6.5mm Cartridges for Long Range Big Game Hunting

By Chuck Hawks

Hornady 6.5mm Creedmoor ammunition. Photo courtesy of Hornady Manufacturing.

Guns and Shooting Online (founded in 1997) was one of the first online publications to recognize the virtues of 6.5mm (.264") caliber hunting cartridges and I was one of the first American gun writers to publicize them. To an extent, many long time readers associate *G&S Online*, and me personally, with the 6.5mm caliber, particularly the classic 6.5x55mm SE, the Queen of 6.5mm cartridges, and also the equally useful .260 Remington.

The 6.5x55, which was introduced as the standard military cartridge of Sweden and Norway in 1894 and first gained prominence as a hunting cartridge in Europe shortly thereafter, slowly spread around the world from there. Despite its age, the 6.5x55 looks like a modern cartridge, with only moderate body taper, a sharp 25 degree shoulder and a 0.309" long neck that is perfect for holding long 140 to 160 grain bullets. Like the 7x57 Mauser, it is an intermediate length cartridge, shorter than the .30-06 and longer than the .308 Winchester.

The .260 is a true short action cartridge designed primarily for hunting Class 2 game. It is based on a necked-down, but otherwise unaltered, .308 Winchester case. Ballistically, it is nearly identical to the 6.5x55 when both cartridges are loaded to the same maximum average pressure (MAP) with 140 grain bullets.

I like these cartridges and have often called them "general purpose" Class 2 game cartridges. By which I mean they are suitable for all Class 2 animals, including black bear and caribou, to beyond their maximum point blank range (+/- 3") when shooting the 140 grain hunting bullets that made the caliber's reputation.

For light framed animals, such as pronghorn antelope and whitetail deer, 120-130 grain bullets will suffice and flatten trajectory, increasing maximum point blank range (MPBR). 156-160 grain bullets are a good choice for large Class 3 animals and a popular with Swedish hunters seeking Scandinavian moose with their 6.5x55mm rifles. However, it is the 140 grain bullet that made the caliber's reputation as a general purpose hunting round.

The 6.5x55 and .260, shooting a 140 grain bullet at a muzzle velocity (MV) around 2700 fps, have real-world advantages over many other Class 2 game cartridges. These include moderate muzzle blast and recoil compared to the .270/.308/.30-06 class of cartridges, an adequate MPBR (about 260-275 yards, depending on ballistic coefficient), a superior bullet sectional density (SD) of .287 and entirely adequate energy on target (1773 ft. lbs. at 200 yards per Hornady figures). To reiterate, these are not theoretical advantages; they have been demonstrated in the field for generations.

In 2008, Hornady introduced (and heavily promoted) the 6.5 Creedmoor. No one ever commercially promoted the 6.5x55. Originally a military cartridge, it achieved fame around the world on its merit as a hunting cartridge, much as did the American .30-06 and .308.

Remington, as usual when they standardize a new cartridge, seemed to forget about their .260 as soon as it was introduced and made very little effort to support it. It took several years for hunters who were willing to experiment to discover what a fine short action cartridge it is.

The 6.5 Creedmoor was designed by Hornady technicians specifically as a long range match cartridge. Like the .260, it is based on a necked-down .308 Winchester case. However, in the case of the 6.5 Creedmoor the .308 case was given a sharper shoulder (30 degrees instead of 20 degrees), blown out to have a bit less body taper and shortened to an overall case length of 1.920" (instead of the 2.035" of the .260 Rem.). The latter change was to allow seating very long ogive match bullets farther out of the case, without making the cartridge overall length too long for use in short action rifles.

These changes decreased the powder capacity of the 6.5mm Creedmoor case to slightly less than the .260 case, which itself has slightly less capacity than the 6.5x55 case. Loaded to the same MAP with typical 120-160 grain hunting bullets, the ballistics of the 6.5 Creedmoor must always be inferior to the .260 and 6.5x55. The reduced body taper and sharper shoulder, together, make the Creedmoor slightly less reliable in feeding and extraction, which is of no consequence in a match cartridge, but of critical importance to a hunting cartridge in the field.

Nevertheless, Hornady touts the 6.5 Creedmoor as, "Very possibly the most well balanced cartridge to ever grace the pages of the *Hornady Handbook of Cartridge Reloading*." Well, maybe as a match cartridge it is, but as a hunting cartridge it is somewhat inferior to both the .260 and 6.5x55, although its ballistics are not sufficiently inferior to matter in the field. All three cartridges are inherently accurate and can launch a 140 grain hunting bullet at about 2700 fps and nothing can live on the difference between them.

However, the introduction of the 6.5 Creedmoor coincided with a spike in interest in long range shooting, including long range hunting, promoted primarily by riflescope and rifle manufacturers who needed something new to sell. (Marketing drives most fads.) After a couple of years in relative obscurity the 6.5 Creedmoor's excellence as long range match cartridge began to catch the attention of hunters.

These were generally relatively new hunters who did not understand the subtle design differences between match and hunting cartridges. Their inexperience also made them overly optimistic about their ability to shoot accurately at long range in the field. (Experienced hunters generally eschew long range shooting, having leaned to stalk as close as possible before attempting a shot at a valuable game animal; a lot can go wrong between when the trigger is pulled and the bullet strikes!)

6.5 Creedmoor sales began to climb and rifle and scope manufacturers in the US, who were behind the long range shooting craze from the beginning, took note and jumped on the 6.5 Creedmoor band wagon. Soon, at least in North America, more hunting rifles were being chambered for 6.5 Creedmoor than for 6.5x55mm or .260 Remington.

At last a 6.5mm cartridge had caught on in North America and become a mainstream hunting cartridge. The 6.5 Creedmoor shares the same advantages as a general purpose Class 2 game cartridge, cited earlier in this article, as the 6.5x55 and .260 Rem. As previously mentioned, nothing can live on the minor ballistic differences between these three cartridges and they are all good Class 2 game cartridges to beyond their MPBR.

Unfortunately, some 6.5 Creedmoor fans are taking things to extremes. First of all, I never recommend shooting beyond the MPBR (+/- 3") of *any* cartridge and load, which for full power 6.5 Creedmoor loads (depending on the BC of the specific 140 bullet) is about 270 yards. Actually, statistics show that the number of wounded deer increases dramatically when hunters attempt shots in excess of 150 yards, even when seated and using a solid rest. (See South Carolina Department of Natural Resources Study Answers Questions about Deer, Ammo, Guns and Dogs for more information on this subject.)

However, some writers are reporting (bragging about) long range kills at 400 yards, 500 yards and even longer distances with the 6.5 Creedmoor. Even worse, they are not shooting just at deer and pronghorn antelope at such ranges, but also elk and other Class 3 animals. This reveals an unfortunate combination of inexperience, bad judgment, selfishness (the animals they wound and fail to recover might have been yours) and callous disregard for the welfare of our big game resources.

I am not saying that occasional one shot kills are impossible at such distances. However, the chance of wounding and losing Class 2 animals at such distances is very high and it is much worse for Class 3 game. Such wastage of valuable game animals is unacceptable to responsible hunters and damages the credibility and integrity of all hunters in the eyes of the general public.

Keep in mind that a .264" hunting bullet with a high BC, such as the 140 grain Hornady SST, launched at a MV of 2735 fps, generates 1786 ft. lbs. of kinetic energy at 200 yards, 1556 ft. lbs. at 300 yards, 1350 ft. lbs. at 400 yards and only 1166 ft. lbs. at 500 yards. Given that most authorities, based on decades of experience in the field, specify a minimum bullet diameter of .277" (.270 caliber) and 1200-1500 ft. lbs. on target for hunting elk and other Class 3 game, even with perfect bullet placement the 6.5x55, .260 Rem. and 6.5 Creedmoor are all marginal elk cartridges at their MPBR and unacceptable beyond 300 yards. Furthermore, due to the relatively small diameter of .264" bullet holes and the large body size of Class 3 animals, it is wise to put considerably *more* than the minimum amount of energy on target.

I realize that no end of Scandinavian moose have been taken with the 6.5x55, mostly with 156-160 grain bullets. However, the typical hunting methods and terrain in Sweden means most shots are taken at less than 100 yards. In Sweden, moose are commonly brought to bay with dogs and shot at very short range. They are also called or driven to hunters waiting in stands, again resulting in short range shots. Polar bear have also fallen to the 6.5x55, but these were generally killed in self defense at less than 50 yards.

Magnum 6.5mm cartridges, starting in North America with the introduction of the .264 Winchester Magnum in 1958, extend the range and killing power of .264" bullets. The .264 Win. Mag. and Hornady's ballistically identical new 6.5mm PRC can both launch a 140 grain bullet at a maximum MV of about 3100 fps. With a typical 140 grain flat base spitzer bullet the MPBR (+/- 3") is 303 yards; with the higher BC of a 140 grain Hornady SST bullet, the MPBR is 308 yards. Typical 140 grain PSP factory loads (MV 3030 fps) call for 1682 ft. lbs. of energy at 300 yards. Back when they introduced

the .264, Winchester admitted that it had little advantage over the .270 Winchester for shooting at less than 300-400 yards.

The 6.5-284 and 6.5mm Remington Magnum, both short action cartridges, fall in between the standard 6.5mm cartridges and the .264 Win. / 6.5mm PRC magnums. However, they extend barrel life while reducing muzzle blast and recoil. Their MPBR is 286 yards with a 140 grain PSP bullet.

The huge .26 Nosler and 6.5-300 Weatherby Magnums are even more powerful than previous 6.5mm magnums. The former claims a MV of 3,300 fps as factory loaded with a 140 grain Nosler bullets. The remaining energy is 2308 ft. lbs. at 300 yards. Significantly, Nosler classes their new magnum .26 as a "deer sized game" cartridge. The 6.5-300 Weatherby is very similar, boasting a MVs of 3304-3395 fps with the three 140 grain bullets Weatherby offers in factory loads. Both cartridges extend the +/- 3" MPBR with a 140 grain bullet to about 325 yards, which is about as good as it gets for any big game hunting cartridge.

Of course, these magnum 6.5mm cartridges sacrifice the mild recoil and muzzle blast that make the 6.5x55, .260 and 6.5 Creedmoor easy to shoot accurately. They also decrease barrel life, substantially in the case of the .264 Win. Mag. and 6.5mm PRC and dramatically in the case of the .26 Nosler and 6.5-300 Weatherby. None of the Magnums will kill anything the standard cartridges cannot kill, but they can do it from farther away.

Conclusion

All of these 6.5mm cartridges are good general purpose Class 2 game cartridges within their MPBR. None of them are bang-up Class 3 game cartridges, but in a pinch, with careful bullet placement, they will do the job at moderate range. Use 140-160 grain bullets and keep your shots at less than 200 yards (preferably within 100 yards) with the standard cartridges and not over 300 yards at the absolute maximum with the magnums and they should suffice for most North American elk.

Regular hunters of Class 3 game, especially the larger species, will be better served by choosing a powerful medium bore cartridge. Where I live (Oregon) we have the large Roosevelt elk in the deep coastal forests west of the Cascade Mountains and Rocky Mountain elk east of the Cascades. The elk cartridge of choice for the most knowledgeable and experienced elk hunters here is the .338 Winchester Magnum.