

---

## AMY FISHER - METHODS FOR IMPROVING BIGHORN CAPTURE SUCCESS

---

Amy Fisher, formerly New Mexico Department of Game and Fish. Current address: 5 Foxtail Circle, Santa Fe, NM 87501  
Doug Humphreys, Texas Parks and Wildlife Department, 1600 West Hwy. 90, Alpine TX 79830

**Abstract:** Techniques used by the New Mexico Department of Game and Fish in capturing, processing, and transporting bighorn sheep were presented. Featured techniques included drop-netting, slinging, ground net-gunning, and processing following capture. The informal presentation emphasized methods that protect human safety and reduce mechanical injury and capture stress in bighorn sheep, developed through the capture of >500 bighorn and >2000 mule deer between 1979-1998. These methods included training personnel, preparing written capture protocols, involving wildlife veterinarians and contract capture crews in a team approach, adapting techniques and equipment to fit capture constraints and bighorn behavior, and using blood chemistry and disease exposure profiles to evaluate capture stress and herd health. We have found that monitoring vital signs, especially body temperature, is essential for monitoring capture stress and reducing handling time is the single easiest way to minimize it. Ambient temperature, sex, age, and health status are additional important factors that influence the bighorn's response to capture and restraint.

---

Most of us would agree that our objective on captures is to maximize capture success. I would agree a successful capture program is safe for bighorn and for humans, and has a low sheep mortality rate following release.

Our methods have been derived from the capture, translocations and research of over 500 bighorn sheep and 2000 mule deer. Doug Humphreys was my partner and mentor for ten years and taught me a lot. I'd like to acknowledge all the department and other agency personnel that assists us on these captures. Without them, we wouldn't have the great team that we do in New Mexico.

The elements common to all of our captures include training, particularly a two-day wildlife restraint course based on a manual. I'd be happy to provide this manual (written a couple years ago by myself and colleagues), to anybody sending me their card.

The other big component of our captures is a very detailed capture protocol that is developed for each capture. It is usually about ten pages, and is the

who, what, when and where of the capture. We even have media fax sheets, and therefore, can just hand one to the media people.

Thirdly, we try to develop equipment designed specifically for the capture. I beg, borrow and steal from other states. Arizona, Oregon, and Colorado have been very helpful and generous in letting us borrow and use equipment and techniques.

Then we have our target numbers and ratios. With transplants, we do a minimum of 30 sheep, usually a ratio of one or two rams per ten ewes.

Those of you know me well know my administrative position and cleaned up look is something of the recent past. I'm more comfortable in coveralls covered with deer, bighorn and antelope hair. This is what I enjoy the most and I'm really glad that we have this session.

We've captured and removed sheep three times from the Pecos Wilderness in Northern New Mexico using drop net techniques. It's high elevation, rugged terrain, 12,000 feet. Using drop nets is basically the only technique we can use due to

wilderness restrictions.

We completed an Environmental Assessment (EA) to determine the effects of the helicopter on the wilderness. Sure enough the effect was insignificant. All the personnel packed in by horses, but luckily the 2000 pounds of equipment was slung in.

The drop nets were put up in the lamb/ewe range. As a center pole we used a fiberglass vaulting pole, a fairly new innovation, that doesn't cause harm to the sheep when it drops. The detonating system is a remote control solenoid system borrowed from Colorado Division of Wildlife. The solenoids cost a total of \$300 each, and are custom developed.

The lambs follow their mothers right in. We didn't orphan any lambs. Even if we had separated lambs from ewes, the lambs were old enough to have survived on their own.

The sheep are baited by salt. The Pecos bighorn have an intense craving for salt. Chris Haas and I demonstrated that the sheep do, in fact, have a physiological need for salt. It's not just psychological. They just keep working on salt blocks. They'll eat up to a half a pint a day if given the opportunity.

First thing after blindfolding and hobbling, you remove the sheep from underneath the net. A little top knot is used with lambs to get the blindfold tight enough.

Temperatures are taken immediately and written on the horns with indelible pen.

The sling bags are custom fabricated from Kirkhams, Salt Lake City. We got the design from Oregon Department of Fish and Wildlife. The sling bags were designed for adults and it swallowed up the lambs, but it worked just as well. Then they are carried over to the station where they will be picked up by the helicopter. They are laid out in order of temperature. The hottest sheep go first. It is essential to line out that cable system

so there are no twists. Our maximum load was 500 pounds, which was equivalent to three ewes or three ewes and a lamb. That system was also borrowed from Oregon.

We also use safety equipment, like helmets, safety vests, and ear protectors.

Craig Foster helped me develop the system, and it worked just fabulously. Understand, again, that we used a 50-foot-long line to mitigate the impact of the helicopters in the wilderness.

It was a tremendous ordeal doing this transplantation from the paper work standpoint; nine months of negotiation, EA and last-minute coordination. The rams needed to be netgunned individually. Sheep are sometimes very easy to approach closely, as long as people remain calm and are in a nonaggressive stance. The key element on the net gun capture is to have enough people.

In high altitude trapping, the sheep were cool (104°) at capture. By the time we processed them, they were 107° or 108°, even though we cooled them down with water and everything we had. It turned out that we had a whole day of torrential rain which created a 90 percent humidity. No matter how much we tried (we even put ice in the transport trailers), we just couldn't cool them down. We lost two sheep to capture myopathy, two out of 34 in high altitude is not too bad for a difficult capture. It was done again last year.

The sheep were transported in specially constructed crates put on top of vehicles. Luckily there was a road adjacent to the release site in the Wheeler Peak Wilderness, and that's how we released them from these crates. The design of the crates again came from Oregon.

Sheep never want to leave trailers now, do they? When I have more than one release, more than one transport trailer, I like to get them out quickly so the animals take off at the same time. I think that if the groups stay together, it maximizes their success in the first couple of days of the release. I like to go in and skirt them; I don't touch them, I

don't look at them, and then they go out. The only problem is, we didn't know that there was someone else helping us on the side. It doesn't help when someone tries to grab the sheep as they come out. This was a highly successful transplant.

Those 34 sheep now have grown to over 100 sheep and we're going to have the first hunt on them next fall. I guess the ultimate success of a capture is whether it results in a stable population. This was a real success story. There are factors that occur after a release that have nothing to do with how well you did the capture.

Those were alpine sheep, and now we're going to go to the desert to our Red Rock capture propagation in southern New Mexico. This is within about 1,300 fenced acres. We have over 100 sheep here and over a two-year interval, we can transplant sheep from here.

The pretrap meeting lasts four hours. It's time for last-minute coordination, especially with people who haven't been on a trap before. It's required that anyone who is going to handle the sheep attends the pretrap meeting so we don't have people who don't know what to do.

I think that's critical. This is time to coordinate with the contract pilot, the contract veterinarians, all the people who have been coordinated before the capture. This meeting assures that everybody knows what they're going to do. By the morning of the capture, there's no delay; it starts very early and the setup goes really smoothly. We've started using veterinarians, and I think they've been a really valuable addition. We have a team approach. We have enough teams to cover the sheep coming in. This capture was by Helicopter Wildlife Management. The last capture in 1998 was a giant media event. We had asked them to sling the sheep back to us right side up. My personal feeling about this is that it saves time. We should be doing it the quickest way possible and not necessarily this way. We should be taking the time to educate the public and the media as to why this is the best way.

The sheep are brought back to the processing

station and are put on stretchers. We started going to stretchers like Arizona does to avoid all that stumbling around that happens if they are carried individually. Heavy rams can weigh upwards to 300 pounds.

The sheep are brought over to a weighing system. We like to obtain the weights to track the health of the sheep. A Post-It-Note with the sheep's ID goes on the blindfold, color-coded by sex. The scale was borrowed from the California Division of Wildlife and the sheep are moved off to one of three teams that tend to the background "sick bay" area in case we have some sheep who need more attention.

We have stations set up to handle sheep within a ten-minute time frame so no sheep ever stack up. Generally we use three teams of four people each, a vet, a head person, a tail person, and someone to help with the sampling. The first thing the vet does is give it a physical exam. I wanted to mention the ear protectors put on the sheep and it really cut down on the animals' perception of noise. Whenever the animal hears the helicopters, it goes through the contortions it did when it first heard it. What we want to do on the captures is to reduce the external stimuli. That's why we put the blindfolds on and reduce noise.

I started shaving the hair by the jugular. I think it speeds up getting to that vein for people who are less experienced. We started using an IV catheter to get blood as quickly as possible. We use a butterfly catheter and in a very short period of time we can get 120 ccs of blood. We do that much blood because we do a comprehensive blood chemistry and disease exposure profile on our sheep. About \$200 per animal sounds high, but it's given us a tremendous amount of information.

Temperature is taken immediately. I think temperature is the key to monitoring stress in bighorn. We've gone to digital thermometers. It's amazing how many team members don't know how to take a temperature. We started using continuous monitoring devices on temperature. Those have been

really helpful, too.

The injections we give are now given subcutaneously, usually axillary. I think it reduces pain and increases absorption. Ivermectin is given as a prophylactic, combined with antibiotic and vitamin selenium, except for pregnant ewes. The radio collar fit is essential. I recommend everyone looks at Vern Bleich's report on that.

In cooling the sheep down, the best way is to roll it on its side; and get the thinner skin, scrotum, belly, and the horns exposed. To dissipate heat, rub water in. There's no use putting water on the top of the animals. It doesn't get absorbed very well.

We ID the sheep so we never lose track of who we have until we put them in the trailer. That's essential on our captures when we're going to three or four different areas with the particular capture.

Getting the sheep in the trailers without getting kicked too badly has always been a difficult phase. The guides came up with a system where they use a tarp with handles and they put the sheep in it. Once they take the hobbles off, they can cinch it up and avoid being kicked. We captured a lot of rams and they can be very aggressive. When you're putting one ram after another in the trailer, you don't want to put your head in that trailer for any length of time, and there is a tarp preventing that.

Despite our best efforts, the rams were heating tremendously. We caught 36 and six of those had elevated temperatures over 107° and were showing signs of capture myopathy like extreme lethargy. We took a time out and I think that's important. When you have some problem, stop the operation, talk with the vets, make an informed decision from all the information at hand.

It turned out that based on the blood chemistry, the sheep didn't have capture myopathy and my own personal feeling on this is that perhaps they were showing a psychological withdrawal. It wasn't a physiological change occurring from the process of capture myopathy itself. Perhaps some of you

also have seen this. Rams, I think, tend to get a lot more stressed out than ewes. I won't make any comparisons to humans.

The sheep are, of course, segregated by sex. We never, based on experience, put any rams with ewes. A young two-year-old ram can batter a ewe to death. We periodically check on them in the trailers, looking for alertness.

Our trailers are nothing fancy, but they work. We like to leave as soon as possible after the sheep are caught, but with a sufficient amount of daylight left at the release site for them to find bedding.

---

## QUESTIONS, ANSWERS AND COMMENTS - AMY FISHER PRESENTATION

---

**GLENN LORTON, NEW MEXICO:** I notice from the slides that a number of the ear tags in the Monsano Mountains cause the ear to be pulled over. Is it typically a problem? Does it cause a problem for the sheep itself?

**AMY FISHER:** I don't know. Eric, do you know what's happening there?

**ERIC ROMINGER, NEW MEXICO:** I haven't seen that, so I don't know either.

**BILL DUNN, NEW MEXICO:** I haven't noticed any problems.

**MIKE DUNBAR, OREGON:** I've been on lots of captures of sheep, and I want to compliment you and New Mexico; they are the best organized I've seen. You had problems getting temperatures down on the sheep and used cold water enemas. Enemas are a technique that will certainly get temperatures down.

Another question very quickly is, how did you determine a physiological need for salt in the sheep you were talking about?

**FISHER:** It was an analysis of the feces and the sodium excretion. I have a paper I could give you.