

Long Range Hunting

By [Terry Hart](#)

Every year I run into hunters who have been rewarded with a once in a lifetime, golden opportunity to travel out west and hunt. That may mean some long range shooting.

Instantly it is assumed a new, flatter trajectory canon is required, and they set off for the local gun dealer to divest another \$1,000 or so. After installing an expensive variable scope on top of the new super accurate, flat shooting wonder the next stop becomes the local shooting range. There 10 or 15 rounds total are teed off with the center of the groups being set 3 to 4 inches high at 100 yards.

But there is more to this than just buying a bigger, more expensive rifle. In fact, most hunters already have an adequate piece sitting at home in their gun case, and the additional \$1,000 would be better spent elsewhere.

Acceptable hunting rifles should be capable of hitting a target within plus or minus .75 minutes of angle (MOA) from the point of aim. Assuming that everything else is perfect, which it never is, this becomes plus or minus 3.25 inches at 400 yards.

Now you get a shot at the biggest monster desert mule deer you have ever heard of and estimate him to be 400 yards away. If you are really good you may be able to estimate the actual range within plus or minus 100 yards, but almost never within 25 yards. Result: you completely miss the big muley.

Preventing this from happening to you is what this article is about. Step one is to use some of that \$1,000 to purchase a high quality laser rangefinder and practice using it.

It has been demonstrated that 9 out of 10 game animals pass by hunters without ever being seen. If you don't already own them, spend some more of that \$1,000 on a high quality pair of 7 power binoculars. Don't waste money on more, or less, than 7 power. Offhand you can't hold them steady enough to see anything clearly with magnification levels higher than about 7. And lower powers will not reveal enough detail.

Now practice and get comfortable using them. You will need to be constantly scanning the countryside with them if you are to be successful.

Next, invest in a proven Ballistics Program for your computer, or at least a quality reloading manual that includes detailed ballistic tables. There are even some acceptable programs that you can download free.

Learn how to use them. Anytime you shoot at something beyond about 250 yards you need to be able to precisely predict the trajectory of your bullet. Ballistic programs let you enter all of the many variables that will affect your trajectory. Things like scope height above the bore, wind speed and direction, air temperature, altitude, the ballistic coefficient (BC) of the bullet you are using, and muzzle velocity of your load all become important.

I don't mean that you need to carry a laptop computer around with you. Just know from study and practice how all of these variables affect the trajectory of the specific load you will be using. You might find it desirable to print out or make up some reference data sheets to carry in your pack or pocket.

And be prepared to steady your rifle on something solid. Regular Experienced long range shooters learn to become expert at shooting from the prone position with a sling. But this requires lots of practice and a view of the target unobstructed by tall grass, brush, etc. Generally, in the field, a solid sitting position with a sling is the steadiest practical alternative.

Some hunters invest in shooting sticks, bipods, or tripods. These cost more money and are a pain to carry around, but may be the best option if no natural rest is available. Buy a length that can be used from the sitting or kneeling positions. Just don't count on hitting that big muley or tiny antelope at long range offhand or unsupported.

Then consider your scope. For important long range hunts I have come to detest all variable power models. A lot of them will move your point of impact, more or less, as you change magnification.

When making those once in a lifetime long shots you need to eliminate every possible error that you can. This is one of those cases where you can really do something to improve your odds for success. Choose a high quality 6 power fixed magnification scope.

The 6 power is not some random number pulled out of thin air. Much higher and your rifle needs to be resting on something rock solid to hold it still enough to see details clearly. Any lower and it will not be adequate to make out enough detail.

Some folks who regularly shoot at long ranges under hunting conditions move up to 8 or 10 power. But using a 10 power scope properly requires much skill and practice, and the field of view is very limited. A tiny field of view is a Very Bad Thing if the shot of a lifetime turns out to be at moderate range after all. For most, 6X is the correct choice.

Be aware that the more magnification your scope has the more you will tend to hunt, or float around the target. Your group sizes will actually be worse with higher magnification levels because of this tendency to float around the target as you aim under field conditions.

And never should you assume that you can substitute your scope for those also expensive binoculars. It simply doesn't work; you must have both. Scopes with magnifications of more than 10 power are only practical when used off of very solid fixtures or bench rests.

At long ranges the effect of air movement on your bullet's path becomes quite pronounced. Some long range experts claim to be able to estimate wind velocity and direction accurately enough to hit what they are aiming at. Just as with estimating the distance, this is a bunch of phooey! Spend a few more of those \$1,000 dollars on a little portable anemometer that will give you the exact wind numbers. They are essential for long range work.

Also get into the habit of carrying an accurate thermometer. As the air density changes from the effect of temperature your trajectory will vary. I will assume that you will be aware of the elevation, or altitude, at which you will be hunting, and have plugged that in ahead of time.

Now that you have used your rangefinder to determine the exact distance to your target, and the ballistic program and other data to calculate your precise trajectory for that range, what do you do with all of that information? Answer: get a scope with those big target style calibrated elevation and windage turret knobs. If your scope does not have them you can purchase them from most of the major shooting equipment retailers and add them yourself. They are not expensive and are simple to install and use.

Zero them at some known range, usually 100 yards. Your Ballistic Program, or other calculations, will tell you how many minutes you need to turn the adjustment knobs to hit your target at the given range and conditions.

Finally you have arrived at the point where most folks mistakenly begin. That is choosing which rifle or cartridge to use. This is not nearly as big a deal as most folks assume it to be. Any modern high powered rifle cartridge equal to or larger than the 6.5x55 SE or 260 Remington will do just fine!

Some use the likes of the 25-06 or 257 Weatherby, but I don't encourage that. Most practiced long range shooters find that cartridges based on the .308 Winchester case or something similar in size produce inherently more accurate and consistent results than do larger capacity cartridges based on the .30-06 or Magnum cases.

Cartridges like the 6.5x55, 260 Remington, 7mm-08 Remington, 7x57 and .308 Winchester are popular. The most important things to consider here are that you be 100% comfortable shooting whatever rifle you choose and that it be capable of consistently producing at least 1.5 MOA groups. The .308 case size cartridges generally produce less recoil than the larger boomers and this is also an important ingredient in determining how accurately you will be able to place those need-to-be-near-perfect long range shots.

I do not mean to imply that there is anything wrong with using your existing .270 Winchester, 7mm Mag, .30-06, 300 Mag, or even 338 Mag. So long as your gun will consistently make 1.5 MOA groups and you are comfortable shooting it, it will do just fine.

We do need to do fatal damage to the game animal and larger diameter bullets do have larger cross sections and do slam into the target with more initial clout. Since your bullet may have slowed to less than optimal velocity for normal expansion by the time it gets to your distant prey, there are some that say that the bigger bullet cross section argument has merit here. The problem is that high BC large bore bullets get quite heavy. They generate more recoil than most of us will be able to do our best shooting with when launching them at the velocities necessary for long range hunting.

Lastly, choose a bullet that has a sectional density (SD) of at least .240 (and .275 is better). The sectional density number is a rough indication of the bullet's potential penetration. A higher SD means more potential penetration if all other factors are equal.

A long range bullet should have a BC of at least .430 (and .450+ is better). The ballistic coefficient is a measure of how efficiently the bullet penetrates the air. The higher the BC number the more velocity and thus energy will be retained at any given distance. Contrary to what some say, this does become an important consideration when trying

to do fatal damage to something at the maximum point blank range of your cartridge and load. And make sure that the BC numbers you are using are accurate for the velocity your specific bullet will be traveling. The most detailed and reliable source about BC information may be Sierra Bullets.

It is also most important to make absolutely sure that your gun (and shoulder) like the bullet and load that you choose, and that you can consistently place it within that 1.5 MOA circle at the maximum range at which you are willing to take a shot. It makes no sense at all to choose a bullet with a super efficient BC of .500 and then not be able to hit what your target with it.

This all may sound impossibly difficult. But with only a little study and practice anyone can learn to do these things quickly and accurately and have a decent chance of nailing that monster muley at the maximum point blank range, or perhaps a little more, of their rifle and cartridge combination. If the ballistics of your rifle/cartridge combination will not allow you to put the bullet into the heart/lung area by holding the horizontal crosshair level with the animal's back, you should pass on the shot.