this critical water source for bighorn sheep. It has been leaking water and the work is planned for April or May 2011.

[Click here to read the project description and planning documents.](#)

[Click here to read the USFWS/Kofa NWR letter of appreciation.](#)

**Predation Management and Monitoring:**

Although predation may not be the primary cause of the initial decline in bighorn sheep numbers, the recently established lions have the potential to further depress or inhibit recovery of a sheep herd that is already depressed, particularly on Kofa NWR. Research indicates that mountain lion predation can have significant population-level effects. [Learn more about this here.](#)

The criteria for “offending” mountain lion is one that has demonstrated a focus on bighorn sheep by killing at least two in a six-month period. The “offending lion” criteria selected for both the investigative report and the [Kofa Mountains Complex Adaptive Predation Management Plan](#) is among the most conservative of the existing management plans for other at risk bighorn sheep populations.

#### **Radio-collared bighorn sheep:**

Approximately 34 bighorn sheep with satellite and/or vhf collars are being monitored. Only 2 deaths have occurred since the last update in May 2010. Neither of the deaths are the result of mountain lion predation.

- ▶ June 7, 2010 – Ewe #54 was found dead on a steep mountain slope south of Kofa Queen Canyon. There was no sign of predation, but cause of death could otherwise not be determined.
- ▶ February 12, 2011 – Ewe #46 died of unknown causes west of McPherson Pass in the Castle Dome Mountains. There was no sign of predation.

#### **Radio-collared mountain lions:**

(For clarification, radio collar designations are as follows: K = Kofa collared, R = regionally collared; M = male, F = female, 01 = sequential number is unique based on location and gender, ie: KM01 = is Kofa male number 1, KF01 = would be Kofa female number 1)

**RF01 (Regional Female #01)** –This female was captured in a cage trap in GMU 41 on April 4, 2010. At that time she was estimated to be 8-9 years old, weighing 70-75 pounds. She continues to be monitored, spending most of her time along the Gila River and occasionally in the desert parts of GMU 41, but has never entered the Kofa National Wildlife Refuge. In September 2010, her den was located in dense vegetation on the Gila River and a 2-week old kitten was captured, collared and released. This female kitten, RF02, stayed with its mother until its death of unknown cause on December 12, 2010.

**RF03 (Regional Female #03)** – A young 2-year old lion, captured on December 4, 2010 near the Painted Rock reservoir area in GMU 39, west of Gila Bend. She lives primarily in dense vegetation along the Gila River and will probably never venture as far west as the Kofa Refuge.

**KM05 (Kofa Male #05)** – KM05 was lethally removed on May 7, 2011 as an offending lion.  
*History:* This male was captured and collared in the Kofa Mountains on November 19, 2010. This 3-5 year old male weighed 130 pounds, travelled extensively throughout GMU 41 and occasionally onto the refuge. Over a five and a half month period lion KMO5 killed 6 bighorn sheep, 4 of which were in the Predation Management Area.

**KF01 (Kofa Female #01)** – KF01 was lethally removed on April 3, 2011 as an offending lion.  
*History:* This is the first female lion collared on Kofa Refuge. She was captured on February 14, 2011, was 3-4 years old, and weighed 79 pounds. In one and a half months lion KF01 killed 3 bighorn sheep.

**KF02 (Kofa Female #02)** – KF02 was lethally removed on May 3, 2011 as an offending lion.  
*History:* This female was captured and collared in the Kofa Mountains on March 4, 2011. She was 1-2 years old, weighed 58 pounds, and was possibly an offspring of KF01, though living on her own. Lion KF02 killed 5 bighorn sheep in 2 months.

The Department continues to seek opportunities to monitor and manage the effects mountain lions have on the Kofa bighorn sheep population while in its declined state, through tracking their range, movements, predation, and other aspects of the predator-prey dynamic.

The Kofa NWR Mountain Lion Management Plan and Environmental Assessment (EA) for "Limiting Mountain Lion Predation on Desert Bighorn Sheep on the Kofa National Wildlife Refuge" has been approved by the U.S. Fish and Wildlife Service and published in the Federal Register. To learn more [click here](#).

### **Transplants**

Translocations remain suspended at this time. The last translocation from the Kofa was in 2005. To learn more about translocations [click here](#).

### **Disease Monitoring**

Results from blood samples taken from bighorn sheep captured and collared from 2007 through 2010 are being analyzed. Interpretation of the results is difficult. Although titers to viral diseases such as PI3 and BRSV are often positive, the animals rarely, if ever, show clinical signs of disease. Additionally, thirty of forty samples from the animals screened in 2010 tested positive for Mycoplasma, which is often an indicator of respiratory disease. While this is cause for some concern and could indicate that a pneumonia related event occurred in the Kofa herd, none of the animals have shown symptoms of pneumonia.

### **Recreational Impact**

Frequent human disturbance of ewes during lambing season may cause them to abandon areas for less optimal habitat, which could in turn affect lamb survival. Researchers at the University of Arizona and United States Geological Survey (USGS) have expressed interest in conducting comprehensive studies documenting the effects of public use on bighorn sheep. Funding for such studies is being pursued.

### **Hunting**

The 2010 desert bighorn sheep ram hunting season (only rams are hunted) ran December 1-31. The season included six permit-tags (5 from Game Management Units on the Refuge and 1 from a GMU that includes a small portion of land in the northern part of the Refuge) that could have been filled on Kofa lands, the lowest number of tags issued for the refuge since 1981. Of these permit-tags, five rams were harvested from the refuge.

The 2011 season for bighorn sheep hunting in the Game Management Units (45A, 45B and 45C) that include the Kofa NWR are scheduled for Dec. 1-31, 2011. The Department allocated only 5 hunt permit-tags for the refuge, the same number as the 2010 season. The limited hunt permit-tags were available through a lottery application process. The distribution of the hunt permit-tags are as follows: one (1) tag in Unit 45A (same as 2010), one (1) in Unit 45B (same as 2010), and three (3) in Unit 45C (same as 2010).

A portion of Unit 44B South includes some of the Kofa NWR range in its boundaries and could include a sheep harvest from the Kofa. Only one (1) tag was allocated to Unit 44BS, bringing the maximum possible harvest from the Kofa NWR herd to six (6) rams. This allocated harvest would account for only 1.5 percent of the 2010 estimated herd population.

Mandatory harvest reporting and physical check-in is required for all bighorn sheep hunters.

Additionally, there is one (1) Special Big Game Tag (Commissioner's tag) allocated for bighorn sheep that could be used in the southwest region of the state that does include the Kofa NWR units. This special tag is valid all year long. However, historically, this tag has only occasionally been used for hunting on the Kofa NWR.

**About hunting and conservation:** Game and Fish maintains ram to ewe ratios that biologically assures healthy reproduction capabilities for the Kofa bighorn sheep herd. These limited male-only hunt harvests have no impact on the population's ability to reproduce. In fact, a single male ram is capable of breeding multiple ewes.

Equally important to note, the sale of hunting licenses and big game tags funds the annual surveys and other management needs for this struggling herd as well as the more than 50 years of bighorn sheep management in the state. The Arizona Game and Fish Department does not receive any funding from the state's general tax fund.

### **Research and Monitoring**

Thirty-seven (37) bighorn sheep were captured in November 2010 for collar replacement and condition /health assessments. Fourteen new or refurbished satellite/GPS collars were deployed. Seven collars were placed on new animals and seven replaced old or non-functioning collars on previously collared animals.

There are currently 37 working collars on bighorn sheep on the Refuge. Twenty-seven are satellite/GPS collars that transmit location data daily, and 10 are VHF-only collars.

AGFD personnel and a NMSU graduate student monitor these radio-collared sheep closely. In keeping with the National Wildlife Refuge System Improvement Act of 1997, data and information is shared between these two collaring programs.

### **Litigation**

December 21st, 2010 - The United States Court of Appeals for the Ninth Circuit has ruled that the USFWS failed to prove that the Yaqui and McPherson tanks were needed for bighorn sheep and has sent the case back to the U.S. District Court in Arizona for further review and action. For more information, visit the U.S. Court of Appeals for the Ninth Circuit website at, [www.ca9.uscourts.gov](http://www.ca9.uscourts.gov). The case is Wilderness Watch v. USFWS, No. 08-17406.

Case history: In Sept. 5, 2008, U.S. District Court Judge Mary H. Murguia, ruled that the U.S. Fish and Wildlife Service (FWS) use of motorized equipment for the redevelopment of those tanks did not violate the Wilderness Act and the agency complied with the National Environmental Policy Act (NEPA). Wilderness Watch filed an appeal with the Ninth Circuit Court of Appeals in San Francisco regarding redevelopment of two existing water catchments. The appeal was heard by the court in December 2009.