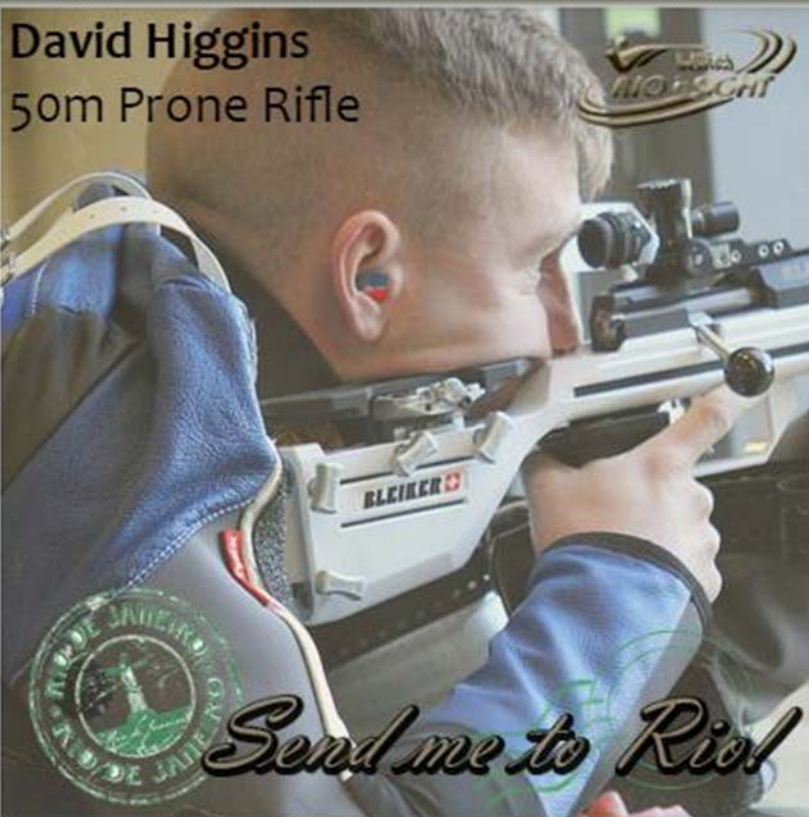




# LSA Quarterly



Former Louisiana junior competitor David Higgins and current senior cadet at the U.S. Air Force Academy is headed to the Olympic Games in Rio De Janeiro to represent the United States in Men's Smallbore Prone Rifle.

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## 2016 Meeting of Members and Elections

The Annual Meeting of Members and Elections of the Louisiana Shooting Association took place on February 21, 2016.

Each year, the Members of the LSA elect a Board of Directors consisting of 15 members and two Alternate Directors. Each Director is elected to a 3-year term and each Alternate Director is elected to a 1-year term. Once the Board of Directors is chosen, the Directors then elect Officers of the Corporation from among the 15 Directors. The 2016 Officers and Directors of the LSA are:

### Officers

President	Daniel E. Zelenka, II, JD	Term expires 2019
Vice-President	Daniel Plunkett, JD	Term expires 2017
Secretary	Paul J. Prokop, JD	Term expires 2018
Treasurer	Jay D. Hunt, III, PhD	Term expires 2018
Director-at-Large	John K. Laws, Jr.	Term expires 2019

### Directors

Term Expires		
2017	2018	2019
James Biermann, DVD	Bill Biossat	Paul Angrisano
Gordon H. Hutchinson, Jr.	Ronald "Buck" Kliebert	Barret Kendrick
Gerald E. "Jerry" Liuzza, MD	Theophile "Ted" Torres, III	Joseph C. "Jay" Meynier, III
George Petras		

1st Alternate Director: J. Clifford Grout, III (term expires 2017)

2nd Alternate Director: Keith Lemoine (term expires 2017)



## Your Donations to the LSA Junior Shooting Program at Work!

David Higgins moved to Louisiana when his father, then Lt. Colonel David Higgins was transferred to the New Orleans area by the USMC. Lt. Col. Higgins brought David to a Junior High Power Rifle clinic sponsored by the LSA, and as they say, the rest was history. David showed tremendous promise as a high power shooter, and, in fact, was the first junior competitor in the state of Louisiana to earn the tremendously difficult and highly coveted High Power Rifle Distinguished Rifleman Award.

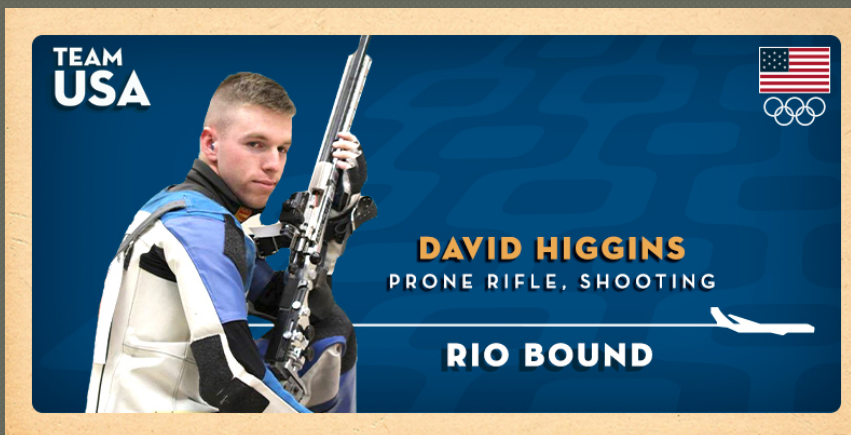
As David aged and began to think about college, he became interested in smallbore rifle competition through the influence of his fellow junior competitor, Michael Liuzza. Like David, Michael competed in high power rifle, but his first love was always smallbore rifle. Both David and Michael were coached by the superb West Feliciana Shooting Clovers. This program turns out some of the best shooters in the country every year. Michael earned a shooting scholarship at the University of Alaska-Fairbanks and a few years later, David earned a position on the shooting team for the U.S. Air Force Academy. When David graduates in June, he will be commissioned as a 2<sup>nd</sup> Lt. in the USMC. No doubt his proud and supportive parents Col. David and Pherby Higgins will be in attendance.



David Higgins (far right) is shown with fellow smallbore shooter Michael Liuzza (far left) and 2-man junior team coach Dan Zelenka at Camp Perry in 2009.

On Monday, April 4, 2016, David Higgins staged a remarkable comeback in the final round of the 2016 U.S. Olympic Team, passing three-time Olympic medalist Matt Emmons.

In third place after the first day of competition, David moved up one spot on Sunday to close to within 11.3 points of Emmons entering the final day. David passed Emmons the third and final day to make his first Olympic team.



David Higgins will represent the USA in shooting at the Olympics in Rio de Janeiro.

On Monday, Emmons could muster only a score of 616.8 in the qualifying round, which left him out of the final, while David scored a career-best 629.5, then went on to win the final and the eight-point bonus that went with it, giving him an aggregate score of 1,888.9, 1.4 points ahead of Emmons' 1,887.5, good for second.

The result was a major step forward in David's career. He won a pair of national silver medals in the prone event as a junior in 2013, then added bronzes in prone at the 2014 spring selection match and in three-position at the 2014 national junior championships. He represented the United States in men's prone at the 2014 world championships in Granada, Spain, where he finished 24th in his elimination relay.

## Barnes Solid Copper Bullet Performance After Action Report

By Danny MacGregor

Performance in a hunting bullet can be defined in a projectile that is A) accurate to hit its mark, B) robust in its design so that it is not damaged in normal loading and feeding, C) expends all of its energy deep within the game, D) retains its weight and mass without exiting the game, and E) creates a devastating wound channel.

### Load Development

I recently made a trip to the Republic of South Africa's Limpopo province carrying a Ruger M77 RSM in .375 H&H Magnum. I debated about what bullet to use given that I intended to take animals from as large as Cape Eland (*Taurotragus oryx*, approximately 2000 pounds) to as small as the Chacma baboon (*Papio ursinus*, maximum of 100 pounds for a very large baboon). I eventually loaded and brought 20 each of loads based on the 270 Gr. Hornady InterLock bullet and the 270 Gr. Barnes TSX solid copper bullet.

The loads were developed over 5 separate trips to the range with the chronograph and spotting scope. The first goal for both bullets was to identify a suitable propellant load that produced consistent velocities without signs of overpressure. On that note, I started out with Hornady virgin brass that unfortunately turned out to be extremely soft. The brass showed signs of excess pressure after the first firing by swelling at the belt and enlargement of the primer pockets; however, the printing on the primers themselves appeared normal. On the second trip to the range, using R-P brass, no swelling or overpressure indication was observed. At this point with the propellant charges narrowed down somewhat it was time to start paying more attention to printed accuracy on target.

The 270 Gr. Hornady InterLock bullets printed sub-MOA (minute of angle) groups using 72.7 Gr. of VV N540 with the bullets seated on the cannellure. The Barnes TSX loaded with 76.5 Gr. of VV N540 printed unacceptable groups at roughly the same seating depth. It didn't take much research to determine that the long secant ogive shape (copper weighing less than lead) of the TSX requires it to be seated at less than 0.005" off of the lands of the barrel. So on the third of five trips to the range, five rounds each of the TSX were loaded at three different seating depths ranging from 0.005" to 0.003" off the lands. The propellant charges were also varied at 76.5, 77.0, and 77.5 Gr. of VV N540 under



five each of the bullets at the three depths. These were fired over the chronograph from the bench to check grouping and placement. It was no great surprise that the most accurate results came from the bullets seated at only 0.003" from the lands and charged with 77.0 Gr. of VV N540. Any bullets seated longer would not function from the magazine. The final trip to the range was to fire the finished Hornady InterLock loads and the Barnes TSX loads in to compare the differences between where they printed. Luckily the groups were all touching. So I fine-tuned the rifle's zero using the TSX, which was the bullet I most wanted to use.

### An Eye Opener

Three animals were taken using the .375 H&H 270 Gr. TSX. They were Southern Greater Kudu (*Tragelaphus strepsiceros*), Burchell's Zebra (*Equus quagga burchellii*), and Warthog (*Phacochoerus africanus*). The results were nothing short of stunning. All three bullets recovered from the animals were worthy of advertisements in their symmetrical petalling or mushrooming. All three had four nice jagged petals measuring from 0.77" to 0.80" across. In other words their width more than doubled. Two encountered only soft tissue while the one from the warthog encountered shoulder bone and cartilage. The recovered bullets were soaked in hydrogen peroxide to soften up and remove the bone, flesh and blood deposits so that they could be measured for weight retention. A water pick was used to remove all animal matter (I'm sure my wife would approve... kinda).



Here was the really big surprise: All three bullets had significant amounts of hair imbedded under the neatly folded petals of peeled back copper. Why is that significant? Well first allow me to backtrack on the weight retention. All three bullets after cleaning weighed in at over 269.7 grains of their original nominal 270 grains. That the bullets did not exit the animals and that they had hair wrapped up under the petals indicates that they began expanding as soon as they contacted hide and thereby created a maximum sized wound channel from the time that they entered the animals. That they effectively retained all of their weight in doing so means that the bullet hardness was exactly where it needed to be. Even the bullet that had cartilage and bone fragments in addition to the hair and blood retained essentially all of its mass.



## Conclusion

Given the wide range of tissues encountered, the lack of exit wounds while still having deep penetration, and the absolutely picture perfect early mushrooming of these projectiles has me wanting to try them on North American whitetails. Before this trip I thought of solid copper projectiles as only being suitable for dangerous game with thick hides. I think that the results have proved that thinking to be very wrong. With the likelihood of lead free bullet legislation at some point in our lifetime it looks like the future will remain bright as long as we have this sort of bullet engineering at our disposal. Indeed, the forced replacement looks to be better than the original.

## Counterpoint: My experience with the Barnes TSX in Africa

By Jay D. Hunt, Ph.D.

Contrary to the spectacular results obtained by Danny on his trip to Africa, my experience with the Barnes TSX was diametrically opposed to his and almost cost me my Cape Eland. (If interested, the entire article can be found in *the LSA Quarterly* newsletter archives, Vol. IX No. 2, April-June 2014). Toward the end of my first hunt in the R.S.A., I had decided that I was going to use my PH's CZ 602 in .375 H&H Magnum using his handloads topped with the 350 Gr. Barnes TSX to take my Cape Eland. The 350 Gr. Barnes TSX was my PH's "go to" bullet for all game short of those animals that have a tendency to kill his clients, and he has tremendous faith in the bullet, load, rifle combination.

After a great deal of stalking, I finally got a broadside shot on a bull. There was good blood, and it appeared to be bright red and from the lungs. We tracked him all day, and we walked 13 KM looking for him until the trail went cold and dry. My tracker had mad skills, but not even this experienced Tswana tribesman could find him. That evening at the basecamp as we were discussing our next day's search strategy, one of the apprentice PHs suggested we hire a helicopter. A quick radio call to Thabazimbi had a chopper reserved for the next morning.

After about 20 minutes of flying search patterns and eyeing running eland, I heard my PH say over the radio, "There is a bull and he is down." I must say I've never been so happy to see a dead animal in my life. I was simultaneously relieved and disappointed that I was not going to have to shoot from the helicopter, but I was overwhelmingly happy that the bull was not walking around wounded. As the saying goes, one has never hunted if one has not wounded an animal. It may be a sad reality of hunting, but I don't have to like it! The pilot guided the trackers and a volunteer crew from the camp to the spot, and I was elated to see that the animal was in great shape. He had apparently died the day before, and the meat and hide were in fine shape (I had him for breakfast on the day I departed for the States). We had found him before the hyenas and jackals found him! My shot had been a high lung shot, and the 350 Gr. .375 caliber Barnes TSX failed to open as promised by the manufacturer.



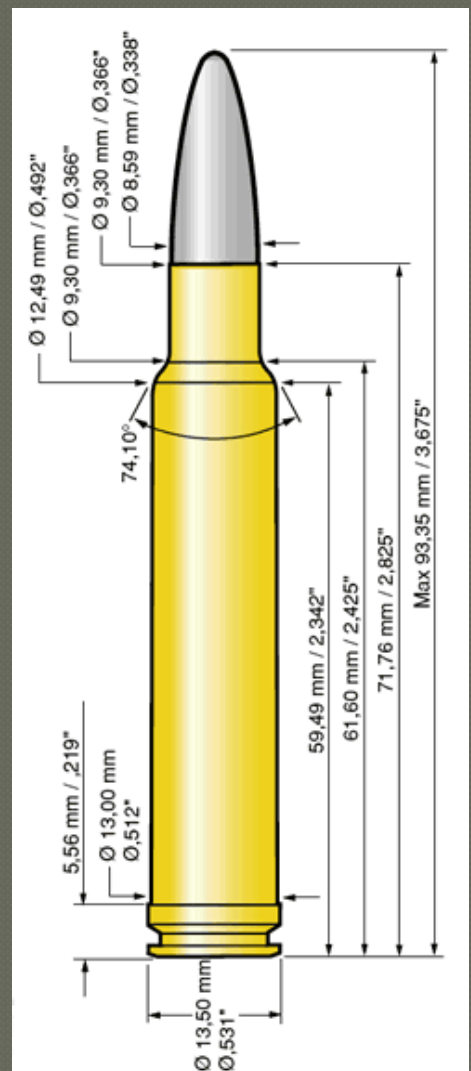
# Big Bore, Big Recoil, Big Fun! Building a .340 Weatherby Magnum

By  
Jay D. Hunt, Ph.D.

It started with a phone call. "Jay, I'm going elk hunting out west this fall and I need a rifle." Now, if there is one thing I like more than spending my hard earned money on a new rifle, it is spending someone else's hard earned money on a new rifle. Before I go further, I should tell you that the call was from a friend of mine who grew up in western Pennsylvania hunting whitetail deer. Like many hunters who focus primarily on whitetail, the only rifle that he has ever owned is chambered in .30-06 Springfield. Because he only owns rifles for himself and his teenage boys (all in .30-06), and because of the popularity of the .30-06 and the plethora of commercial loads available from the 110-year-old patriarch of the hunting world, there is absolutely no need for him to reload.

Upon additional discussions, my friend was looking for a flat shooting cartridge capable of taking elk at 300-400 yards, but that would also be more than capable of taking black bear, brown bear, and anything else that roams this planet of ours short of the African big five. I should also tell you that my friend is not "Richey Rich" rich, but is also not terribly concerned about spending a few bucks on a nice set up. We set the budget at \$5000. For many readers, the thought of building a rifle that cost that much is ridiculous, but you may like to know that you could build just as capable a rifle for a fraction of the cost.

As with any rifle building project, the first step should always be to match the cartridge to the job. Although a .416 Rigby would without a doubt kill anything that walks on earth, including the African big five, it would be a poor choice for a long range elk cartridge, and would be overkill (pun intended) for any animal except for those that are likely to bite, tear, gore, or stomp one to death. Likewise, although a flat shooting hot rod like the .300 Jarrett or 7mm STW would be very capable of taking long range elk, both would be a bit light for brown bear and, as a reminder, my friend is not a reloader and would have to rely on others to build his rounds. No, the perfect cartridge would need to be one that fires a bullet larger than .30 caliber at flat shooting velocities, but that is also available in a variety of commercial loadings using premium bullets at different weights.





My initial inclination was toward the .338 Winchester Magnum, which indeed meets many of the requirements. However, a close examination of the ballistics demonstrates that it really isn't a very flat shooting round. The inner circle of gun loonies was consulted about the project. We all agreed that we would build rifles based on all kinds of exotic wildcat (or semi-wildcat) cartridges mainly because we could, but that none of those was really appropriate for a person who doesn't have years of reloading experience. LSA President Dan Zelenka suggested the .340 Weatherby Magnum in a non-Weatherby action. Now, if you love the Weatherby you might want to pour yourself a stiff drink and sit down. Dan HATES Weatherby rifles. He's told me on many occasions that if someone gave him a Weatherby he would immediately sell it. For Dan, it is mostly cosmetic. He thinks the actions are ugly. I must say, I agree, but my general distaste for the Weatherby goes deeper than that; I think the Weatherby cartridges with their double radius shoulder look old fashioned and inefficient. But, looks can be deceiving.

The .340 Weatherby Magnum is a true .338 hot rod that out performs the .338 Winchester Magnum when the same bullet is used for comparisons.

Given that the entire purpose of this rifle project was to build an elk rifle that could take large North American game for someone *who does not reload their own ammunition*, an absolute requirement was that high quality ammunition using premium bullets had to be available. Both Weatherby and Nosler produce ammunition for the .340 Weatherby Magnum using premium hunting bullets.

Table 1. Factory loads available for the .340 Weatherby Magnum

Manufacturer	Bullet	Weight (Gr)	Muzzle Velocity (FPS)
Weatherby	Barnes TSX	225	2970
Weatherby	Hornady Spire Point	225	3066
Weatherby	Hornady Spire Point	250	2963
Weatherby	Nosler Partition	250	2941
Nosler	Nosler AccuBond	200	3100
Nosler	Nosler Partition	210	3050
Nosler	Nosler AccuBond	225	2900
Nosler	Nosler Partition	225	2900
Nosler	Nosler Partition	250	2800
Nosler	Nosler AccuBond	300	2600

As can be seen in Table 1, bullet weights range from the 210 Gr. AccuBond with a muzzle velocity of 3100 FPS up to the 300 Gr. AccuBond with a mammoth 4502 Ft-lbs of muzzle energy leaving the bore at 2600 FPS. That load will take care of anything in North America, including polar bears.

So, is the .340 Weatherby Magnum a lot better than the .338 Winchester Magnum? I guess the answer depends on your perspective. To make the comparison easier, I used three factory loads that would be more than suitable for elk: (1) the .340 Weatherby Magnum

**NoslerCustom® 225 Gr. Partition, (2) the .340 Weatherby Magnum NoslerCustom® 250 Gr. Partition, and (3) the .338 Winchester Magnum NoslerCustom® 225 Gr. Partition.** Note, that this ammunition is not cheap, running around \$100 per box of 20 cartridges and anyone who wanted to shoot this rifle on a regular basis better either learn how to reload their own ammunition or own a productive oil well.

In Table 2, one can see that when using the 225 Gr. Nosler Partition, the .340 Weatherby Magnum gets an additional 150 FPS in velocity from the muzzle of a 24-inch barreled rifle than what can be obtained from the .338 Winchester Magnum. Also, one will note that from the .340 Weatherby Magnum, one can get essentially the same velocity from a 250 Gr. Partition that is possible using the 225 Gr. Partition from the .338 Winchester Magnum.

Table 2. Comparison of three available factory loads for elk using premium bullets

Range (Yds)	.340 Weatherby Magnum				.338 Winchester Magnum	
	225 Gr Partition		250 Gr Partition		225 Gr Partition	
	Velocity (FPS)	Energy (Ft-lbs)	Velocity (FPS)	Energy (Ft-lbs)	Velocity (FPS)	Energy (Ft-lbs)
0	2900	4200	2800	4351	2750	3777
100	2695	3628	2607	3773	2551	3252
200	2499	3119	2422	3257	2361	2786
300	2311	2668	2245	2798	2180	2373
400	2131	2270	2075	2391	2006	2010
500	1960	1919	1913	2032	1841	1693
600	1798	1614	1760	1719	1686	1420
700	1645	1352	1616	1449	1541	1187
800	1504	1130	1483	1220	1410	993
<b>Max ↑ LOS</b>	152 Yds at +4.0"		148 Yds at +4.0"		145 Yds at +4.0"	
<b>PBR Zero</b>	274 Yds		266 Yds		259 Yds	
<b>Max PBR</b>	321 Yds at -4.0"		311 Yds at -3.9"		304 Yds at -4.0"	

Abbreviations: Gr, grains; Yds, yards; FPS, feet per second; Ft-lbs, foot-pounds;

LOS, line of sight; PBR, point blank range

Max ↑ LOS = Maximum arc above line of sight

Point blank range calculations assume an 8" vital area

Although the table lists velocity and energy out to 800 yards, there are very few people who should consider this a reasonable shot on any live game. I am a Master class high power rifle competitor who routinely shoots at 600 yards using iron sights, and I would not take a shot on an elk at 800 yards. I've highlighted in green what I consider a reasonable distance for a shot on an elk. All three loads have enough velocity remaining at 500 yards to get expansion of a Nosler Partition and plenty of energy for a clean kill. So, at reasonable distances, the .340 Weatherby Magnum does not appear to have a clear advantage over the .338 Winchester Magnum.

These same data are shown in Figure 1.

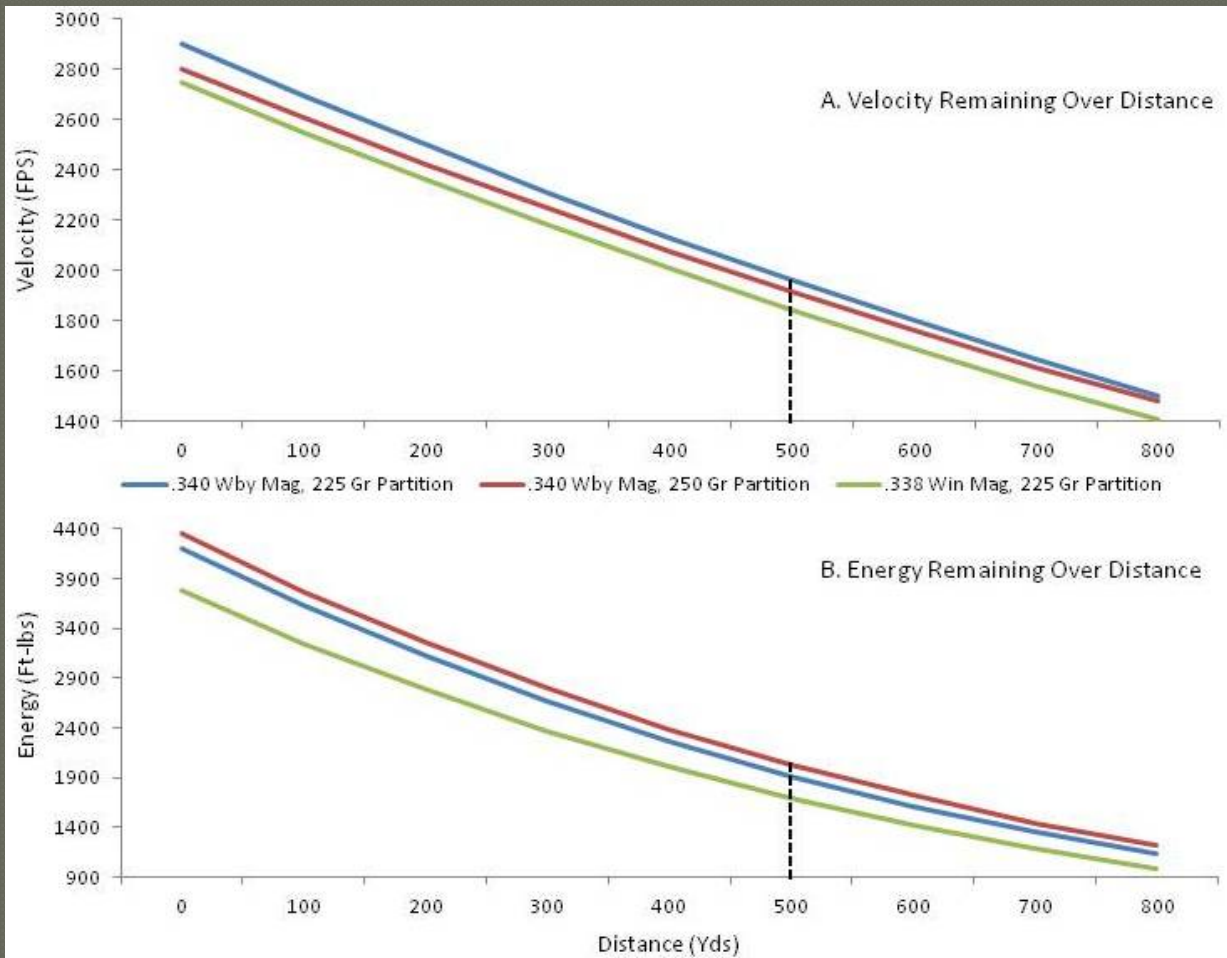


Figure 1. In panel A, the remaining velocity of each factory load is shown over distances out to 800 yards. The author considers shots over 500 yards to be questionable at best on live game, and recommends that shots be kept to 500 yards or less. The dotted line shows the comparison of remaining velocity at that maximum reasonable distance. In panel B, the remaining bullet energy is shown for each load.

Another fair comparison might be the bullet path from each of the loads. As seen in Table 1, I calculated the “Point Blank Range” (or PBR) for each of the factory loads used for these comparisons. For those not familiar with the concept of PBR, one need only imagine a circle that is the same size as the vital area of the animal being pursued. In this case, I set the vital area of an elk at 8 inches. Some authorities on elk hunting say that the vital area is 10 inches, but just to be safe I’ve used a slightly smaller area. The PBR is the range at which one can aim directly at the center of the 8-inch circle, and expect the bullet to impact within that circle from 0 yards all the way out to the maximum PBR. I calculated the path of each bullet using the velocity data in Table 1. The maximum above line of sight and the minimum below line of sight cannot exceed 4 inches, or half of the 8-inch circle. Given these parameters, I then calculated the range at which the rifle should be zeroed to give the maximum PBR distance. That number is shown in the table as “PBR Zero.” Note that there is not a lot of distance between the different loads. The maximum PBR increases from 259 yards when firing a 225 Gr.

Partition from the .338 Winchester Magnum to 274 yards when firing the same bullet from the .340 Weatherby Magnum. I doubt that the 15-yard difference matters much to the shooter or to the hapless elk wandering around at 260 yards from the hunter.

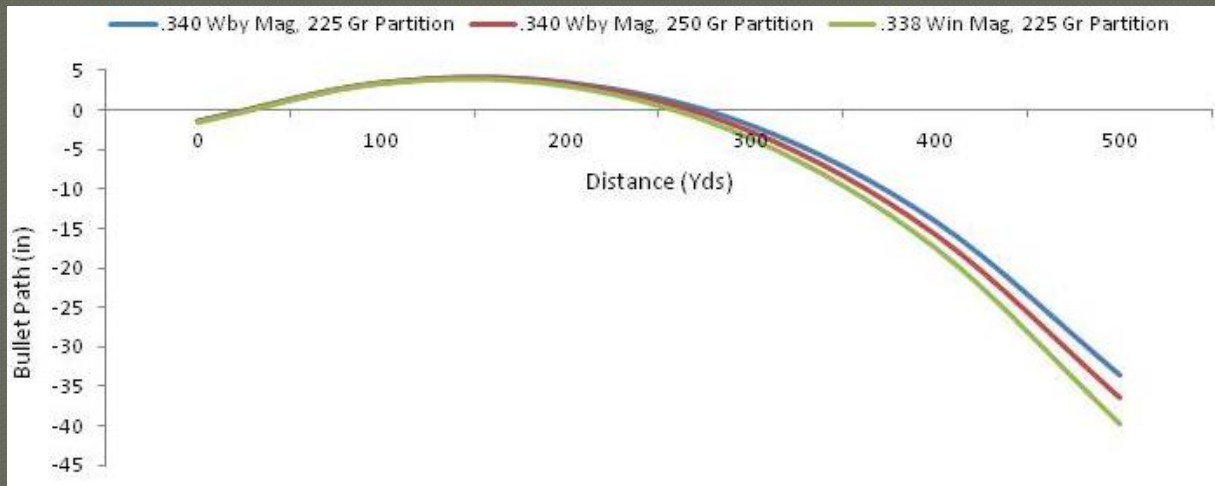


Figure 2. The paths of each load are shown using the most efficient zero range to achieve maximum PBR for an 8-inch vital area.

No, it appears that when using factory ammunition, there just is not that much of a difference between the .340 Weatherby Magnum and the .338 Winchester Magnum when firing heavy bullets at reasonable hunting distances. Not surprisingly, the .340 Weatherby Magnum really doesn't begin to shine until the handloader begins to apply his craft. I worked up some smoking hot loads (too hot to give specifics in an article) that pushed the Sierra 215 Gr. SPBT bullet to 3139 FPS. With that load, the PBR Zero was 300 yards and the maximum PBR was 352 yards. That is an increase of 72 yards over the 225 Gr. Partition fired from the same rifle.

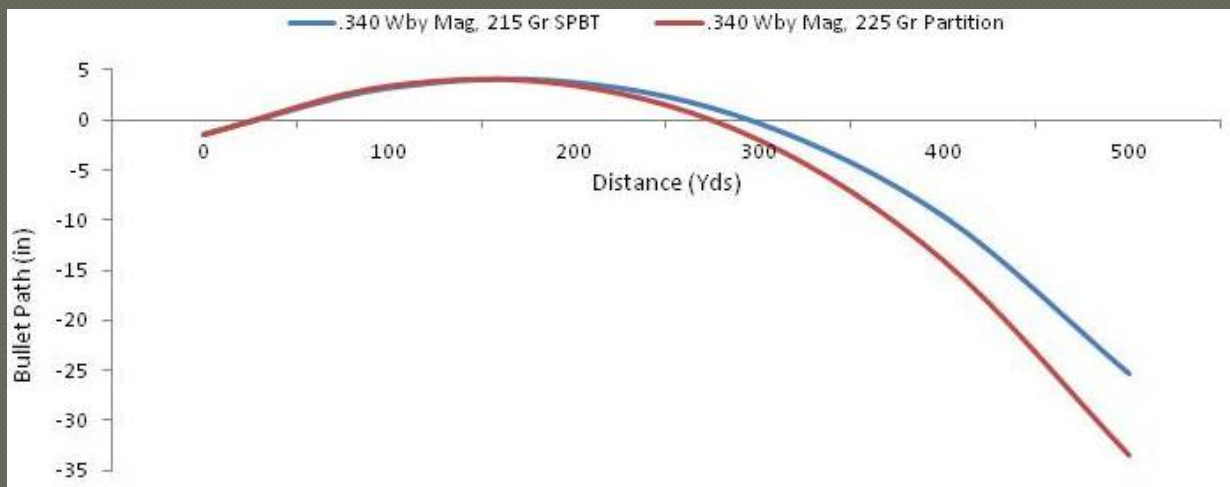


Figure 3. The .340 Weatherby Magnum really shines when the handloader develops fast loads that flattens out the trajectory.

This extra performance, however, comes at a cost. The cartridge is not for the small framed or recoil shy. The cartridge delivers bone-jarring recoil. My friend and fellow LSA board member Buck Kliebert summed it up best when he said, "It kills on one end and maims on the

other." But anyone with a substantial amount of experience firing magnum calibers can learn to tolerate it. I had no problem firing sub-1 MOA groups with Weatherby custom ammunition loaded with the 250 Gr. Nosler Partition.

The rifle was built on a Cooper Model 56 magnum-action length receiver. Inexplicably, Cooper Firearms has discontinued the Model 56 and is building their magnum caliber rifles on the much lighter Model 52 long-action length receiver. The Model 56 is a three-lug design similar to its shorter Model 52 cousin. This rifle has a spiral fluted bolt. It features a Sako-style extractor that is machined from bar stock and fed by a single-stack removable box magazine. The barrel is a chrome-moly Wilson Arms premium match grade barrel that is also fluted to reduce weight and increase between shot cooling. With all the discussion of ballistics above, a reader might assume that we simply threw on any old scope and set the zero to the PBR. In fact, we opted for a Leupold VX-6 2-12x42 mm scope set in Talley 30 mm fixed scope rings. The VX-6 scope was equipped with Leupold's custom dial system (CDS) that was customized to the particular load to be used in the rifle. With this system, the rifle was zeroed at 200 yards. The elevation dial can then be adjusted to the specific distance to the target and the shooter can hold directly on that target and expect to get a hit on the center of the target.

But, as any good hunter knows, the proof of the pudding is in the tasting. My buddy took his rifle to Montana to hunt elk with eleven of his buddies. On a very cold -10°F morning 25 miles north of Bozeman, he shot a 5 x 5 bull at 325 yards using a single 250 Gr. Nosler Partition bullet. He said it dropped in its tracks. By the way, the group went 12 for 12 on that hunt. I got a call from him after he returned to Pennsylvania. "I'm going to let you build all of my rifles from now on." I doubt he'll ever need another rifle.

