Catalina Bighorn Sheep Reintroduction Project
February 3, 2014 – February 16, 2014

LAMBS

Last week biologists observed two ewes that had successfully lambed. Biologists observed the lambs from a great distance to reduce disturbing the mothers and their young. Lambing is the most critical stage in the life cycle, and it is for this reason that there are trail restrictions in place inside the bighorn sheep management area. Both trailhead notices and volunteers on the trail have been reminding hikers of the potential adverse impacts to the sheep caused by dogs or by people hiking more than 400 feet off-trail within the bighorn sheep recovery area during lambing season. For additional information, please visit the U.S. Forest Service webpage at www.fs.usda.gov/coronado/.

ANNOUNCEMENT

The Arizona Game and Fish Department is implementing an Advisory Committee recommendation to collapse the previous administrative mountain lion removal boundary and re-focus removal efforts to a more defined area. The designated area (see Figure 1) is a subset of Game Management Unit 33 and lions that kill sheep in this area will be pursued and removed when possible. Lions that kill sheep outside of this area will not be administratively removed. This emphasis will allocate Department resources more effectively and focus efforts on the area considered to be the most appropriate or core sheep habitat. Sheep are now using this area, and to date, this has been the area for all documented lambing events. Recruitment in the population is critical to the long term reestablishment of the bighorn sheep herd in the Santa Catalina Mountains, and focusing administrative removal efforts in this area may help to increase the probability for successful lambing and recruitment to the population. The change in Committee and Department actions comes through an adaptive management process that allows wildlife managers the flexibility to review current trends and data from the Catalinas and revise parts of the active Predator Management Plan to better reach project goals. We will continue to use an adaptive management approach throughout the life of this project to address the effectiveness of management actions and adjust as needed.

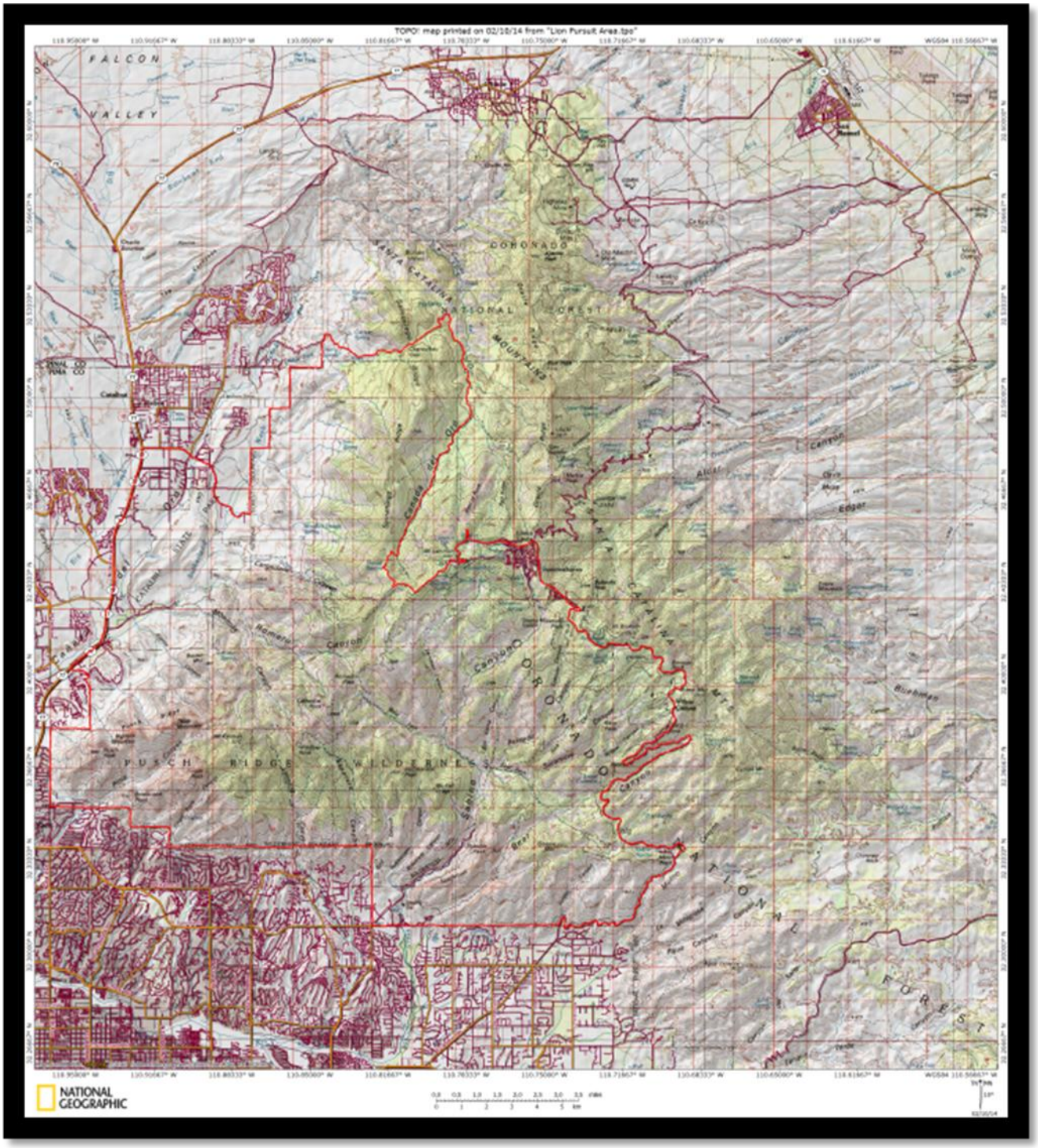


Figure 1: Designated Administrave Removal Area shown in red outline.

BRIEFING

The following is a summary of Catalina Bighorn Sheep Reintroduction activities on the Coronado National Forest. This project status update covers the period from February 3 to 16, 2014. For project background and previously-reported information on project events, please see the earlier project status updates available at: www.azgfd.gov/catalinabighorn.

Additional project information can be obtained by visiting the Arizona Game and Fish Department Facebook page at https://www.facebook.com/azgafd#!/CatalinaBighorns, the Arizona Game and Fish Department webpage at http://www.azgfd.gov/catalinabighorn, the Arizona Desert Bighorn Sheep Society webpage at http;//www.adbss.org or by visiting the Catalina Bighorn Advisory Committee webpage at 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 to jsacco@azgfd.gov.

CURRENT POPULATION STATUS

The original release of 31 sheep consisted of 21 adult females or ewes, three yearling/juvenile ewes, five adult males or rams, and two yearling/juvenile rams. Thirty of the released sheep were outfitted with satellite GPS collars to provide managers with up-to-date information to help make adaptive**,** data-driven decisions. As of February 16, 2014, 19 of the 30 collared sheep were known to be alive on the mountains.

To date there have been eleven bighorn sheep mortalities. Nine of the sheep were killed by mountain lions, one died as the result of predation by a cat, and another died from myopathy. To date, two of the offending lions have been removed. To follow are the details of each mortality, the result of the investigation, and management actions. Additionally, the habitat evaluation map showing corresponding block numbers for the project area is included below (see Figure 2) along with a map showing where the mortalities have occurred (see Figure 3) .

On February 12, 2014, an adult ram (ID #47) was found in Habitat Block 41 (fair). This area is characterized by thick vegetation and steep slopes with fair visibility. Investigators examined the site and determined that the mortality was due to mountain lion predation. Pursuit was initiated and the lion reached steep and rocky terrain, where it remained while the hounds were present and darkness approached. Due to the steepness the situation proved too risky to remove the cat. Pursuit was resumed the following morning, but the lion was not re-located.

On February 7, 2014, an adult ewe (ID #48) was found in Habitat Block 14 (fair). This area is characterized by mesquite desert grassland and gentle sloes with fair visibility. Upon examination of the site, investigators determined that the mortality was due to mountain lion predation. Pursuit was initiated the following morning; however, the lion had not returned to the kill location overnight. As it appeared to have left the area, efforts to locate the lion were unsuccessful.

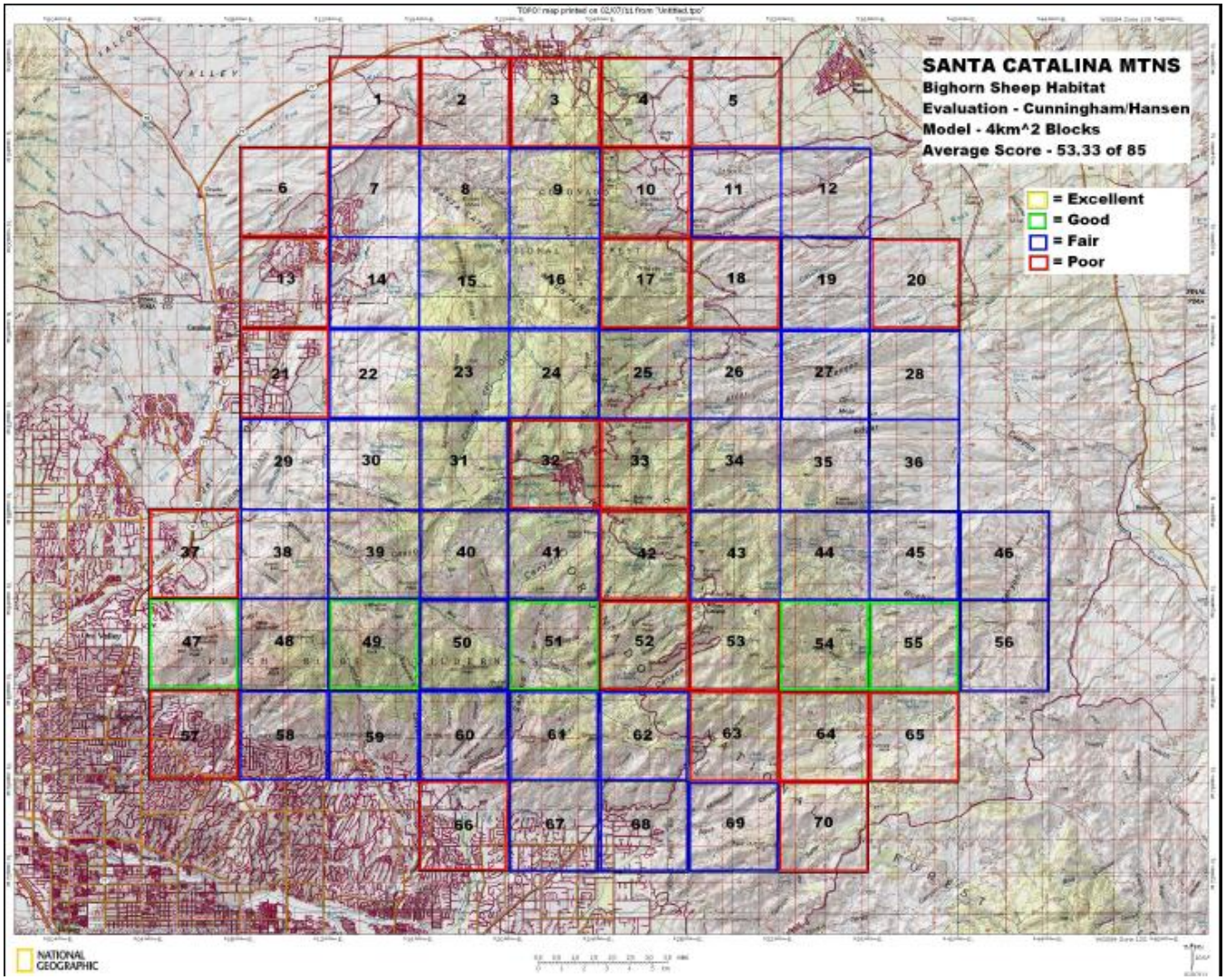


Figure 2. Cunningham Hansen Habitat Evaluation Map.

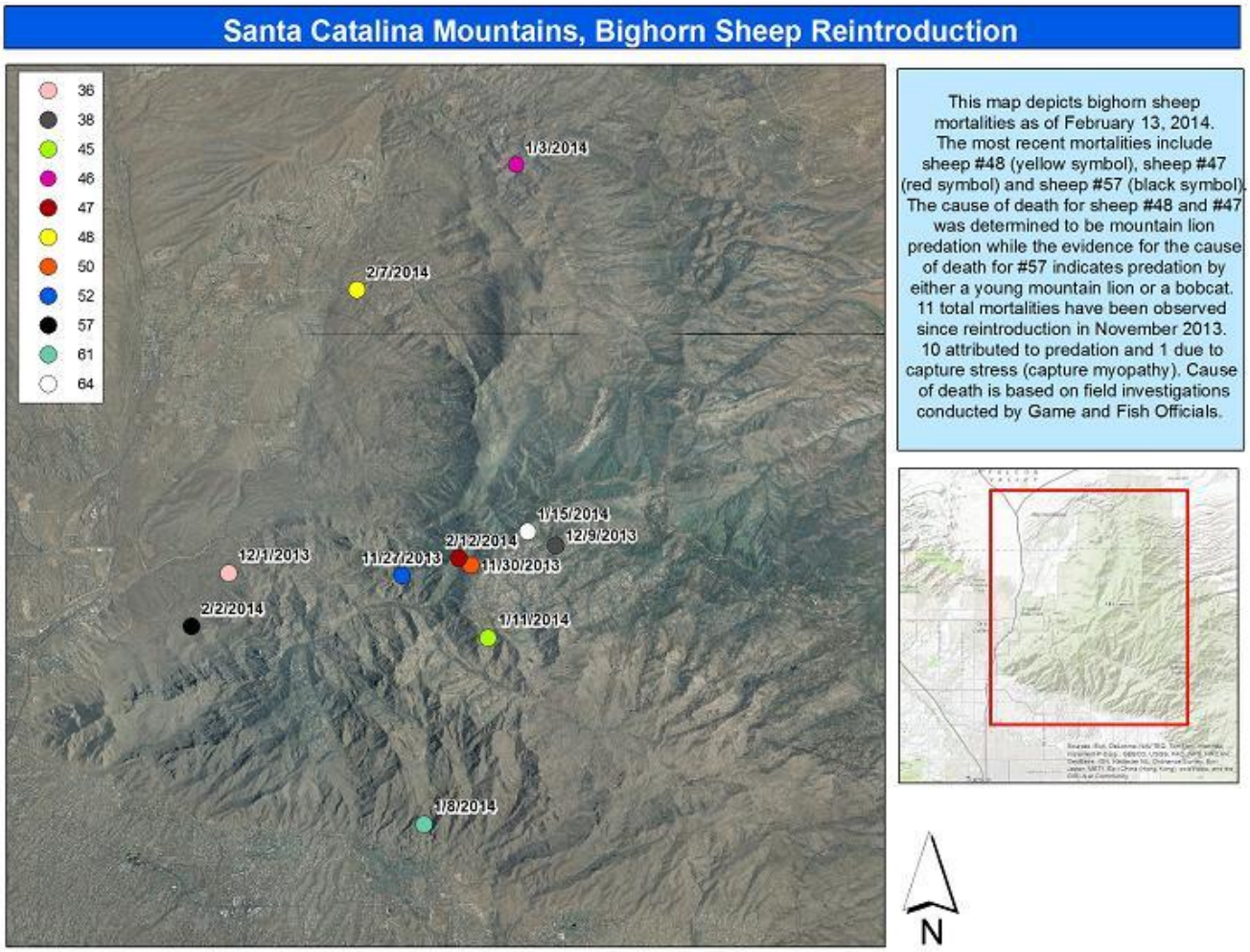


Figure 3. Bighorn sheep mortality sites through February 16, 2014.

COMMUNICATION AND COORDINATION

The next written briefing will be provided on March 7, 2014.

PROJECT PERSONNEL

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

RESEARCH PROJECT FIELD NOTES

Research biologists have been on the ground documenting changes in sheep group size and composition. In recent weeks, several solitary sheep have banded together in larger groups. The formation of such bands is encouraging news for this project as past research on bighorn sheep has demonstrated that they are much safer if they join up in larger, more compact groups because many eyes and ears helps to dilute predation risk to any one in particular with the increased vigilance. Additionally, as noted above, some of the sheep now have lambs with them, and biologists anticipate that several more ewes will become mothers in the near future.

OTHER REMARKS

Mountain Lion Management

As we have discussed in previous updates, mountain lions have a clear reproduction and recruitment advantage over desert bighorn sheep. On average, female mountain lions will successfully produce and recruit into the population ten kittens over ten years as opposed to a ewe that produces two and a half bighorn sheep lambs for the same time period. With the numbers being so skewed, wildlife managers use methods to temporarily reduce the mountain lion population to increase sheep survivability and recruitment to the population. There is a wide variety of options available, with the primary difference being if the method is discriminate or indiscriminate in nature.

Indiscriminate Measures

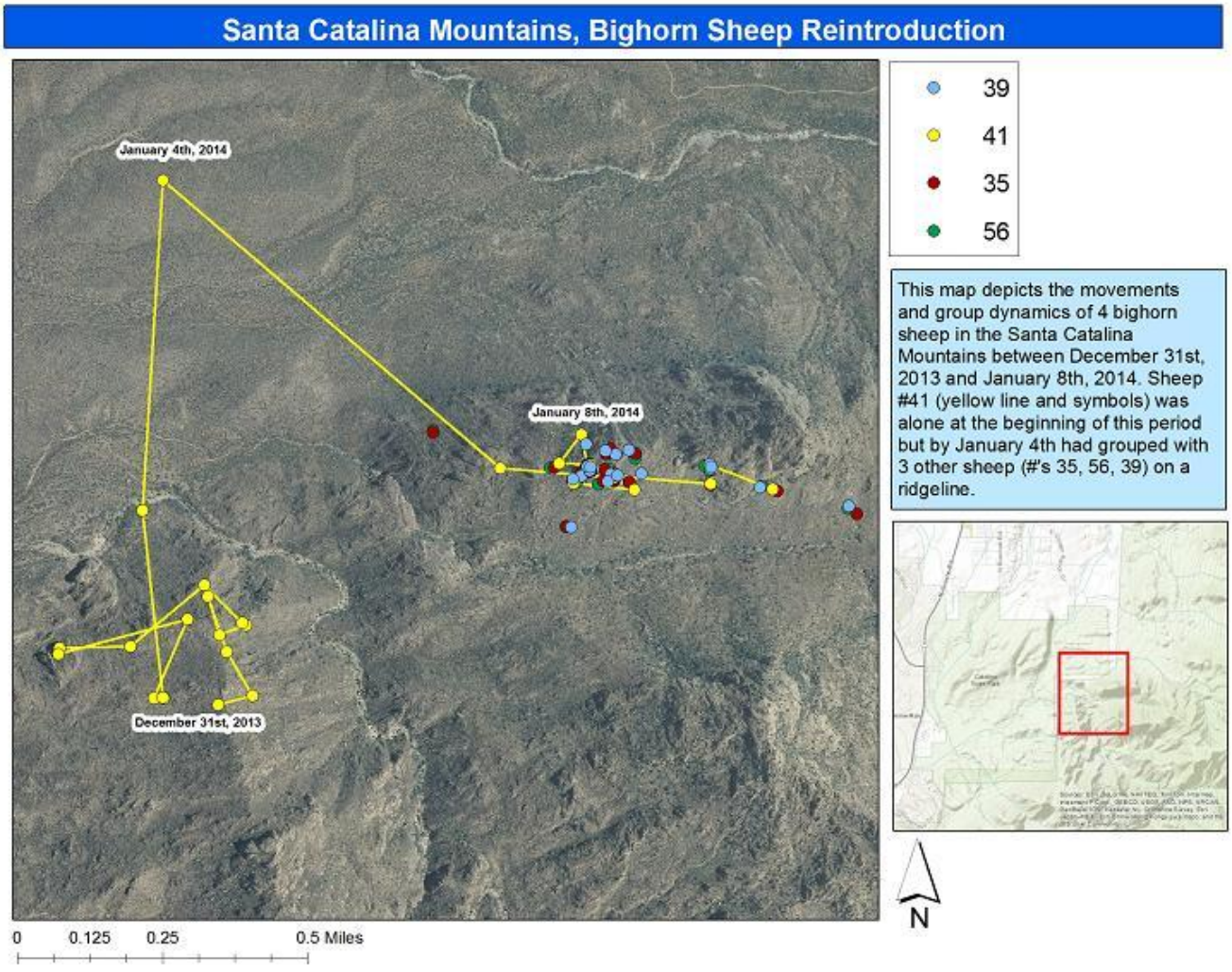
Bighorn sheep transplant efforts have been used to successfully re-establish herds in Arizona, as well as several other states and Mexico. In many cases, the habitat sheep inhabit is also occupied by predators, most commonly mountain lions. Studies suggest that in order to effectively lower mountain lion populations to substantially reduce their impact on transplanted sheep, up to 75% of lions must be temporarily removed from the habitat. This is most commonly done by "pre-treating" an area to remove lions before sheep are reintroduced. Another method is to establish liberal hunting opportunities or bounties to remove lions. These methods are employed effectively and have proven to enhance the re-establishment of sheep during transplant efforts or to address recruitment concerns in herds that are already established.

The Difference

In the Catalina bighorn sheep reintroduction project, there has been a conscious effort to try an alternative, more conservative and more targeted approach to addressing mountain lion predation. The idea is to remove only those lions that select for sheep and leave in place those that do not. The reasoning behind these actions is that those lions left in the habitat would prevent the influx of new migrant lions that could prey upon sheep. By using this selective method, managers target specific lions displaying unwanted behavior as opposed to "cleaning out" an area through broadcast removal methods. Implementation of this method requires being able to determine quickly when a mortality has occurred and timely investigation of the scene to identify a cause of death. It also requires funding for a houndsman to facilitate lion removals where appropriate. Global positioning system (GPS) collars are thus in use to provide responders and biologists with the timeliest information possible to help them respond to sheep mortalities.

To date, while there have been eleven (11) sheep lost overall, ten (10) sheep lost due to predation and nine (9) lost due mountain lion predation, only two mountain lions have been removed as a result of this conservative methodology. Adaptive management is an important aspect of this project and allows for adjustment to management plans. There will be a continual re-evaluation of the methods used, and when needed, restructuring to facilitate the goal of the project. In the case of mountain lion removals, there are limited ways to conduct discriminate removals and these are inherently costly. The alternative is to apply more indiscriminate methods until specific goals tied to the management action are met. The Arizona Game and Fish Department and the Advisory Committee continue to explore alternative means of predator control, with one goal being that lion removal is as selective as possible. However, alternative actions may become necessary in order to facilitate the re-establishment of the bighorn sheep herd in the Santa Catalina Mountains.

MAPS



Santa Catalina Mountains, Bighorn Sheep Reintroduction

35
39
40
56

This map depicts the movements of 4 bighorn sheep in the Catalina Mountains for a two week period in December 2013. Sheep #35 (purple line) traveled several miles to join a group of 3 ewes (#40 yellow, #39 blue, #56 red) that had grouped together on a ridgeline.

N

Santa Catalina Mountains, Bighorn Sheep Reintroduction

43

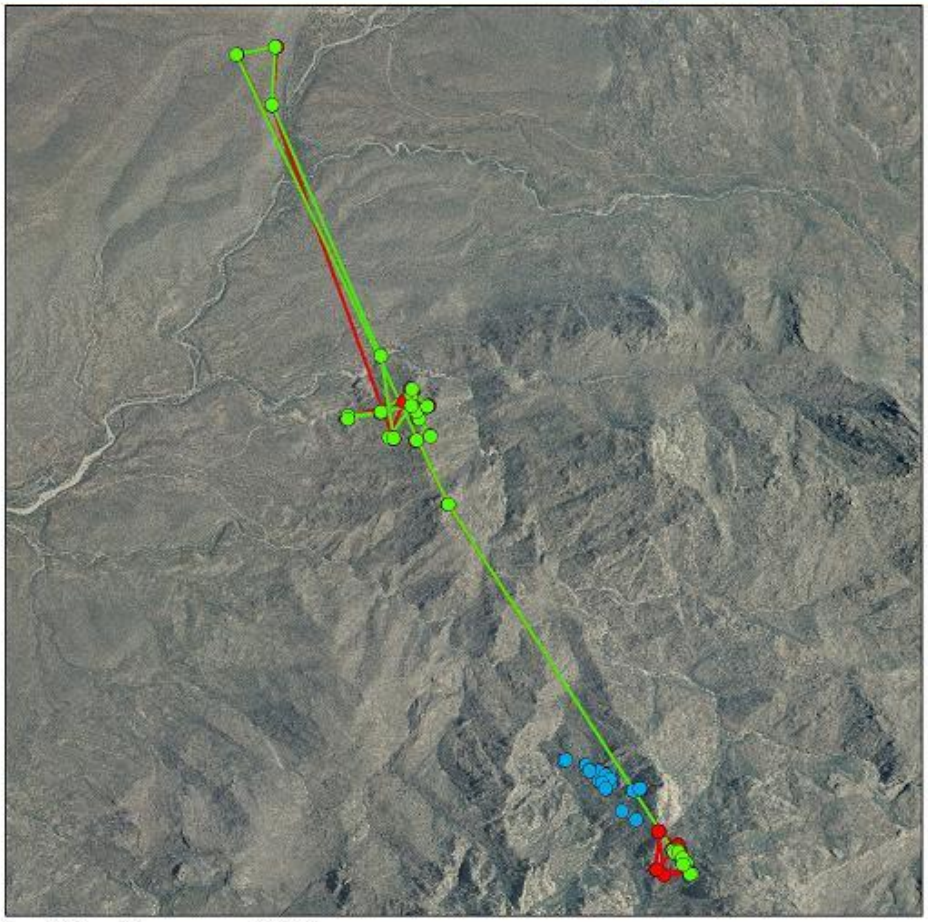
60

This map depicts the movements of 2 bighorn sheep in the Santa Catalina Mountains for a two week period in December 2013. Sheep #43 and sheep #60, both ewes, paired up in December and were observed traveling together.

N

0 0.5 1 2 Miles

Santa Catalina Mountains, Bighorn Sheep Reintroduction



37
37
63
63
55

N

This map depicts the movements and group dynamics of 3 bighorn sheep in the Santa Catalina Mountains between January 1st, 2014 and January 8th, 2014. Sheep #37 (green points and line) and sheep #63 (red points and line) were initially grouped togther before moving southeast to group with sheep # 55 (blue points).