

Overpopulating the .458 field

By Pierre van der Walt

In the good old days of African ivory hunters and Indian tiger slayers, the .458" calibre, first introduced to the world by Rigby in 1870 in .450 Rigby Match 2.4" and by Westley-Richards in the .500/450 No. 2 Musket cartridge formats. The next year the British military adopted the .577/450 Martini-Henry as its service cartridge.

African's love affair with the calibre began in 1898 when John Rigby & Co. introduced the .450 3/4" Nitro Express. The cartridge that set the standard against which all other elephant cartridges was measured. Its original ballistics required a 480-grain bullet to be propelled from the muzzle at 2150 fps, and so loaded, it provided pretty impressive performance on the dangerous beasts of the world. During the .450 hey day no other bore's popularity even came close.

.458 WINCHESTER MAGNUM

Then in 1905 the British banned the civilian use of .458" calibres in an attempt to prevent Indian and Sudanese rebels from reloading for the .577/450 cartridge they apparently used against British forces. Logically all the .450 cartridge popularity took a dip. The slide continued until Winchester introduced the .458 Winchester Magnum in 1956. Although the .458 Winchester Magnum experienced terrible teething problems, it soon re-established the .458" calibre as the pre-eminent dangerous game calibre in the world. The main problem with the .458 Winchester Magnum proved to be clogging of the compacted ball propellant used in the cartridge. The clogging caused erratic combustion that resulted in very low velocities. The low velocities affected both penetration and killing power. Although the problem has been sorted out and thousands of elephant successfully culled with it by institutions such as the old South African Parks Board, distrust remains.

The shortcomings of the .458 Winchester Magnum prompted wildcatters and manufacturers alike to experiment with changes. The first modified version of the .458 Winchester Magnum was the .450 Watts.

.450 ACKLEY MAGNUM

Although it is difficult to date exactly, the .450 Ackley Magnum apparently precedes the .458 Winchester Magnum. Based on the full length

.375 H&H Magnum case like the .450 Watts, the Ackley version differs from the Watts in that it has a bottleneck case with a 20° shoulder. Case capacity is however very similar to that of the .450 Watts Magnum and so is performance. For some reason the .450 Ackley Magnum never attracted the attention of any major rifle or ammunition manufacturer, and has lingered on as a fairly popular wildcat. Had Winchester rather used this design for its .458" cartridge, or had Remington adopted it to meet Winchester's entry into the dangerous game market, we would probably never witnessed the proliferation of .458 calibre cartridges we currently experience.

.450 WATTS MAGNUM

The .450 Watts Magnum was developed way back during the late fifties by two residents of Yakima, Washington, USA, Messrs Watts and Anderson. The famous wildcatter, P.O. Ackley first wrote about it during 1962 in Volume I of his *Handbook for Shooters & Reloaders*. The .450 Watts Magnum is a .375 H&H Magnum case fire-formed to tapered straight wall configuration for .458" calibre bullets. That means that apart from its case being 0.0543" (1,38mm) longer at 2.8543" maximum length, the Watts is identical to the .458 Lott in every respect. Sensibly loaded one can achieve approximately 2200 fps with a 500-grain bullet from the .450 Watts Magnum.

.460 WEATHERBY MAGNUM

Although I grew up in a country where Roy Weatherby's theories were and mostly still are scorned, and despite not being a fan of the belted case design, I am a firm believer in most Weatherby cartridges. His designs were sound, and his cartridges work if correctly applied. This said, despite not being a believer in excessive impact velocities.

There are three popular case types for use with .458" calibre cases: the standard H&H belted case, the .404 Jeffery case, and the .416 Rigby

case. Roy Weatherby opted for the .416 Rigby case to which he added a belt for marketing purposes and American tastes. Improving the case and adding a 28° degree shoulder, he effectively created a .416/.458 Belted Improved cartridge way back in 1958 – one that to this day sports more capacity than most contenders. The resulting cartridge, the .460 Weatherby Magnum, is one of the best .458" calibre cartridges ever to have seen the light of day. In fact, from a purely ballistic perspective all subsequent .458" calibre developments have largely been superfluous.

Capable of sending a 500-grain bullet flying from the muzzle at 2650 fps the .460 Weatherby Magnum can be used at that performance level if the hunter is prepared to absorb the recoil associated with such ballistics. Alternatively it can be down-loaded to the performance level of virtually any of its rivals, be it 2 150 fps, 2 200 fps, 2 400 fps or whatever at very moderate pressure levels. It is the most versatile .458" cartridge of all times and having both a belt and a shoulder to ensure proper headspacing, it is not prone to any of the criticisms directed at some other designs.

The problem with the .460 Weatherby Magnum is that it is a massive cartridge that requires a massive action, and that Roy Weatherby kept it as a proprietary cartridge. In Africa this cartridge is however increasingly being recognised for the marvel it is.

.460 G&A

The .460 G&A cartridge is the brainchild of Tom Siatos of *Guns & Ammo* magazine and was created during the sixties as far as could be established. It consists of .404 Jeffery case cut to almost .375 H&H Magnum case length with an improved minimum taper body and a 13°10' odd shoulder. The .460 G&A introduced the idea of using the .404 Jeffery case for .458" calibre cartridges. The problem with the .460 G&A is its shallow shoulder angle and failure to optimise the possibilities of the .404 Jeffery case. Improving it

slightly more and opting for a sharper shoulder would have set a new standard. Even so, the .460 G&A is an excellent cartridge marginally outperforming the .450 Watts and .458 Lott. Colonel Jeff Cooper is a great fan of the .460 G&A Magnum and has for many years been achieving 2 400 fps with 500-grain bullets from a 24" barrel without any pressure related problems to date.

.458 LOTT

I am not sure why the famous (or is it notorious) Jack Lott actually designed the .458 Lott in 1971. He was well aware of the .450 Watts Magnum, which except for a few extra millimeters of case length and bullet grip, is exactly what he recreated under his own name. A .458 Lott can be fired from a .450 Watts Magnum chambered rifle and the .458 Winchester Magnum can be fired from both. Internal ballistics of these two cartridges are absolutely identical when loaded to the same overall length. The .458 Lott is quite popular in Africa, as it is a cheap way to improve a .458 Winchester Magnum rifle to acceptable performance levels. One does however have to extend the magazine of a standard action rifle's magazine box or alternatively opt for a rifle with a .375 H&H Magnum length magazine box. It is often claimed that the .458 Lott provides 2400 fps

with a 500-grain bullet from a 24" barrel. Not at safe pressure levels though. The .458 Lott is a 2 200 fps cartridge with 500-grain bullets – and that is all you need. Both Hornady and Kynoch now load ammunition for the .458 Lott and that may boost its popularity even further.

.450 DAKOTA

American pilot and custom gunmaker Don Allen launched his Dakota M-76 bolt action rifle design and the proprietary range of Dakota cartridges during 1987. The .450 Dakota is based on the beltless .416 Rigby case and can for all practical purposes be considered a beltless .460 Weatherby Magnum. This provides hunters that prefer belted cases to pick the Weatherby cartridge, and those that dislike belts with the opportunity to use the .450 Dakota. The .450 Dakota is marginally shorter and capacious than the .460 Weatherby Magnum. Handloaded one can all but duplicate .460 Weatherby Magnum loads, but in factory format it is loaded to 2 450 fps with 500-grain bullets. That is more than most hunters can handle comfortably and everything needed to reliably slay this planet's mightiest beasts.

.450 RIGBY RIMLESS MAGNUM

In June 1993, the then owner of John Rigby & Co, Paul Roberts, conceived the first new Rigby

cartridge since 1928 while hunting in the Zambezi valley. Like the .450 Dakota, the .450 Rigby Rimless, which was commercially released in March 1994, was based on the original .416 Rigby case. In this instance, by necking the .416 Rigby up to .458 calibre. Rigby's idea was not to duplicate .460 Weatherby Magnum performance levels, but to provide a .458" calibre cartridge that would deliver around 2 400 fps at low pressure and manageable recoil with a 480-grain bullet. Although both are based on the .416 Rigby case, and despite them having basically the same case capacity and delivering virtually identical ballistics, the .450 Dakota and .450 Rigby Rimless cartridges are not interchangeable. In practice there is nothing to choose between these two cartridges.

.450 MAJOUR

Aware of the .450 Rigby Rimless, but unaware of the .450 Dakota, South African custom gunmaker Jurie Majoor envisaged a shortened version of the .450 Rigby Rimless that could function through a standard length action and deliver a muzzle velocity of 2 250 fps with 500-grain bullets. The first prototype was finalised during 1995, but it went through another two phases of modification before Jurie was satisfied. The final version of the .450 Majoor uses a 62mm (2.4409") length case



L-R: .450 Dakota, .458 Winchester Magnum, .460 G&A, .577/450 Martini Henry, .460 Weatherby Magnum and the .458 Sabi.

and provides the 2 250 fps of muzzle velocity Jurie Majoor set out to achieve from a standard length action. The only drawback of the .450 Majoor being that it requires extensive modification of the standard Mauser magazine box, bolt face and feeding ramps to hold enough cartridges and feed reliably enough to be practical as a dangerous game rifle. It is as costly a cartridge to opt for as the .450 Dakota or the .450 Rigby Rimless.

.458 EXPRESS (3")

For Africans the cost of rifles and cartridges are always a serious consideration, because of exchange rates and import duties. Any rifle therefore costs an African hunter proportionally considerably more than it costs foreign hunters. Often 3–4 times as much.

The high pressure requirement shortcoming of the .458 Lott and .450 Watts Magnum was not missed by African ballisticians, but neither was the problem of obtaining reliable and affordable sources of .404 or .416 cases. The idea of a stretched .458 Lott/.450 Watts Magnum was therefore conceived by men like Ken Stewart and Prof. Koos Badenhorst. It would be a cheap way to enhance .458" calibre performance without laying out too much money. The first person to turn it into reality was Badenhorst, current vice-president of the Big Bore Association – Southern Africa (BASA). In 2000 his 3" long straight-walled, belted .458" cartridge was proofed and proved to be a success. This overgrown .458 Winchester Magnum delivers a consistent 2 250 fps with 500-grain bullets. Cases are available in South Africa from PMP, OPM and Prof. Badenhorst. This presents a bit of a problem, but instances like MAST Technologies in the USA and Bruce Bertram in Australia should also be able to provide basic brass at reasonable cost.

.458 RIMLESS AFRICAN EXPRESS

Just like the .450 Majoor was conceived to adapt the .416/.458 concept to standard length actions for African affordability, so the .458 Rimless African Express was conceived to adapt the .460 G&A Magnum concept to such actions for the same reasons.

The first standard length .458 cartridge based on the .404 case was the shortened version of the .460 G&A Magnum, called the .450 G&A Short Magnum. The .450 Howell followed much the same pattern. Although the .458 Rimless African Express, or .458 Rex, it is also often referred to, therefore does not constitute novel thinking, it is the most practical of all the short cartridges based on the .404 case.

In the first instance it has a case length of 67,3mm (2.65") with a neck-equaling bore diameter. The case length and neck combination enable the hunter to load a 500-grain bullet to an overall cartridge length of 84,8mm (3.34") so that it fits a standard action's magazine box. In

this configuration it sports the same combustion area as the .450 Majoor and the belted .458 Express – consistently delivering 2 300 fps from 24" barrels at acceptable pressure levels. Designed for dangerous game use, the cartridge had to consider the use of long homogenous solids. The case length is such that homogenous solids can be loaded to standard overall cartridge length and still deliver 2 200 fps (exceeding original .458" calibre standard), alternatively it can be loaded to the same length as the .375 H&H Magnum length of 91,5mm (3.6"). Either the hunter would have a rifle with a magazine box capable of accommodating it, or, alternatively it only requires the same magazine box modifications a .458 Lott or .450 Watts Magnum would require. So loaded, the cartridge equals the original .460 G&A Magnum concept with lead core solids and still delivers 2 200 fps with homogenous bullets.

The cartridge is of improved modern minimum body taper design with a 35° shoulder. Even though it sports a minimum taper body, it is not so improved that it compromises feeding reliability. The sharp shoulder is in line with modern cartridge design and combustion efficiency.

Another aspect where the .458 Rimless African Express outshines .416 case based cartridges is that it does not require the same extensive level of magazine box modification or replacement to hold an acceptable number of cartridges.

.450 VINCENT

The .450 Vincent is a Zimbabwean development by gunsmith Roy Vincent. The .450 Vincent is a 64mm (2.53") version of the .450 G&A Short Magnum and sports less capacity than the .458 Rimless African Express. Loads claimed for it exceed 2 400 fps and if that is the case, the slightly larger capacity .458 Rimless African Express should be able to exceed that, but I have my doubts as to these claims and would like to see the Vincent deliver same in the Zambezi Valley on a hot and humid summer day.

.458 SABI

The fact that South Africa is the source of origin for more new .458" calibre cartridges than any other place in the world is indicative of the increased level of big bore and dangerous game hunting in this part of the world.

Another interesting .458 development is that of the .458 Sabi. The .458 Sabi is based on the .500 Jeffery case necked down to .458" calibre. Fitting a standard length action it does require some extensive magazine box modification or replacement to optimise magazine capacity of the massive based .458 Sabi cartridge. Otherwise it does however follow the same principle as virtually all the other African .458" calibre developments bar the .458 Express – compatibility with standard length actions and

magazine boxes. It is capable of firing a 550-grain bullet at 2 250 fps and 500-grain bullets at 2 400 fps at moderate velocities. Excellent performance levels for a .458" calibre cartridge. The 550-grain bullet in particular should increase .458" performance reliability.

The only shortcoming of the .458 Sabi being the cost of customising and components; but all in all it represents an excellent concept.

.460 SHORT A-SQUARE

This cartridge which was conceived in 1976 is nothing but a shortened .460 Weatherby Magnum. It is capable of delivering 2 400 fps with a 500-grain bullet from a 26" barrel and in reality performs comparably to the .460 G&A Magnum from 24" barrels. It is too long to fit a standard length magazine box without modification, and the conversion from .458 Winchester Magnum to .460 Short A-Square has apparently never been a happy one. Rifles require rebuilding from scratch. The .460 Short A-Square has never been particularly popular in Africa.

From the above one can see that about 14 fairly popular .458" calibre cartridges currently compete in the field – almost a third of which are of African design. Apart from the .458 Express, all the other African designs are designed to fit standard length magazine boxes and actions. Clearly there is some message in that to the world.

The calibre works in Africa. Compactness and short bolt cycling are considered important by African dangerous game hunters, and so is magazine capacity and ease of conversion. All the African designs clean the standard .458 Winchester Magnum chamber out and all deliver performance in excess of 2 150 fps, but do not exceed 2 300 fps when loaded to responsible pressure levels. It is obvious that the African designs all opt for a compromise between velocity (recoil), handiness and quick follow-up shots – rather than sheer killing power.

The lesson has been learnt time and time again that all the killing power in the world directed at the wrong spot is useless, and that when the chips are down it is far better to get more moderate but effective shots going, than a singular ill-delivered discharge of excessive power.

In my book, the royalty of .458" calibre (belted) cartridges is the .460 Weatherby Magnum, and the .458 Rimless African Express (.458 Rex) amongst the beltless versions. The .450 Dakota only ousted because of length and girth.

One thing is obvious: we have more .458" calibre cartridges than we need – especially if rimmed versions are also included in the equation.