



# Efficient

A look back  
and forward.

## John Barsness

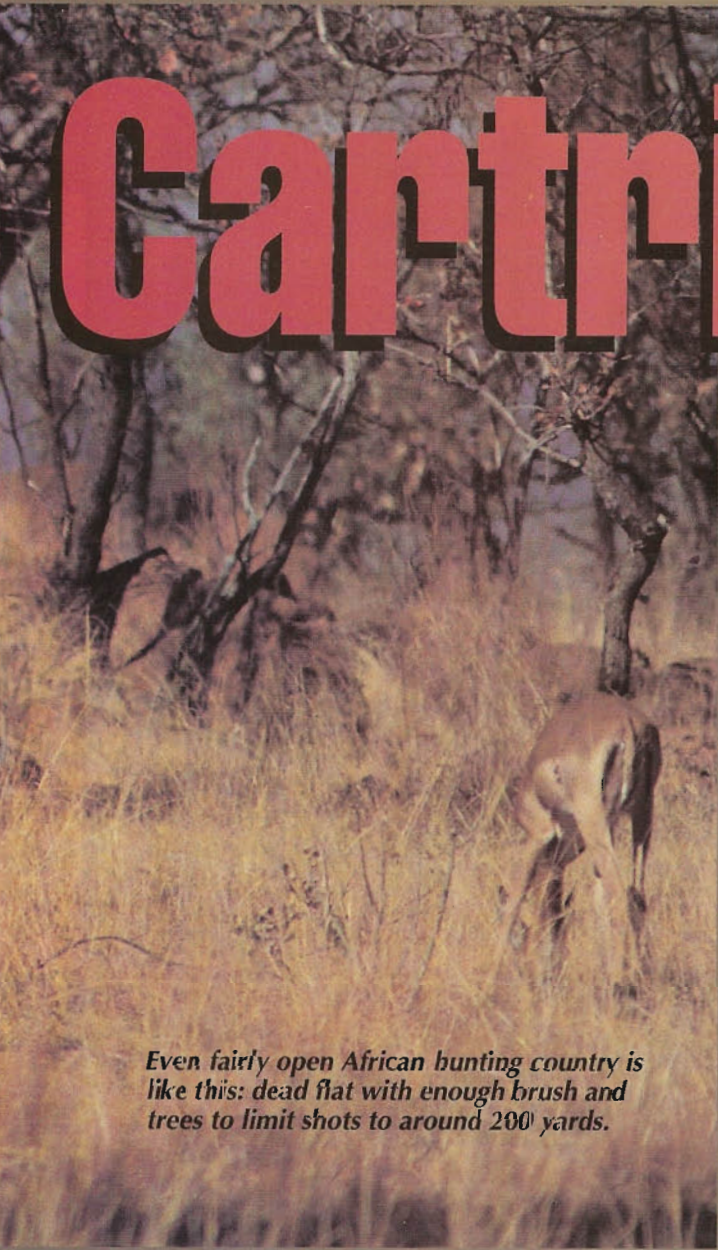
**T**he late Bob Milek probably wrote about rifle cartridge efficiency more than any other gun writer, but efficiency, like much of life, is a relative thing. In cartridge terms, “efficient” means compromising between velocity and recoil. Milek liked to point out that a careful handloader could obtain 90 percent of the velocity of the 7mm Remington Magnum from the 7x57mm Mauser with only two-thirds the powder and half the recoil.

Opponents of this viewpoint liked to stretch things by pointing out that the ultimately efficient sporting cartridge is the .22 Long Rifle, which gets over 100 foot-pounds (ft-lbs) of kinetic energy out of each grain of powder consumed. The average 160-grain 7mm magnum load, in contrast, only gets about 45 ft-lbs per grain of powder – but who wants to hunt deer with a .22 Long Rifle?

Efficiency scoffers also sometimes imply that 7x57 users are cheap. The greater killing power and flatter trajectory of the 7mm magnum costs about 6 extra cents in powder. Why use a wimpy and antiquated cartridge to save a few pennies?

Milek’s counterpoint (one very often overlooked by modern hyperbole, advertising and myth) is that anyone who uses the 7x57 very much soon realizes it isn’t a short-range cartridge but a fine deer cartridge as far as most shooters can reliably hit a deer’s chest. With the right bullet, it also handily takes much larger game at common hunting ranges.

# Cartridges



*Even fairly open African hunting country is like this: dead flat with enough brush and trees to limit shots to around 200 yards.*

I've leaned in both directions over the years. My first few deer were shot with the .30-30 and .308 WCFs. The next half-dozen were killed by a .243 WCF, so my first .270 Winchester was a revelation, shooting noticeably flatter than the .243 (this despite published ballistics tables, which back then were full of a lot of things).

With the .270 sighted in 3 inches high at 100 yards, I could aim at any big game animal out to 300 yards and put a bullet squarely through the lungs. Mostly deer dropped very quickly, and even if they ran off 50 yards, the exit hole was a lot bigger than the hole from the .243's little bullets, which sometimes didn't exit at all.

So why not improve on the .270 WCF and try something faster, or bigger, or both? Over the years I did, and still occasionally do, the rounds including the .257 Roberts Ackley Improved, .270 Weatherby Magnum, 7mm Remington Magnum, 7mm STW, .300 Winchester Magnum, .300 Weatherby Magnum and .300 Remington Ultra Mag.

I also tried a bunch of milder cartridges, primarily a

couple of Bob Milek's favorites, the .257 Roberts and 7x57mm Mauser. But big game also fell to other "efficient" rounds, including the .250 Savage, .260 Remington, 6.5x55 "Swedish" Mauser and 7mm-08 Remington.

Did the fast cartridges kill much better? We've heard they should, time after time since the days of Roy Weatherby, since velocity vastly increases kinetic energy. Trouble is, I've used a bunch of fast rounds and seen many instances when well-placed bullets (even of the semi-exploding type) didn't kill any quicker than similar bullets from smaller rounds. I've shot two pronghorn bucks with super-zappers, the 7mm STW and .300 Winchester Short Magnum, using Nosler Ballistic Tips at a muzzle velocity of 3,300 fps. One buck stood 200 yards away, the other 250. In each instance the bullet went through both lungs, yet each 100-pound animal managed to navigate 40 or 50 yards before falling.

This fall I shot a mule deer doe at 120 yards with a .270 Weatherby Magnum, using 130-grain Swift Sciroccos also started at about 3,300 fps. The bullet created massive damage inside the chest, yet the deer managed to run 75 yards before keeling over. Where was the "hydrostatic shock" that supposedly results in an instant kill at such velocities?

I've also used 140-grain bullets quite a bit in the 7mm-08 and 7x57mm Mauser, designs ranging from the frangible

*Beyond 300 yards, you need to know the trajectory of any cartridge in order to make accurate shots. John took this caribou in Canada's Nunavut Territory at 430 yards, using an Ultra Light Arms .30-06 and standard-velocity 180-grain ammunition from Federal.*



*Right, the three cartridges on the left – the .22-250 Remington, .257 Roberts and .270 WCF – all have a bore/case ratio of about 10. The new .300 Winchester Short Magnum on the right also has a bore/case ratio of almost exactly 10, which has as much to do with its high velocity, accuracy and recoil as its short, fat shape.*

Ballistic Tip to the super-tough Trophy Bonded, and dropped deer and antelope, on average, even more quickly than those three killed with super-zappers. Why is this? I don't know. Bullet placement has been about the same, through the vital organs of the chest cavity but not through the spine, yet the game seems to fall more quickly than the animals I've shot with 130- to 150-grain bullets traveling at 400 to 500 fps faster. According to all the laws of physics this should not be, but there it is. I cannot explain it, just report what's happened to me –

*Right, these cartridges have a bore/capacity ratio between 11.5 and 13, and are noted for relatively light recoil, fine accuracy and enough velocity to minimize trajectory over normal hunting ranges (left to right): .250 Savage, 7x57mm Mauser, .30-06, .338 Winchester Magnum and .375 H&H Magnum.*

and other hunters I've watched shoot game. In my experience the mystical killing power of super high velocity doesn't exist.

Any other sort of "knock-down power" is totally myth. Supposedly an animal struck with "over a ton of energy" should be flung off its feet, as if struck by a 2,000-pound minivan. This is one of the oldest fossils of shooting lore and literature.

I like to excavate such fossils and see if they'll stand up

*Right, this lineup of .300 magnums includes the Winchester Short, H&H, "standard" Winchester, Weatherby, Remington Ultra and .30-378 Weatherby. Safe maximum velocity with a 180-grain bullet rises from around 3,000 fps with the short Winchester to around 3,200 fps with the Weatherby and Ultra Mag, and 3,400 with the .30-378. As velocity rises, recoil rises even faster and barrel life plummets.*

without a lot of help from baling wire and wall plaster, so several years back a "deer" was constructed from a heavy wooden box and four 2x4s. It ended up about the size of the average medium-young buck slain by the hundreds of thousands every year from Pennsylvania to Oregon. I placed my deer 100 yards from the benchrest and filled the box with damp earth, whereupon it weighed about 150 pounds.

Then I shot it with a wide array of sporting rifles. If

*Right, all these cartridges have bore/case ratios of under 8.5 and are noted as barrel-burners including (left to right): .220 Swift, .257 Weatherby, .264 Winchester Magnum, 7mm STW and .30-378 Weatherby Magnum. The Swift actually has the best bore/case ratio of the lineup, but varmint hunters tend to shoot their rifles more.*





*Here's an extreme choice. Both of these Model 70 Winchesters are chambered for 7mm cartridges, the Compact on top for the 7mm-08, the Sporter LT on bottom for the 7mm STW. The 20-inch barrel of the 7-pound 7mm-08 produces 2,800 fps with a 140-grain bullet, while the 26-inch barrel of the 9-pound 7mm STW gets 3,300 fps, about 18 percent faster.*

I remember correctly, the calibers included the .223 Remington, .257 Roberts, 7mm Remington Magnum, .30-06, .338 Winchester Magnum and .416 Remington Magnum. I don't recall exactly what bullet was used in the lighter calibers, but specifically remember the .338 featured the 250-grain Nosler Partition at about 2,700 fps, and the .416 used the 400-grain Hornady roundnose softpoint loaded to 2,400 fps. Kinetic energy at the muzzle ranged from 1,300 to 5,100 ft-lbs, and at 100 yards from 1,000 to 4,000.

What happened? The foot or so of damp earth stopped almost every bullet, the only exception the first two .416s. The third, aimed at an un-shot part of the box, stayed inside, but barely, cracking the board on the far side. (For those few .416'ers out there, the 400-grain Hornady InterLock is one stout bullet, since the InterLock ring inside the jacket is almost a partition. With this bullet, I'd be happy to hunt any animal on earth for which expanding bullets are considered correct.)

So all the kinetic energy of each load ended up inside my wooden deer. Despite that, I never had to lift it from the ground and replenish the dirt. As far as I could tell, the only load that rocked the deer slightly was the .416, but since I was otherwise occupied by having the snot

kicked out of me, I couldn't be totally sure.

If you're one of the True Believers who thinks a very powerful rifle will knock game off its feet with "tons" of kinetic energy, please keep the faith. We need adult dreamers, not just kids who believe in Santa Claus.

But if you have any doubts, don't believe me. Do the experiment yourself with whatever super-magnum you wish. It will prove that using "ton" to describe 2,000 ft-lbs of

kinetic whack is quite misleading, the reason I never use it myself to describe the "awesome killing power" of any cartridge.

So if the faster rounds don't consistently kill any quicker than smaller rounds using the same bullets, and don't knock animals over with their

***In my experience the mystical killing power of super high velocity doesn't exist.***

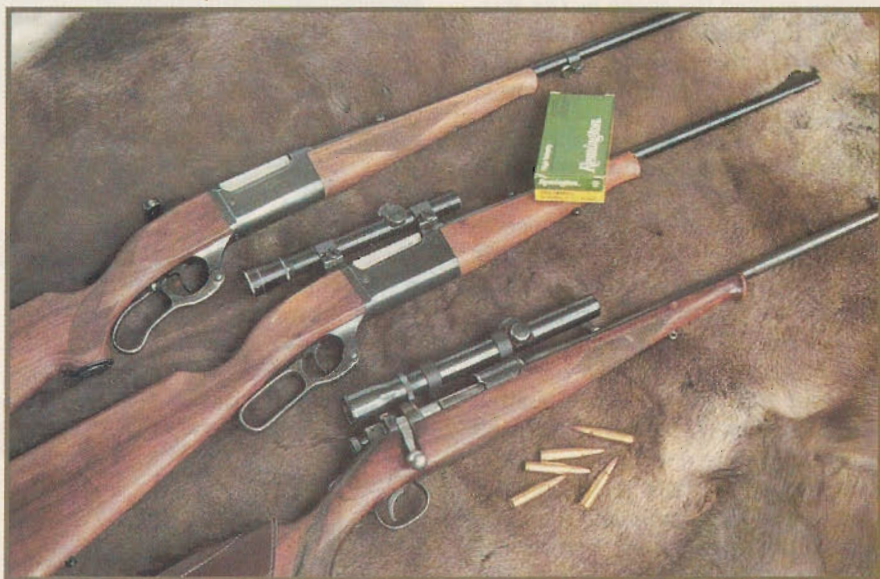
fearsome kinetic numbers, just what advantage do they have in the field?

The one consistently demonstrable advantage of more muzzle velocity is flatter trajectory. Just as my first .270 Winchester shot noticeably flatter than my .243, so does a 7mm STW shoot flatter than a .270. This leads to the question of how much advantage a flatter trajectory provides.

I have observed a great many shooters on the vast prairie dog towns of the West, some of them famous gun writers who shoot very well indeed. Very few can consistently hit a 2-pound adult prairie dog on the first shot at any range much beyond 350 yards, even if they know the range.

Think about that. An adult prairie dog is about the size of the heart and

***The .250 Savage is one of the most efficient deer cartridges of all time. It recoils less than the .243 Winchester, yet with 115- to 120-grain bullets kills more reliably.***



# Efficient Cartridges

front-lung area of a deer. Almost all these shots are taken with the rifle on a firm rest, not the average half-rested big game shot. Almost all these shots are taken with .22-caliber rifles more accurate than even the finest custom big game rifles, and often the shooter knows the range through the use of a laser rangefinder.

Of course, in prairie dog shooting, the first shot often functions as a "sighter," a test of wind. If the shooter's competent, the second, third or fourth shot often connects.

**There are still places in the world where no shot will exceed 200 yards.**

Do we get that many chances on big game? Not normally, though in a random universe almost anything is possible. What if the first shot hits leg or guts? Does the animal then stand around waiting for corrections? Sometimes, but not often.

I recently read an article talking about the dozens of big game animals taken with the use of a fancy new riflescope reticle out to some outlandish yardage like 700 or 800. I believe the writer even claimed these kills were "registered" or "certified," I forget which, since I can't find the darn article right now. The phrase evoked the scene in *The Wizard of Oz* where the Munchkin doctor decrees that the Wicked Witch is not "merely dead, but really most sincerely dead."

What I want to know is how many registered misses, gut shots and broken legs it took to obtain those certified kills – especially after this November, when I watched an experienced hunter using the same fancy reticle miss four shots at mule deer one afternoon, at ranges between 200 and 400 yards, using a custom 7mm magnum. (The next day he hit a running mule deer in the neck at 400 yards. I'll certify it. I guess this adds to the kills made with the fancy reticle, but after the day before, didn't impress me much.)

What this boils down to is the sad fact that, despite advances in twenty-first century sporting rifles and rangefinders, 99.9 percent of us can't hit the vital area of big game consistently with the first shot at much beyond 350 yards, and at that range, Bob Milek's highly efficient cartridges will do.

Here are the trajectory figures for a 7x57 and 7mm STW, using a 139/140-grain bullet zeroed at 200 yards. The velocities are what I've actually obtained from factory loads or safe "maximum" handloads:

7x57 139-grain Hornady boat-tail Spire Point, 2,900 fps				
yards				
100	200	300	400	
+1.6	-0-	-7.2	-21.0	

7mm STW 140-grain Nosler Ballistic Tip, 3,300				
+1.1	-0-	-5.3	-15.3	

The trajectory figures come from the Hornady and Nosler loading manuals. The difference isn't all that impressive, is it? Even at 400 yards,

## .260 Remington

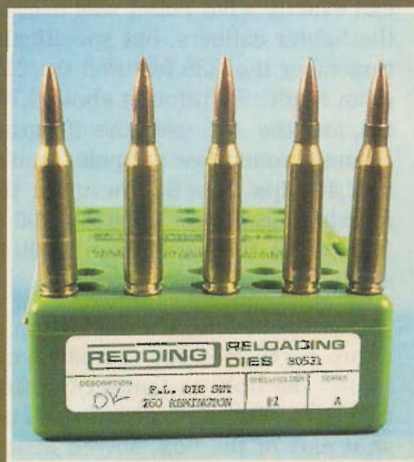
To a properly conservative rifle loony, this one raised some flags. Why reinvent the 6.5x55 Swede? Indeed, why would Jim Carmichel reinvent Ken Waters's .263 Express decades later?

Eventually, however, I had to try one, getting a custom rifle made on a short Remington Model 700 action by Patriot Arms (34 Creekside Circle #20, Hayesville NC 28940). The details include a 22-inch No. 3 stainless Hart barrel, High Tech synthetic stock from Mark Bansner and many accuracy tricks. The trigger assembly is rebuilt and chromeplated to prevent wear, the steel Weaver-style bases machined to line up with the bore, and the bolt lugs are machined to match the action, not merely lapped in. With a 3.5-10x Leupold Vari-X III in Weaver rings, it weighs exactly 7.5 pounds.

It should shoot and does, as you can see from the results below. But none of these loads took much fiddling, and most of the factory .260s

I've seen shoot nearly as well, which indicates a very friendly cartridge. The .260's so versatile that it's beginning to make inroads into my affection for the .257 Roberts, my long-time first choice for best varmint/deer cartridge.

*The .260 Remington, a commercial version of Ken Waters's .263 Express, may be the finest varmint/deer cartridge in existence.*



## .260 Remington

bullet (grains)	powder	charge (grains)	velocity (fps)	average 3-shot group (inches)
<b>Handloads (all necked-up Lapua .243 brass and CCI 200 primers)</b>				
85 Sierra HPBT	Varget	45.0	3,454	.77
100 Ballistic Tip	RL-15	42.0	3,235	.41
120 Barnes X-Bullet	H-4350	44.0	2,950	.54
125 Nosler Partition	H-4350	43.0	2,918	.83
140 Speer Hot-Core	H-4831sc	44.0	2,684	.52
<b>Factory loads (all Remington)</b>				
120 Nosler Ballistic Tip			2,857	.75
125 Nosler Partition			2,879	.92
140 PSP Core-Lokt			2,710	1.06

*Be Alert - Publisher cannot accept responsibility for errors in published load data.*

## 9.3x62 Mauser

This cartridge was invented shortly after the turn of the century to provide a hard-hitting round for truly big game in the standard 98 Mauser action. It's essentially a slightly shortened .30-06 case with less body taper and the shoulder moved forward, so it has a little more capacity than the '06. Combined with .366-inch bullets, the result is a cartridge somewhere between the .35 Whelen and .375 H&H.

The factory Whelen has been rather disappointing to some shooters because it just doesn't get the velocity it should with 250-grain bullets, possibly because they aren't heavy enough to promote efficient powder burn. The common 9.3 class, obtaining almost as much velocity as the Whelen gets with 250s, and with a lot less recoil than the 300-grain .375 H&H. Unlike the .375, five rounds fit in a standard bolt-action magazine, which can sometimes be an advantage in a rifle used on dangerous game.

The 9.3x62 isn't exactly popular in the U.S., but with more American companies making components (Win-

*The 9.3x62 Mauser is the legal minimum for dangerous game in some African countries. Despite its power, the round is so efficient it recoils noticeably less than the .375 H&H.*



chester even loads ammunition for the European market.) it's coming on. The Capital Sports & Western store in Helena, Montana, sold three CZ 550s chambered for the 9.3x62 this last fall, one to me. These handloads came out of its 23.6-inch (60cm) barrel.

### 9.3x62 Mauser

bullet (grains)	powder	charge (grains)	velocity (fps)	average 3-shot group (inches)
<b>handloads (all Norma brass and CCI 200 primers)</b>				
250 Nosler Ballistic Tip	IMR-4895	60.0	2,605	.87
286 Barnes X-Bullet	IMR-4895	53.0	2,390	1.88
286 Nosler Partition	IMR-4895	56.0	2,382	1.03
286 Norma factory load			2,344	1.30

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you have to know the range and trajectory. Otherwise you might shoot under, or only wound, an average buck pronghorn.

Some might correctly point out that I'm not being quite fair, first by comparing two different bullets. That's true - and my comparison favors the 7mm STW, because Nosler lists the ballistic coefficient (BC) of the 140-grain Ballistic Tip at .485, while Hornady lists its 139-grain boat-tail Spire Point at .453. I cited these two loads because they're what I've used in factory ammunition while hunting with these two cartridges.

The latest Hornady Light Magnum 7x57 ammunition features its new 139-grain SST, a plastic-tipped bullet with a listed BC of .486, which by amazing coincidence is .001 higher than the Ballistic Tip's. In the real

***Cartridges with a bore/case ratio of under 10 tend to be rough on barrels and kick noticeably harder.***

world, BC varies with muzzle velocity, the rifle's particular barrel, elevation, atmospheric pressure and humidity. Could this theoretical .001 possibly exist because of inter-corporate rivalry?

Some might also point out that if

we sight the 7mm STW in 1.6 inches high at 100 yards, as we did with the 7x57, it would shoot flatter. This is true:

7mm STW at 3,300 fps			
yards			
100	200	300	400
+1.6	+1.0	-3.8	-13.3

Here we've gained a whole 1.5 inches at 300 yards. The 7mm STW's advantage is still only 3.4 inches at that range and less than 8 inches at 400 yards.

This has been my experience in the field. The big howlers do shoot flatter, but by the time velocity gets up to about 2,800 fps, almost any cartridge shoots flat enough for reality. If we're going to shoot past 300 yards with any cartridge, we need to know the range, not just guess it.

And 2,800 fps also provides enough velocity for sure expansion with almost any modern bullet out to 450 yards. I know this because I've shot big game past 400 yards with plain, old .30-06 factory loads using 180-grain bullets started at about 2,750 fps from a 24-inch barrel.

There are still places in the world where no shot will exceed 200 yards. Much whitetail and elk hunting is like that, and most African hunting takes place in thornbush where 200 yards is a real barrel stretcher. Here 2,400 fps does the job just as well as 2,800, and often better, since we often sacrifice muzzle velocity for bullet weight, which helps when shooting game at odd angles or plowing through heavy shoulder bone. In any of these situations, "efficient" cartridges often do much better than the big honkers, because most us do not like getting slammed around by our rifles or being enveloped in a dust-cloud or blizzard when the muzzle brake on our wonder-magnum creates a windstorm in front of our face.

So after long use of both small and

large rounds (Just this year I shot deer with both the .260 Remington and .270 Weatherby Magnum.), I am inclined to agree with Bob Milek: The advantages of the fast magnums are more theoretical than real.

This isn't to say that some mag-

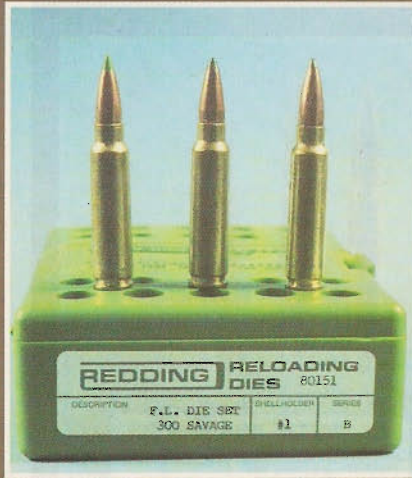
# .300 Savage

The .300 Savage was introduced in 1920 to approximate the ballistics of the original .30-06 loads from the short magazines of the Savage 99 lever action and the original "mountain rifle," the amazingly light Savage Model 20 bolt action. Soon the little .300 became one of the more popular hunting rounds in America. After World War II, it inspired the T-65 military round that eventually became the .308 Winchester. Eventually the .308 took the little .300's place in the hunting world, both in lever-action and short-action bolt rifles.

But the .300 Savage never really died, and some of today's hunters are rediscovering the round, since it provides most of the .308's performance with noticeably less recoil and fine accuracy. My own impression is that an average .300 doesn't kick much more than the average .30-30. Today's factory ballistics are a 150-grain at 2,630 fps and a 180 at 2,350, which can be exceeded slightly by the careful handloader.

Over the past couple years, I've ended up with three Savage Model 99 .300s, a very old takedown model from the early 1920s and a couple

*The .300 Savage is one of the most efficient cartridges ever designed, easily matching the original .30-06 military ballistics of a 150-grain bullet at 2,700 fps.*



solid-frames from just before and after World War II. All three shoot accurately, even with iron sights, and the postwar solid-frame shoots as well as most factory bolt-action rifles. With Reloder 15, 2,600 fps can be attained with 165-grain bullets, perhaps the perfect all-around choice for deer, black bear and elk, shooting flat enough for easy hits out to 250 yards.

## .300 Savage

bullet (grains)	powder	charge (grains)	velocity (fps)	average 3-shot group (inches)
<b>handloads (all with Winchester cases and CCI 200 primers)</b>				
125 Ballistic Tip	Ramshot TAC	43.0	2,899	1.12*
150 Hornady Spire Point	IMR-4895	42.0	2,683	1.34*
165 Partition	RL-15	42.0	2,588	1.62*
165 Partition	RL-15	42.0	2,588	1.06#
<b>factory loads</b>				
150 Remington PSP Core-Lokt			2,600	1.10*
150 Winchester Power Point			2,693	2.59*
150 Federal Classic softpoint			2,587	2.12*
180 Remington roundnose Core-Lokt			2,345	1.95*
180 Federal Classic softpoint			2,367	1.02#

\* - shot with peep sights  
# - shot with scope

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nums don't have real advantages, but in my experience these are the efficient magnums, which provide more bullet diameter and weight at moderate velocities, while keeping recoil down. To define these, and every other cartridge discussed so far, we must define "efficiency."

As noted earlier, efficiency is a rel-

ative thing. While fooling around with rifles and computers, I've come up with a different method of quantifying the bore-to-case relationship than the "expansion ratio" familiar to many rifle loonies. Expansion ratio doesn't really pin down a certain cartridge's efficiency, because it also includes barrel length; a few inches of extra bore improves expansion ratio.

Instead I divide a certain caliber's bore area, in thousandths of an inch, by its approximate water capacity in grains. As an example, let's use one of Bob Milek's favorite cartridges, the .257 Roberts. Bullets of .257 inch diameter have a cross section of .0519 square inch, and the average .257 case holds about 52 grains of water when filled to the base of the neck. Divide 519 by 52 and we get 9.98, which we might as well call 10.

The .257 is a middling round, neither exceptionally efficient nor inefficient, so 10 is a handy baseline for figuring out which other cartridges provide the most bang for the buck - or the most hot air. This last is literally true, for one of the reasons the huge-cased magnums kick so hard is the hot air they send rocketing out the muzzle behind the bullet. This greatly increases recoil effect, while adding nothing to trajectory or even those slippery foot-pounds. Other cases with a bore/case ratio of about 10 include the .280 Remington and (ta-da!) the new .300 Winchester Short Magnum.

Cartridges with a bore/case ratio of under 10 tend to be rough on barrels and kick noticeably harder. Examples here would be most belted 7mm and .300 magnums. Get down around 8 and they really start to eat barrels and buck like rodeo bulls.

A bore/case ratio much above 10 results in cartridges noted for high efficiency, particularly long bore life and relatively light recoil for their ballistic results. Rounds with a ratio between 12 and 14, for example, include the .223 Remington, 7x57mm Mauser and .375 H&H Magnum.

In case your pocket calculator isn't handy, a list is in the table.

You'll note that as caliber increases, some "efficient" cartridges have real reputations for extreme recoil. The .378 Weatherby, for example, makes many hardened big-bore veterans feel like they've made a mistake. This is because heavy bullets pushed hard, kick hard, no matter if they're pushed efficiently or not. A .378 should have a pretty decent barrel life, though, if you intend to shoot it a lot at coyotes and rockchucks.

At the other end of the scale some very inefficient cartridges recoil quite mildly. The .220 Swift and .240

## Bore/Case Ratios

case	bore area (inch)	H <sub>2</sub> O capacity (grains)	bore/capacity ratio
.22 Hornet	.0394	12.0	32.8
.223 Remington		28.5	13.8
.22-250 Remington		42.5	9.3
.220 Swift		47.0	8.4
.243 Winchester	.0464	50.5	9.2
6mm Remington		51.5	9.0
.240 Weatherby		61.0	7.6
.250 Savage	.0519	42.0	12.4
.257 Roberts		52.0	10.0
.25-06 Remington		61.5	8.4
.257 Weatherby Magnum		77.5	6.7
.260 Remington	.0547	50.0	10.9
6.5x55 Swede		52.0	10.5
6.5mm Remington Magnum		64.5	8.5
.264 Winchester Magnum		79.0	6.9
.270 Winchester	.0602	62.0	9.7
.270 Weatherby Magnum		77.0	7.8
7mm-08 Remington	.0633	49.5	12.8
7x57 Mauser		52.0	12.2
.280 Remington		62.0	10.2
7mm Remington Magnum		79.0	8.0
7mm STW		90.0	7.0
.30-30 WCF	.0745	35.5	21.0
.308 Winchester		49.0	15.2
.30-06		61.5	12.1
.300 Winchester Magnum		83.0	9.0
.300 Weatherby Magnum		92.5	8.1
.300 Remington Ultra Mag		100.0	7.5
.30-378 Weatherby Magnum		118.0	6.3
.338-06	.0897	60.0	15.0
.338 Winchester Magnum		77.5	11.6
.340 Weatherby Magnum		88.5	10.1
.338-378 Weatherby Magnum		117.0	7.7
.358 Winchester	.1007	46.5	21.7
.35 Whelen		58.5	17.2
.350 Remington Magnum		62.0	16.2
.358 Norma Magnum		77.0	13.0
.358 STA		88.0	11.4
9.3x62 Mauser	.1052	64.0	16.4
.375 H&H	.1105	86.0	12.8
.375 Weatherby Magnum		90.0	12.3
.378 Weatherby Magnum		117.0	9.4
.416 Taylor	.1359	72.0	18.9
.416 Remington Magnum		87.0	15.6
.416 Weatherby Magnum		116.0	11.7
.45-70	.1648	52.0	31.7
.458 Winchester Magnum		71.0	23.2
.460 Weatherby Magnum		116.0	14.2

Weatherby are prime examples of rounds that shoot astonishingly flat, especially with light bullets. But they also eat barrels for breakfast.

What do efficient cartridges do for the handloader? Lots. In my experience, they're enormously flexible, shooting accurately with a wide array of powders and bullets. Such versatility doesn't rate with some rifle loonies, the guys with the "perfect" rifle for every nit-picky use. I tend to be one of those myself but still admire a versatile, easy-to-load

cartridge, and many handloaders can't afford to own a rifle for each game animal from ground squirrel to elephant - not and still afford to go hunting.

In general I've found cartridges rating 10 or higher on the efficiency scale to shoot very well in the average off-the-shelf factory rifle. Wander much below the 10 level, however, and everything has to be just so to get the things to shoot with acceptable accuracy or even shoot consistently from day to day.

A great many shooters went through the 7mm STW craze a few years back, and I even dabbled in it myself. The consensus was that the vast majority of factory rifles in the caliber simply didn't offer the kind of consistent accuracy to take advantage of the round's velocity. Only custom jobs with the finest barrels, chambers and blue-printed actions shot well enough to make a difference out at 400 yards or more. This has also been my experience with other super-zappers, some of which are more contrary than a Chesapeake Bay retriever. Trained right, they do a marvelous job, much like a well-trained Chessie. But unless everything's perfect, they're far more trouble than they're worth.

Most of us are far better off with the friendly Labrador retrievers of the rifle world. I have known and owned a whole pile of Labs. While once in a great while you run into a genetic freak (like the yellow bitch I bought a few years ago who would retrieve anything except a dead bird, hated kids and was, like, totally bored with any sort of outdoor experience), most Labs are at least half-trainable by the average suburbanite, kid-friendly and eager to please anybody except suspicious strangers. You could say the same about any number of highly efficient cartridges from the .223 Remington to the .375 H&H.

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