



## **Santa Catalina Bighorn Sheep Reintroduction Project**

*September 10 - 23, 2015*

### **BRIEFING**

The following is a summary of bighorn sheep reintroduction activities on the Coronado National Forest from September 10-23, 2015.

### **MORTALITY**

The intact carcass of ewe ID 37442 was discovered on the morning of September 21 after biologists received a mortality alert from her collar. It is believed her carcass was found within 24 hours of her death. A field necropsy revealed signs of pneumonia similar to the four most recent mortalities. Samples were collected from the carcass for disease testing, and results are pending. This ewe was captured in the Tonto National Forest in 2014. She had a lamb early this year, but it would have been independent by now.

### **DISEASE**

Over the last two months, there have been five bighorn sheep mortalities in this population, none of which was related to predation. Pathogens associated with pneumonia were detected in three of the bighorn sheep. Laboratory analysis of lung tissue samples from the first three sheep (IDs 37439, 37433, and 37437) revealed the presence of *Mycoplasma ovipneumoniae* (*Mycoplasma*). Tissue samples from the same three sheep tested negative for *Pasteurella* pathogens, which, like *Mycoplasma*, are commonly implicated in bighorn sheep pneumonia. The carcass of the fourth bighorn sheep (ID 37444) was in an advanced state of decomposition when it was found; therefore, no pathogens were detected in the disease testing. Laboratory analysis has shown that the strain of *Mycoplasma* from sheep ID 37439 matched the strain of *Mycoplasma* cultured from bighorn sheep in the Plomosa Mountains area in the Yuma region. Lab results to type strain *Mycoplasma* for the other sheep are pending.

Bighorn sheep reintroduced to the Santa Catalina Mountains have come from three source populations: the Plomosa and Trigo mountains in La Paz County and the Superstition Mountains in the Tonto National Forest east of Phoenix. Disease testing has been a standard component of bighorn sheep translocations, but testing for *Mycoplasma* is a relatively recent addition. Bloodwork completed on bighorn sheep for this and previous translocations from the Tonto National Forest revealed that these animals showed no titers for *Mycoplasma*, meaning that they likely had no exposure in recent history to this pathogen. Bloodwork on bighorn sheep from the Yuma region has shown that the animals had more recent exposure to *Mycoplasma*, and thus have developed some degree of immunity to this pathogen.

Populations of wildlife, like humans, are subject to myriad diseases. Populations of bighorn sheep

throughout the West have different disease profiles and exposure rates to diseases, and this spatial pattern of exposure among populations likely changes over time naturally as bighorn sheep move among populations. Contagious pneumonia is one common disease occurring naturally in bighorn sheep populations. Exposure to a contagious disease occurs when individuals disperse from an area or move among populations. When animals contract a disease, it can affect them in different ways depending upon many factors including age, body condition, resource availability, and stress. Previous exposure to the disease can also spur antibody production that confers greater immunity on an individual, much like flu vaccines work in humans. Some animals succumb to disease while others develop a resistance to it. All five of the recent mortalities have been ewes from the Tonto National Forest, which may not have been previously exposed to *Mycoplasma*, likely lacked antibodies, and were therefore more vulnerable. Further, these animals were under a higher level of physiologic stress due to the breeding season.

Although disease processes in bighorn sheep are being examined by multiple researchers in the western states, our understanding of bighorn sheep diseases is still incomplete. Contagious pneumonia in bighorn sheep can cause different types of mortality events, such as massive non-discriminating die-offs, sporadic adult and juvenile mortalities, or lamb mortalities, but the factors that influence the observed patterns of illness and mortality are not fully understood. Recent mortalities in the Catalina Mountains may represent isolated cases of individuals exposed to new strains of bacteria, but may not be indicative of a larger disease event. Field observations have revealed that lamb:ewe ratios are relatively high and that, at the population level, adult survival is within the range observed in other desert bighorn sheep populations. It is reassuring that, at this time, there is no evidence that the bighorn sheep contracted disease from domestic hoofstock that they might have encountered in their new home. This type of exposure would be more difficult to manage because bighorn sheep movements are not restricted, and they could potentially have contact with infected domestic animals, as other populations of bighorn sheep have.

Due to advanced technology in GPS collars and the most intensive monitoring efforts of any bighorn sheep translocation in Arizona to date, the Department is increasing awareness of the impacts of disease on desert bighorn sheep populations, in addition to many other types of information such as habitat selection and group structure and dynamics.

## **CURRENT POPULATION STATUS**

As of September 23, 2015, 35 collared sheep are known to be alive.

## **LINKS**

For project background and previously-reported information on project events, including photos and videos, as well as meeting notes and minutes please visit [www.azgfd.gov](http://www.azgfd.gov) and click on “Wildlife”, then “Catalina Bighorn Sheep” under the heading “Additional Wildlife Information”.

Additional project information can be obtained by visiting the Arizona Game and Fish Department Facebook page at [www.facebook.com/CatalinaBighorns](http://www.facebook.com/CatalinaBighorns), the Arizona Desert Bighorn Sheep Society webpage at [www.adbss.org](http://www.adbss.org), or by visiting the Catalina Bighorn Advisory Committee webpage at [www.catalinabighornrestoration.org](http://www.catalinabighornrestoration.org). This update is a public document and information in it can be used for any purpose.

## **TO SUBSCRIBE**

If you would like to receive project updates as they are published please send your email address to [ldesouza@azgfd.gov](mailto:ldesouza@azgfd.gov).

### **COMMUNICATION AND COORDINATION**

The next written briefing will be provided on October 9, 2015.

### **CONTACT**

Mark Hart is the Public Information Officer for this project and can be reached at (520) 628-5376.