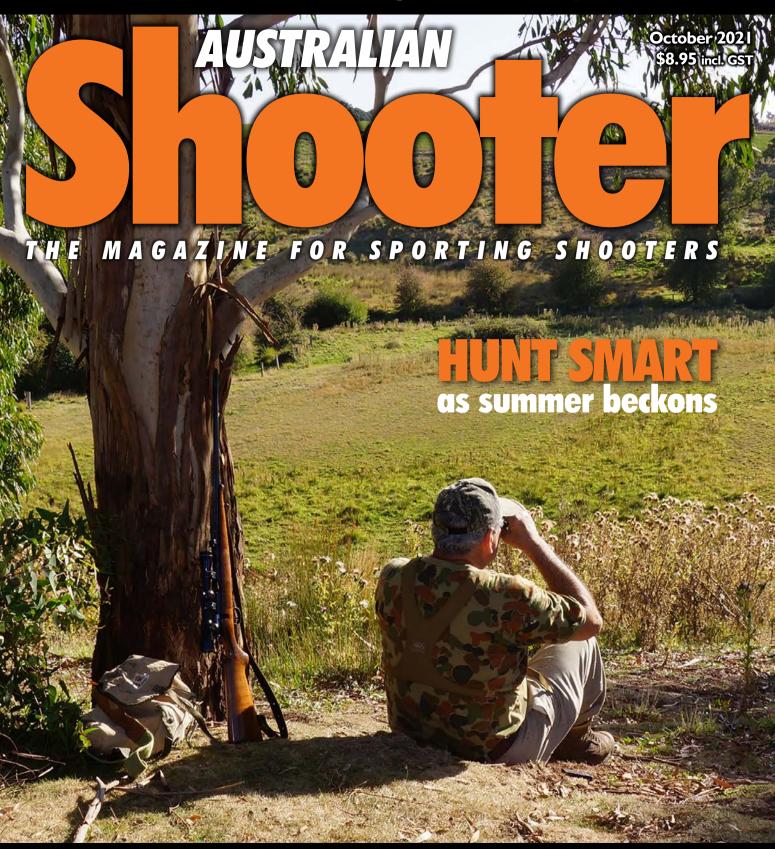
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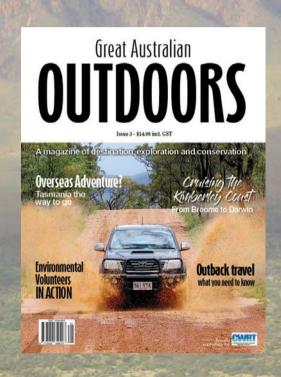




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FIREARMS

- 18 Tikka T3x Varmint Hunter the evolution continues
- 24 Howa Carbon Fibre Stock exudes sheer consistency
- 48 Wesson's two-trigger carbine the unique single shot
- 68 Staying power of the evergreen MP34

HUNTING

36 My Most Challenging Hunt

PRODUCTS

- 64 Nightforce ATACR a joy to behold
- 72 Don't stand out from the crowd
- 80 Set your sights on GPO Rangetracker

AND MORE

- 30 Farmer Assist... with a twist
- 42 Flying solo on Lithgow restoration
- 46 In search of the ideal bullet jump
- 52 Roof-mounted spotlights are you doing the right thing?
- 54 Don't fear the recoil
- 56 Fifty years with the 22-250
- 60 Hunting bullets... fit for purpose
- 76 Hunt smart under the sun

REGULARS

- 6 National News
- 7 Letters
- 7 Insurance Q&A
- 8 Open Season
- 10 Bushcraft & Survival
- 12 Clay Target Q&A
- 14 Top Shots
- 84 Competition News
- 86 SSAA Shop
- 89 Members-only Competitions
- 90 Jumbunna



Our October cover See page 76

NEXT ISSUE



The Remington V3 Field Sport 12-gauge shotgun so impressed our reviewer John McDougall that not only does his give it a five-star review, he liked it so much he opened his wallet and bought one! Our 'Most Challenging Hunt' series continues with Sam Garro on the trail of crafty boars in the floodplains of the Northern Territory where wasps, mosquitoes and underfoot conditions all made for a true test of his perseverance.

The Chiappa 1886 TD Wildlands lever-action rifle reinvents a respected classic in a modern take which delivers results and even shooting offhand without a rest, our reviewer put his bullets in a one-inch group every time.

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EDITORIAL INQUIRIES

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208,098 members strong as of August 202 as of August 2021

This magazine is owned and published by the Sporting Shooters' Association of Australia Inc. Opinions expressed herein are those of the authors and do not necessarily reflect the policy of this Association.

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National News

Work ongoing to solve firearms transportation problem

n response to the refusal by several freight companies to transport firearms and ammunition without any discernable reason, SSAA National along with the firearms industry has been working to secure a long-term guarantee from other providers in this area. Freight company TNT, which was bought out by US-owned FedEx in recent years, announced with little warning and no consultation it would stop servicing the multi-billion-dollar firearms industry in Australia in July.

Our recreational shooters, the wider firearms industry, farming groups and veterinary associations have essentially been abandoned in their legitimate need to access these items. Nationals Senator for Victoria, Bridget McKenzie, has aided our efforts by instigating an industry meeting with Australia Post Acting Chief Executive Officer Rodney Boys.

Senator McKenzie is a staunch supporter of firearms ownership in Australia and is to be congratulated for her assistance in this matter. Meetings with SSAA National, relevant industry groups and senior Australia Post staff are continuing to ensure there are options for firearms and ammunition transport into the future and we'll report back to members when more information becomes available.

In brighter news, Australia's Paralympic shooting team shared the limelight on the world stage this past month in Tokyo. While Western Australia's Anton Zappelli and Queensland's Natalie Smith and Chris Pitt put in valiant efforts, they fell short of making the finals for their events. International coverage of our sport is fantastic for all involved, especially as viewers can see people of all abilities competing on an even playing field. SSAA's own para Trap shooter and flagship ambassador Scottie Brydon is always keen to share the message that target shooting caters to participants of all ages and abilities.

Rolling lockdowns continue to impact much of our country as authorities attempt to control rising COVID-19 case numbers. The SSAA and its state members. ranges and clubs are with you in spirit and we encourage those who can to have the vaccination. For those with genuine health concerns or queries around their vaccination options, please speak to your doctor and make an informed decision. Our path to unlocking the gates to our ranges appears to be resting on vaccination rates and we all want to be back on the firing line as soon as possible.



SSAA - Protecting shooters since 1948

A burning issue

THANK YOU FOR an amazing magazine - I always look forward to my next issue of Australian Shooter. I especially enjoy articles on the past, ie, military weapons and stories and was most interested in the one by Dick Eussen 'The remarkable TOZ revolver' in your April 2021 edition.

Although I'm not a pistol owner I was drawn to the black and white photo of Russian military officers, so read on. The lower left picture on P38 intrigued me, the TOZ 36 with hammer pulled back in the cocked position. I noticed the trigger is resting against the rear of the triggerguard as though the gun has been fired and always thought in a single or double action, when the gun is cocked, the trigger would be positioned in the 'centre' of the triggerguard ready to be 'pulled'.

While the article is well written and I now have a good understanding of the design of the TOZ revolver, under the subheading 'In search of accuracy', the author describes the TOZ 36 chambered for the 7.63 Nagant Largo cartridge "... the same principle of harnessing all available gas the powder explosion formed".

As we in the shooting sports know, powder doesn't explode, it 'ignites' causing a fast burn and the gas to quickly expand and do the job it's designed for. Had the powder exploded the revolver would have blown up.

Bob Meldrum, via email

Russell right on the Mark

I AM COMPELLED to write and congratulate your columnist Russell Mark on his Olympic Games comment piece (Shooter, September 2021). As an Olympic gold medallist himself I can't think of anyone better placed to sum up the state of elite shooting in this country.

I was stunned to learn that Shooting Australia now has more administrative staff than we had shooters in Tokyo - that imbalance has to change if the funds required to breed our next generation of internationalists are to be directed in the right areas. As he pointed out, the complexities surrounding selection policies must be simplified to encourage young and up-andcoming talent to stick with this great sport. Well said Russell Mark.

George Roberts, via email

Vintage at your fingertips

BRETT BLENNER-HASSETT'S TOP Shots question regarding his Winchester rifle caught my attention (Shooter, April 2021). I have the same 1890 Model (serial number 200846) and was able to



identify the year of manufacture as 1904 from my handy little book (see photo) which is a good guide to establishing the vintage of Winchester firearms.

John Stewart, via email

SSAA insurance: It just makes sense

I JUST WANTED to drop you a line and tell you how good the insurance is the SSAA provides through membership. I recently made a claim which was somewhat tricky as it involved a shotgun I'd sold. The process was painless, the people I dealt with supportive and helpful and the claim was handled very professionally and quickly. I can't recommend this insurance highly enough.

Mark Welsh, via email



Insurance Q&A with Trevor Jenkin

Send questions to: insurance@ssaains.com.au

Q I have water damage and flood damage covered under my home and contents policy. Do I need both?

Wayne Malcolms, via email

A Water, whether caused by a flooding river, burst pipe or storm can cause extensive damage to your home, contents and other assets, so it's important to understand the different types of floods and other water-related events and how they may be covered under your insurance policies. For example, the standard definition of flood in Australia is 'the covering of normally dry land by water which has escaped or been released from the normal confines of any lake or any

river, creek or other natural watercourse, whether or not altered or modified or any reservoir, canal or dam'.

Even if your policy excludes flood damage it may still cover you for events such as storm or rainwater damage. Storm or rainwater cover in your insurance policy may include a situation where your house becomes inundated by rainwater which has fallen naturally from the sky, and while most insurers regard rainwater runoff as part of storm cover, some will not cover rainwater runoff or storm surge when the customer chooses not to take flood cover. These options are explained in the product disclosure statement of your policy.

Flood insurance is often built into a range of insurance policies including home and contents, strata title, motor vehicle and business insurance. The risk of a flood occurring is reflected in the cost of the premium - property owners with high flood risk will pay a higher premium than others. Feel free to call our office on (08) 8332 0281 and talk to one of our brokers or visit www. ssaaib.com.au.



The advice offered in this column is of a general nature and does not allow for individual situations. SSAAIB recommends that you obtain professional advice before proceeding with any insurance investment. SSAAIB accepts no liability for any actions by an individual to change their insurance plans without seeking professional advice.

Let's learn from Kiwi plan to fund hunters in help with pest management

n my discussions with wildlife management stakeholders at both state and federal level, I always tell them responsible hunters are ready and willing to participate in pest management and authorities shouldn't be scared to empower them to do so. The reality in Australia is this empowerment is a rare occurrence because, outside of coordinated group culling programs, people seem to think general recreational hunters are more a hindrance than a help.

Last month I reported on a tahr control program in New Zealand in which hunters were given the chance to be part of the overall strategy to reduce large populations. Now it seems the NZ government is giving hunters even more empowerment by providing funding to train recreational deer hunters to hunt better and help reduce deer populations to protect forests.

Online news site *Newshub* reported the government across the ditch was investing \$700,000 into training the country's recreational deer hunters, the money coming from a pool of \$34 million allocated under the Jobs for Nature program - the most money recreational hunting has been given by the government. New Zealand's Conservation Minister referred to the initiative as an exciting partnership between the Department of Conservation (DoC) and the hunting community.

A DoC spokesperson said they plan to create 14 jobs to provide training and upskilling of newer hunters in particular. The New Zealand Game Animal Council will run an online training program and the NZ Deerstalkers Association will teach

practical skills (the first time deerstalkers have been provided with significant funding). This situation is much different to a few months ago when the relationship between hunters and the DoC was strained over the proposed mass culling of tahr in some areas. Since the recent announcement to involve hunters in the management of tahr and now this new partnership, the signs are certainly encouraging for hunters and hunting groups.

New Zealand Deerstalkers Association sees this partnership as long overdue as Kiwi hunters have been contributing substantially to biodiversity outcomes due to their high use of public land and forests without hunters removing deer from forests their numbers would just keep rising.

The West Coast regional conservation manager says everyone agrees there are too many deer and they need more hunters out in the forests to control their numbers. Keen hunters will see the funding on offer as a chance to upskill while contributing to conservation and filling the freezer at the same time. While most hunters have been able to learn a lot from friends and family, videos, books and online information, there's always room for improvement regardless of skill levels and this opportunity for training is clearly a good thing.

At the moment, Australia is working towards developing a National Action Plan to reduce the spread and impact of wild deer in this country, so hopefully this document will help guide government authorities and local agencies to work towards finding ways to also empower hunters to become more involved in controlling



New Zealand is empowering hunters in the control of deer numbers.

the numbers. New Zealand has battled to manage increasing deer populations longer than Australian authorities, so they're one major step ahead of us.

In Australian states where deer have game status we can at least gather data on their harvest by recreational hunters. We know Victorian hunters take approximately 200,000 a year and it wouldn't be amiss to think the hundreds of thousands of hunters outside Victoria will take at least 200,000 more. That's a lot of deer removed from the landscape and makes hunters a major stakeholder in the control of these animals - a stakeholder which should not be ignored.

Send questions to:

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Stay connected with the appropriate 'comms'

roups of savvy hunters usually carry some form of reliable communication equipment which can be especially useful when stalking game and in many other situations. Compact hand-held radios of the kind called 'two-ways' are both easily portable and inexpensive, so their use is spreading.

It would be remarkable if, on the way to your favoured hunting site, you didn't pass an SUV towing a caravan with a sign in the back window reading: 'Stan and Shirl - Channel 40' or similar. I assume these signs are an indication you should feel free to call Stan or Shirl and have a convivial chat, which is perfectly fine if it can be done safely.

There's no doubt that occasionally, vehicle-to-vehicle communication can be particularly useful if one driver can, for example, give warning of an approaching road-train on a narrow and poorly-edged section of road - and there are many narrow single-lane roads in the more remote parts of this continent.

My preferred option when travelling on such roads, whether being followed by some huge stock-carrying triple or seeing one approach, is to pull right off the sealed portion and stop on the shoulder wherever I can escape any flying stones thrown up by the extensive parade of passing tyres and wait until all danger has passed before proceeding.

However, as useful as the hand-held twoway is, there are a few traps to avoid if you decide to use it on a random channel. Occasionally, stations which are mustering will need to call their ground team or a mustering helicopter on a channel well known to all pastoralists in the region, but with which you're not familiar. In a situation where this might occur it's best to be cautious unless vou're familiar with how the channels are being used locally.

Often a roadhouse, police station or even a hotel may know which frequencies are used by local stations and will have information about who's mustering or otherwise using hand-held radios for important station work. None of us would want to interfere with regular station activities or make matters more difficult for landholders who may be struggling for one or another reason.

Next year, hunters may want to go after goats on that station and we want all station owners to know responsible hunters care about their situation and the problems they encounter running those stations. Checking whether one of what we might consider a little-used channel on our 'hand-held' actually is unused in that area could save you from being on the end of a few angry words from the locals.

Sometimes when there are roadworks over an extended length of a country road, the channels in use by crews are advertised on signage near the extremities of the works and it's only good manners to avoid those channels except in an emergency connected with the works themselves.

Radio communication while hunting in the scrub is not the sole reason for staying connected that I was considering for this article. It could be lifesaving to have left a



detailed written description of the location of your hunt with a responsible person, along with an estimation of when you might be expected to return. This is a precaution that's mandatory in most National Parks and other public lands but is often neglected when hunting on private property.

If you lodge a verbal description with a station owner or other responsible person, be sure to let them know when you're leaving the place. I've never been too concerned about others knowing where I am, but if you do want to be secretive about your favourite hunting spot you could always use a sealed envelope clearly marked with a final date for opening. For obvious reasons don't make that date too far into the future.



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I'm confused about how long the stock of my shotgun should be. I've watched a few videos and looked on the internet but there doesn't seem to be a definitive answer. I'm a guy of fairly normal build and 180cm tall. Any help appreciated. Perry Rose, Vic

The reason there's no definitive answer is simple - there's no definitive answer. The required length of your stock has many variables, your height and arm length certainly being one of them but this is just one of many issues we must factor into the equation. Length of pull is measured from the middle of the trigger to the back of the recoil pad in three different positions. At the top of the pad the length of pull is called 'length at the heel', centre of the pad is 'length at the mid' and bottom of the pad is 'length at the toe'. The difference between length at heel and toe form the 'pitch' of the shotgun.

You say your height is 180cm and this is probably considered normal by the world's firearm manufacturers with their stocks made accordingly. As a general rule (and it's very general) a standard stock 'out of the box' will roughly cater to someone of your height and its length measurements are likely to be around 375mm at heel, 372mm at mid and 380mm at the toe. This forms a good starting point . . . but there's a lot more.

What you intend using the shotgun for will be by far the most determining factor. If shooting Trap for instance - or any discipline where the gun is pre-mounted to your shoulder when you call for the target to be released - you can generally opt for a longer stock as you have the advantage of not needing to rush your gun mount. This can make you more precise in your mount and sometimes a longer stock can aid this. If solely using your shotgun for field shooting



when it must be quickly pre-mounted from a starting position where the stock may be down around your hip bone, a much shorter stock will greatly aid this.

Another very general rule you should try to follow is regardless of what you're using your shotgun for, when the gun is mounted to your face at the position where you'll ultimately pull the trigger, your nose should be about 25mm behind your thumb that's holding the firearm at its pistol grip. Again, I stress these are general rules but good starting points.

Sadly there are no standard sizing charts for shotgun stock lengths as the way everyone mounts their gun, the length of your arms and of course the gun's intended use are so widely varied. I always ask a new shooter who needs a custom-made stock built to have its length of pull measured with an 18mm recoil pad fitted, thereby giving flexibility to try a 13mm or 23mm pad as their technique evolves over time. The shorter pads always come in handy during winter months where you tend to use a few

more layers of clothing for warmth, which will in effect make the shotgun feel longer.

A separate topic altogether is measurement of the shotgun's grip which has nothing at all to do with length of pull. The grip will determine where your hand and, more importantly, your trigger finger positions itself. For shooters with very large or small hands, buying a shotgun with an adjustable trigger can be most beneficial to help aid perfect gun fit.

There are a multitude of custom shotgun grips on the market now but to have that discussion here will open a whole new can of worms. Again, as a general rule the grip is measured from the middle of the grip's palmswell to the middle of the trigger. For a typical male with average-sized hands this is normally around 100mm but remember what they say about

guys with large hands - they need a bigger stock.

Questions to: Russell@GoShooting.com.au





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Got a question - ask our TOP SHOTS



• John Dunn • Paul Miller • Greg Riemer • Geoff Smith • Barry Wilmot

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Reading Steve Hurt's great article about muzzle brakes (*Shooter*, July 2021) had me thinking about the whole ballistic chain in relation to the next phase. Reason being, one obviously effects the next so if the internal ballistics are poor the transitional will be poorer etc. As you can see in the picture, the first 3 CF rounds are only partially filled with powder which is fine while reloading in a vertical press but in the firing position the round is horizontal.

My question is: Will a fuller case produce more evenly-applied pressure to the rear of the projectile enabling a truer, more parallel engagement of the lands thus making it a better, more accurate and consistent round? (I'm ex-artillery so the M777 and M198 'bad ram' drill is a good example).

Andrew Cox, via email

What you're asking about, Andrew, is known as 'load density' and is simply the ratio of the cartridge case capacity and actual amount of the case filled with powder. In practice, densities of about 85 per cent are ideal and a check on some of the most accurate factory ammunition showed this figure varied between 80 and 90 per cent. Some rifle shooters believe 100 per cent densities or even compressed loads can produce very accurate loads but this may result in excess heat and cause barrel wear.

Barry Wilmot

I understand the 1901 Harrington and Richardson single-barrel shotgun was not originally fitted with a safety device to prevent unintended discharges from hammer slips. I believe it was only some years later one was fitted. Is anyone able to tell me the year these devices were fitted?

Rob Martin, via email

The Harrington and Richardson single-barrel shotgun has been an extremely popular gun found in virtually every farmhouse in Australia. Extraordinarily strong, simple and well-made it's a design which has been widely copied and while many shooters will be aware of the gun, most may not realise there have been a vast number of minor changes made during the course of the past 120 years.

I suspect the 'safety device' you mention is a form of transfer bar arrangement which ensures the trigger must be pulled before the hammer's impact can follow through to the firing pin. This change required the lower section of the hammer to be milled away. I searched the Gun Parts Corporation website to determine which models this applied to and it appears to have been introduced with the Topper Model 48, made between 1943 and 1957. To my knowledge it has remained in the other 22 models which have since followed.

Having said that, even the original 1900 model (patented in 1901) has a 'safety notch' in the hammer, meaning even if the hammer is thumbed back (say by being caught on something) with the trigger in its normal position, this should make unintended discharge from 'hammer slip' impossible.

Geoff Smith

I'm keen to try SSAA 5-Stand clay target shooting and wonder what the best shotgun and choking is for this discipline. I inherited my father's old Browning Trap gun with very tight chokes and wonder if I could use that at a pinch.

Michael, SA

Lucky you, Michael, inheriting your father's Trap gun - especially an old Browning. They're great shotguns and many have lasted several generations so hopefully it'll end up with your son or daughter one day. SSAA 5-Stand Sporting is a clever way of providing a great number of varied targets in a relatively small area and is only limited by the course-setters and their ingenuity and imagination. It can become a bit addictive and because it's relatively quick to shoot, you often find people squeezing in a couple of extra rounds in a day of fun shooting.

A Sporting Clays shotgun with screw-in chokes and 30" barrels is the best medicine for this game as it gives you the chance to assess the targets and decide on whether it's a predominantly close layout or if there are sufficient longer targets to warrant tighter chokes in one or both barrels.

Your father's gun was designed for Trap shooting where targets are rising and fast departing, that's why it has tight chokes to cope with the longer range of first and second barrel shots. Your gun also probably shoots its patterns high to allow for keeping the target in sight and pulling the trigger when the bead hits the bottom of the clay. The elevated pattern of your gun then allows for the time lapse between pulling the trigger and the target breaking a moment or so later when the elevated pattern hits the target as it is rises to its peak.

Sporting Clays or 5-Stand is better suited to a flat-shooting gun as you rarely have time to call for then assess a target and allow for a high-shooting shotgun. Today, most lower-stocked Sporting or Field guns shoot patterns about 50/50 or 60/40 above and below the point of aim when patterning. Start with more open chokes like Skeet and quarter and see how you go. Most ranges are set with targets which are pretty close-it's the variation of flight path that can trick you rather than distance.

Paul Miller

Last year I bought a Tikka TAC
A1 with 1:8 twist chambered in 6.5
Creedmoor. Our club range caters
for 100 and 200 yards, 300 and 500m and
the accuracy of the Tikka at those ranges is

great. Recently my two brothers and I set up a large target on the farm and fired away at 1000m.

To my disbelief some of the impacts clearly indicated key-holing - my bullets were tumbling. How could this be as there'd been no indication of this at ranges out to 500m. The target was brought in to 850m and still some tumbling with overall accuracy just terrible, as I'd expected dinner plate-sized groups. Conditions at the time were about as ideal as you could ask for.

The load was Hornady 130gr ELD-Match in front of 41.8gr of AR2209, Starline brass, small primers. Muzzle velocity, while not actually measured, is estimated from ballistic calculators at 2800fps, so at 1000m should be around 1360fps, still well above the trans-sonic zone where instability can occur.

Stability calculators indicate these 130gr bullets should be very stable at 1.9. Even longer 140gr and 147gr ELDs are commonly used in TAC A1s at long range, though it's obvious instability is occurring at a point in flight where you'd normally expect increased stability. I'm not sure what to do - maybe shorter 120gr ELDs would be more stable. Any suggestions?

Craige McKee, NSW

Tumbling projectiles are not unheard of, especially over long distances. Needless to say it's all a matter of bullet stability or, more to the point, lack of it. Many shooters believe driving the bullet harder, increasing the rate of spin thereby its gyroscopic stability is the answer to the problem.

Good quality bullets launched from a barrel will quickly go to sleep, that is to say any pitching or yawing the bullet may experience as it leaves the muzzle will quickly dissipate. As the bullet's forward velocity slows down with distance, the rotational speed does not decrease to the same extent and so the gyroscopic stability actually increases over its flight.

But other things affect the bullet's flight, not to mention environmental factors. As the bullet slows down and approaches the trans-sonic part of its trajectory (around

1300fps) other forces come into play. While most quality bullets handle the transition to subsonic flight well, sometimes bullet design contributes to loss of dynamic stability. It's widely known certain target projectiles perform extremely well out to around 700m but are prone to become unstable after that, regardless of how hard they're driven.

And there's another theory that a bullet spinning excessively quickly can be overstabilised, so when the bullet drops on the downrange leg of its trajectory, it remains in the same nose-high orientation as it left the barrel, rather than trace the flight path which in turn presents more surface area to the airflow, causing increased drag (think of the nose-high attitude of an aircraft as it comes in to land).

There's no easy solution to your particular problem other than to continue experimenting with different brands and weight of projectiles. There are ballistic tables around which can help match bullet to twist rate to achieve the correct rotational stability factor (or Sg). While this can be calculated and is predictable, what happens to a bullet further down range is not so.

Rod Pascoe

I bought this old double rifle for \$1200 in Toowoomba in the late 1980s and would appreciate any information. The maker's name seems to be Fred T. Baker and there's a date in Roman numerals on the triggerguard (1886) along with 500 BPE under the barrels and a few other numbers.

The action is still tight although the bores are a bit pitted and it shows normal wear and tear for a firearm this age. I had a bullet mould made and the projectiles weigh just over 500 grains. I put about 105 grains of black powder in the 31/4" shell, which is

about all they'll take. My best effort has been two wild pigs running across me at about 40m with a left and right.

Jon Murphy, SA

Your photos don't show the proof marks on the firearm so I'm assuming the rifle is not a Belgian knockoff trading on an English gunmaker's name but my research came up with the following. Frederick Thomas Baker was an English gunmaker who operated from around 1858 to the early 1900s. In the material I've been able to dig up on him he had three different addresses: 88 Fleet St, London; 21 Cockspur St. Pall Mall and 29 Glasshouse St. London.

Baker was highly regarded as one of the best second-tier gunsmiths of his era, noted for his fine double-barrel shotguns built on side-swing underlever and side-lever actions in both hammered and hammerless configurations. All the illustrations I found of his guns had abundantly engraved receivers and 'Frederick Thomas Baker' on the top rib.

I could find no mention of him having made double rifles but that's not to say he didn't do so. The .500 BPE 31/4" cartridge was loaded by a number of makers including Kynoch, Eley and Holland & Holland with bullet weights including 340gn and 380gn loaded with 136 grains of black powder, 440gn with 117 grains of black powder and 480gn loaded with 136-142 grains black powder (Fleming, British Sporting Rifle Cartridges, pp 142-143). Hope this helps.

John Dunn

· If any readers feel they can shed further light on the gun, email us at edit@ ssaa.org.au





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Tikka T3x Varmint Hunter

the evolution continues

Con Kapralos

t could be said the Tikka T3x would rate as one of the most popular and best-selling centrefire rifles on the Australian market. Distributed by Beretta Australia, the Finnish-made Tikka T3x includes countless models and variants in a wide array of calibres. You might even think there were no more niches that Sako's Tikka T3x would need to fill.

Beretta Australia has listened to what Aussie hunters and shooters have been telling them and the demand for a Tikka T3x with varmint barrel and wood (walnut) stock has been constant, so they've released such a rifle in the T3x Varmint Hunter. Available in eight calibres and two metal finishes (matte blue and stainless) all with 600mm (23.7") barrels, this rifle is delivered squarely for varmint or longrange hunters who shoot from stationary positions (vehicle, ground blind or prone) or for the popular Precision Rifle Shooting (PRS) discipline.

Beretta Australia sent Australian Shooter the new T3x Varmint Hunter in .223 Remington together with a Burris Signature HD 3-15x44 riflescope in Tikka ring mounts and ammunition from Sako and Sellier & Bellot. The rifle sports a fast twist one-in-8 barrel, perfect for stabilising the longer and heavier .224 calibre projectiles yet it certainly isn't a stalking firearm, its bare weight of 3.91kg meaning you wouldn't carry it around hill and dale all day.

Barrelled action

This is the standard unit found on all T3x models, 225mm long by 31mm wide and is of a turn-bolt repeating action with 70-degree bolt throw. The receiver body is slab-sided with five flats giving it a rather stout appearance with rounded underside. The ejection port with its widened angular format allows for easier singlecartridge loading when required, while

also benefiting ejection of fired and unfired cases. On the opposite side of the T3x action a small gas port is evident to assist with venting hot gases from the chamber and to the rear of this is the well-proportioned bolt release button.

Top of the receiver houses the integral milled dovetail with additional holes drilled and tapped into the flat to allow fitment of other scope-mounting hardware such as a Picatinny rail or two-piece ring bases, a vast improvement on the old T3 format. The barrel is what was makes this rifle a standout and for the .223 Remington calibre it's profiled as you'd expect - a varmint barrel. It measures 29mm at the knox-form and 22mm at the muzzle with a concave crown ensuring accuracy, the barrel being of a matte blue finish which complements the rifle overall.

This particular barrel is cold hammer forged from highest grade chromiummolybdenum steel, sporting a one-in-8 rate of twist. It's attached to the action by a sturdy thread and while many manufacturers have opted for other methods of mating barrels to actions to cut costs, Tikka still opts for a threaded barrel and action with no locking nut. The barrelled action is finished in a lovely matte blue with a stainless steel version also available. Both metal finishes are available in all eight calibre options in the T3x Varmint Hunter .223 Rem. (one-in-12 and one-in-8 twist), .22-250 Rem, .243 Win, 6.5 CM, 6.5 PRC, .270 Win, .308 Win and .300 Win Mag, all of them offered with the 605mm (23.8") varmint profile barrel.



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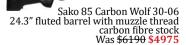


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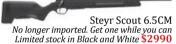
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Tikka T3x Varmint Hunter - the evolution continues

Bolt, safety and trigger

One of the best with the opposed locking lugs, a spring-loaded plunger and claw extractor making for superior lock-up and effortless extraction and ejection of fired or unfired cases. The bolt body is of highly polished steel which gives it that silkysmooth operation, the bolt handle also polished and with a slightly swept back design and round knob which feels comfortable in the hand. To the rear of the bolt. a blued alloy bolt shroud replaces the old polymer unit of the T3.

The safety mechanism on the T3x uses the standard two-position sliding lever just behind the bolt notch and on cocking the rifle, the lever can be slid to the rear to block the trigger and lock the bolt handle down, the cocking indicator visible from the rear of the bolt shroud. Pushing the safety lever forward, a small red dot appears at the rear of the lever to indicate the rifle is ready to fire, this two-position safety a simple but ultra-reliable system which works well.

The trigger mechanism is good for a hunting rifle and set at 1.5kg. Some users may prefer a lighter pull and it can be adjusted, though I found the set-up to my liking. The trigger blade itself is metallic with a curved profile and ribbed surface, the triggerguard, magazine housing and magazine all made of high-strength polymer.

Magazine

This houses 10 rounds in a single stack configuration and delivers these to the push-feed bolt without issue. To remove the magazine, a small latch in front of the housing is pressed. The standard-length Tikka magazine is built to take all calibres offered in the T3x line-up and in the case of the diminutive .223 Remington, the rear portion of the magazine is blocked out to accommodate the shorter cartridge length. Additionally, the magazine has



stainless steel feed 'lips' which gives a more reliable operation and control of the 10-stack capacity.

Stock

For the purist the only material worthy of consideration here is walnut. This stock is far from exhibition grade but still sports a piece of straight-grained walnut (likely sourced from Europe) and the stock profile has a semi-Monte Carlo pattern, with the comb tapered towards the head rather than being parallel. This, together with the triangular-shaped cheekpiece, helps achieve a superb cheek weld when using a suitable optic but also reduces felt recoil, the pistol grip having an open radius which gives a comfortable hold and reach to the trigger blade.

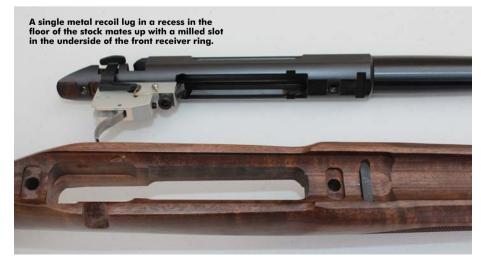
Both sides of the grip are adorned with an aesthetic laser-cut chequering pattern which is also replicated on either side of the fore-end and it performs as expected, giving positive clasp with either bare hands or gloves. The stock is fitted with blued QD swivel studs, one at the toe of the buttstock



The 10-shot magazine (in .223 Rem) fits neatly in the well and clips into place securely.

and two under the fore-end tip and to manage recoil, a quality Sorbothane-style pad has been fitted.

The stock is oil finished, the only way quality walnut should be treated. Removing the stock from the barrelled action, the only bedding visible is a steel recoil lug which is inletted into the floor, protruding approximately 5mm above the inletting. This allows for the milled recess in the floor of the receiver to mate up with the recoil lug and while the lug is fitted well into the floor of the stock, some sort of reinforcement around it such as glass epoxy would offer additional strength and support to the walnut. No other bedding support is present other than the finished surfaces of the inletted walnut stock which have also been sealed with oil. A couple of aluminium pillars would have offered a better bedding set-up but Sako deem the sealed walnut to offer a stable platform. The barrel is freefloated along its entire length.





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Tikka T3x Varmint Hunter - the evolution continues

At the range

The review rifle was put through its paces at a private club range, conducted at the standard 100m distance. I expected topflight accuracy from the 600mm varmint profile barrel and wasn't disappointed, all loads performing well with five 3-shot groups fired with a barrel clean between changes in ammunition.

Even though the fast-twist one-in-8 barrel shot well with standard 55-grain soft-point loads from Winchester and Federal, the rifle's forte is heavier bullets from 60-80 grains as well as monolithic projectiles such as the Barnes TSX. Handloading would certainly produce onehole groups at 100m in the order of 0.3-0.5 Minute of Angle.

Summary

The team at Beretta Australia have delivered a rifle unique to the Australian marketplace, one inspired by consumer demand. It's sure to sell well in the .22-centrefire calibres (.223 Rem and .22-250 Rem) but the inclusion of calibres from .243 Win up to .300 Win Mag will see it receive additional attention - and deservedly so. The Varmint Hunter model will be in short supply once the word gets out.

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Ammunition	Best	Worst	Average *
Sako Powerhead II 55gr Barnes TSX	15	23	18
Sellier & Bellot Match 69gr HPBT	18	27	22
Winchester Bulk Pack 55gr SP	20	30	25
Federal Power-Shok 55gr SP	18	32	24
* group sizes in mm, calculated from five 3	-shot groups	at 100m	



Receiver sans stock, showing the trigger group and underside of the receiver.



Specifications:

Manufacturer: Sako, Riihimaki, Finland Model: Tikka T3x Varmint Hunter

Calibres: .223 Rem (one-in-8 as tested and one-in-12 twist), .22-250 Rem, .243 Win, 6.5CM, 6.5 PRC, .270 Win, .308 Win, .300 Win Mag

Sights: Clean barrel, receiver dovetailed and drilled/tapped for scope mounting

Receiver: Tikka T3x manually operated bolt-action, dual locking lugs, push feed with mechanical ejection, matte blued finish (stainless finish also available)

Barrel: Cold hammer forged barrel, varmint profile, 600mm (23.7") in length, free-floated, matte blue finish

Stock: Walnut, oil-finished with Sorbothane recoil pad and QD sling swivel studs

Magazine: 10 rounds (in .223 Rem calibre) in a single-stack configuration polymer magazine

Trigger: Single stage, fully adjustable, factory-set at 1.5kg

Total length: | | | 0mm

Weight: 3.91kg (bare rifle)

Distributor: Beretta Australia

RRP: \$2189 (blued model), \$2529 (stainless model)

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Carbon Fibre Stock exudes sheer consistency

Daniel O'Dea

redictable and dependable is how I'd sum up rifles made by Howa. Dependable because for honest accuracy, basic reliability and allround value they continue to impress. Predictable because just when I think I've covered every possible configuration, they come up with another new option.

Why so many you might ask? Let me explain. At the core of every rifle is its barrelled action and, in a way, Howa products are somewhat of a kit gun. The Howa factory assemble their renowned barrelled actions in various calibres, action and barrel lengths which are then mated with products from some of the world's best stock manufacturers, some being proprietary to Howa (some not) to create the end rifle model. As a result and arguably more so than with

many other sources, there seems to be an amazing choice of variants with Howa.

I've both owned and currently do own several Howa rifles. My first centrefire was a CMC Mountaineer (Howa 1500) in .308 Winchester and my general 'go-to' farm rifle a Howa 1500 in .223 Remington. Interestingly, this was in a Hogue Rubber Overmoulded stock at purchase though I later upgraded to an Australian Precision Chassis (APC) option which I guess is a case in point. Howa have dropped their Mini Action into a stunning-looking Carbon Fibre Stock to produce a lightweight stalking rifle. How light? Try 4lb 10oz bare that's just a tad over 2kg or 2.098 to be precise. By comparison, a standard Hoguestocked Howa 1500 (Short Action) rifle weighs in bare at 7.8lb (3.55kg).

To recap, the Howa 1500 Mini Action reduces the standard Howa Short Action length by 12 per cent and is purpose-built for smaller cartridge length calibres in the .223 Remington class. The Mini Action is 29mm shorter than the standard Howa Short Action at 150mm, the receiver ring diameter measures 29.5mm against 34mm and bolt length shrinks to 152mm (6") as opposed to 175mm (6.9"). It shares all the other features of its big brother including a three-position safety and Howa's HACT two-stage trigger system but in a more compact form.

I did some research and understand the stock is part of a collaboration between Howa and US manufacturer Stocky's who claim their stocks are the "next generation in carbon fibre lay-up" and produced in the



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Howa Carbon Fibre Stock

newest carbon fibre stock-making facility in the US. They're said to be 'stronger, lighter and more precisely machined than ever before'. Certainly on inspection with the barrelled action removed, all the stock's inletting appeared incredibly neat and when put together gap fit was even.

Tolerances were tight in the barrel channel too with just enough clearance to allow me to slide a cash register receipt all the way up to the base of the receiver to establish it was truly free-floating. Being made from carbon fibre, the stock is totally inert and would remain impervious to moisture or any other type of climatic influence which might otherwise affect the bedding or zero.

One thing I'd note is where there's been a trend in recent years to have rubberised or soft-touch gripping surfaces and/or heavy stippling or chequering at the fore-end and pistol grip, this new carbon fibre stock is completely slick and smooth from top to

bottom. The only grip element is the soft rubber LimbSaver recoil pad, not that any limbs need saying from the recoil of a .223 Remington but it certainly could earn its keep in heavier calibres. I really don't think this lack of gripping surfaces will detract in any way and can't remember any time my hands were so slippery I was worried about fixing a grip on my rifle. Ironically, world-famous handgun speed-shooter Jerry Miculek (the six rounds, reload, six rounds all on target in 2.99 seconds revolver guy) runs slick grips on his competition revolvers and reckons he can repeatably find the correct grip better without chequering or stippling.

The rifle supplied for testing was a stainless-steel version which provided a contrast to the Carbon Fibre Stock's patterning. However, I understand this new option will be available not just in the Mini Action but in the various barrelled actioned combinations, so stainless or blued and both Mini

and Short actioned variants. As supplied the Mini Action came with the Howa 10-round polymer magazine and corresponding polymer magazine housing. If you just bought the stock for your existing Howa rifle with a magazine floorplate and fiveround fixed magazine, I'm sure you'd be able to retain the existing bottom metal.

For testing the rifle was fitted with a new Zeiss V4 4-16x44 riflescope, a great variable with four-power giving ample field of view for close-up use like when working foxes in to the whistle and all the power you'd ever need when you crank it up to 16 for long sitters. Now I've shot a lot of Howas over the years and, as stated, results are somewhat predicable in that there are seldom any surprises. I pretty much knew how it was going to shoot but not being someone to pass over extra trigger time, I had it zeroed in and went to work putting together a few groups.

The rifle did everything as expected.





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Howa Carbon Fibre Stock

Cycling is fast, especially with the short-stroke Mini Action and cartridges feed and case eject with ease, the 10-round polymer magazine simple to load and giving good capacity when needed. The magazine release is on the front edge of the housing and being a small lever is straightforward to operate when you need to drop the mag for reloading. I did comment in a previous review that some have criticised the positioning of this lever as prone to bump and drop your mag accidently.

I run the same set-up on my Howa APC and brushed this off as having never had happened to me. I have to be honest and admit this has actually occurred since when I've accidently bumped it but in general use it doesn't seem to be a recurring issue, just one to be aware of. On the plus side if you're filling tags under the spotlight and have a few spare mags on hand, changing them out in the dark is both simple and intuitive with this set-up.

The standard HACT (Howa Actuator Control Trigger) two-stage system works well with its light first pressure coming to a clear stop before the brake of the second stage. Over the years I've ran some pretty light single-stage triggers which I've found excellent for accuracy, though in the field I must say I like the idea of being able to feel that initial take-up and having a predicable

breakpoint. Contrary to some opinions out there I never want to be 'surprised' when my trigger breaks and a two-stage option is a good compromise - you can still have a light break but also have that initial take up and feel.

Accuracy-wise I don't think I've ever owned a Howa that wasn't capable of at least one MOA with a competent shooter behind the trigger. More often than not results of 1/2 MOA or better can be found with a little work, be that tuning-up your reloads or just selecting a favourable factory load. With this lightweight Carbon Fibre Stock version you're really looking at a stalking-come-light varmint rifle where the slick and rounded fore-end isn't ideal for shooting off a bag or similar rest but is a joy to walk around with. Likewise the stock comes standard with Quick Detachable (QD) studs so it's easy to fit a Harris-type bipod or similar if required.

While with me, this handy little Howa did a few tours of duty around the farm and equipped itself more than adequately when the need arose to despatch the odd feral. It's also a visually appealing unit with that carbon fibre pattern leaving it looking as flash as a rat with a gold tooth. So if you're after something reliable, practical, smart and all at a reasonable price you could do worse than give one a go. ●



Specifications as tested:

Rifle: Howa 1500 Carbon Fibre Stock **Action:** Bolt-Action (Mini Action)

Trigger: HACT two-stage

Calibre: .223 Remington (as tested)

Capacity: 10-round polymer magazine

Barrel: 22" sporter profile (560mm)

Twist rate: One-in-9

Sights: Bare

Length of pull: 13.19" (335mm)

Metal finish: Stainless steel

Stock finish: Carbon fibre

Weight: 4.625lb (2.098kg)

Length OA: 40.75" (1035mm)

Price guide: \$1000-\$1100

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SIFA Shooting Industry Foundation Australia



Anthony Puddicombe

ob and I hit the road heading due west for eight hours with our designated property now less than 60 minutes away. But a storm was looming and the normally dry river creek beds we always cross when travelling from Mackay were flowing, something we'd not seen before. We've been helping out via the SSAA Farmer Assist program for the past six years, controlling pests such as pigs, cats and wild dogs though mainly kangaroos under mitigation permit.

Each property owner has been grateful for our efforts and sometimes the roos are so thick we fill their permit quota. We usually go in summer even though it's the hottest time of year but ferals are more concentrated around water and easier to find. Our modus operandi is to arrive just after lunch, meet and greet the property owners, swap the usual Farmer Assist paperwork (including what our target species are) then grab a paper map of the property along with vital intel as to where the pests are.

The thing we were keen on trying was to set some cage traps for feral cats, as on our last visit those we saw (while spotlighting for kangaroos) were flighty and we only bagged two from seven. The idea this time was if we saw a cat and couldn't take a shot, we'd set one of our traps with sardines as bait and hopefully eradicate them that way.

The property was being drenched as we arrived and as I swung off the bitumen on to the track I lost all traction, even in 4WD mode. I slid and clambered to some gravel then parked - we weren't going anywhere! Next day we took a look at the Thomson River which was extremely wide and only a few inches below the bridge. But we made it to the property and there were fresh pig tracks in the wet clay so this looked promising. After catching up with property owner Marto, we unloaded and readied ourselves and the vehicle for a daytime lap to plot the boundary.

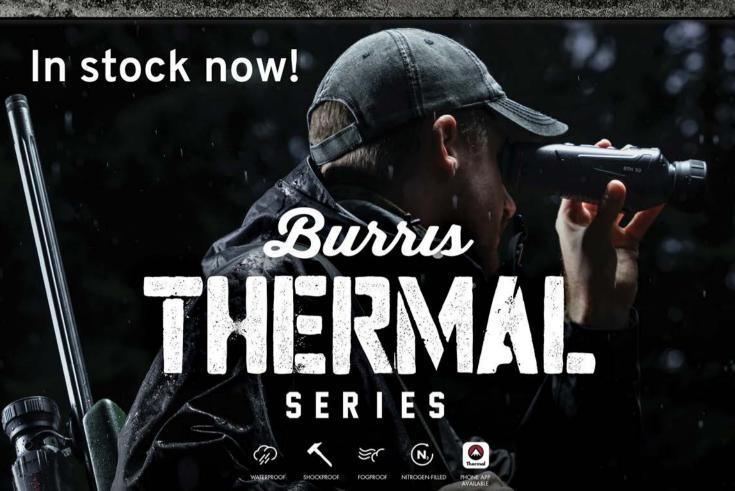
During this outing we charted the eastern side of the 28,000-acre property, culled some kangaroos then came across a paddock which had been extensively rooted up by pigs. We took some photos and marked the area in the GPS, making sure we'd come back later that night. We also found a dam hosting plenty of birds so decided to set one of our cat traps, leave it

for the night and avoid spotlighting so as not to disturb any potential prey.

As night closed in we followed the tracks logged earlier and slowly worked our way to the paddock upturned by pigs, arriving to spot a medium-sized black and white male not 40m from the track, head down and tearing up the enclosure. He was alone so I lined him up and dropped him with a neck shot. He slumped instantly and that was that.

About an hour later after spotlighting and culling several kangaroos, I noticed Bob's spotlight had focused on one spot. I quickly swivelled my light to his side and picked up a pure black cat in a patch of almost white sandy soil, a perfect contrast as he was just lying there watching us. Bob's Sako 223 did the job and it was all over for this hunter of native species.

Later with our tally of culled kangaroos growing, Bob spotted the flash of a green eye which we knew was a cat so I swung my light to his side again but couldn't see it. He gave the predator caller a blast which grabbed its attention and at 120m we could clearly see both emerald eyes glowing. Bob gave the caller another go then we saw



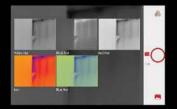
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Farmer Assist...with a twist

something I'll never forget - the cat picked up on the squark and headed right for us, bounding in on a path that was string-line straight. Bob had his target lined up in the scope but as it was still advancing he'd to keep winding down the variable power. As the varmint was still tearing in, at about 40m Bob had run out of adjustment so let him have it, the 55gr projectile entering the top of the head and continuing on to demolish the spine. The rest of the night was taken up with roos before we called it quits at 4am after 15 hours of hunting covering 140km of tracks.

Next morning we were keen to check the cat trap we'd set and on arrival at the dam the trap door was down, sardine tin empty and a feral cat well and truly cornered - so cat number three was taken care of. Once rested we loaded up the 4WD again and unfortunately some of the gullies had been badly eroded so we'd a fair bit of backtracking to do. But we eventually covered the ground we needed to and the whole property was now logged in my GPS. Night





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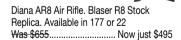
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Farmer Assist...with a twist

came around and we started spotlighting again, getting stuck into the roos and monitoring each one for the farmer and his quota.

Part way through the night Bob spotted the green glint of an eye. Again he put the caller to work and again the cat came running at us, Bob pulling it up at 40m with his Sako 223 - this caller was turning into gold. The spotlighting continued with the tally for kangaroos growing, which was the main reason for our trip.

Bob then spied another green glint in the spotlight and let out a few blasts on the caller which caught the cat's attention but he wasn't as committed as his mate had been, this one slinking around parallel to us though we could watch it between clumps of grass. Bob was tracking it the whole time in his scope and varying the calls if he felt it losing interest. This went on for some time but Bob remained patient and eventually took the shot - cat five was down and what a good feeling after working hard to nail it.

Morning rolled around and we checked the cage traps but no luck this time so we headed for the dam, Bob opting for a lap on foot while I returned to the vehicle. Before long shots rang out and I looked in his direction to see a medium-sized boar departing in the opposite direction to the rest of the mob. Bob dropped one of the other pigs but that cagey boar eluded us both. We were invited for lunch with Marto who told us some neighbours were keen for us to pay them a visit, so we said we'd definitely follow up their details once we'd

sorted the roos out on his property.

We woke next morning to rain and more rain so weren't moving anywhere with the ground turned to a sticky mess. Next day came more rain so the decision was made to pack up and head for home - but first we'd to collect our cat traps and rather than tear up the tracks in our 4WD we asked Marto if he'd take Bob for the traps in his buggy.

An hour later my phone rang - the buggy had a broken drivebelt from trying to turn the mud-encrusted wheels so the plan was for me to drive up to Marto's house, collect his four-wheeler and pick them up. I found them soaked and covered in mud but the rest of the traps were recovered and, with three of us on the quad, we finally made it back to base with not a clean spot left on our bodies.

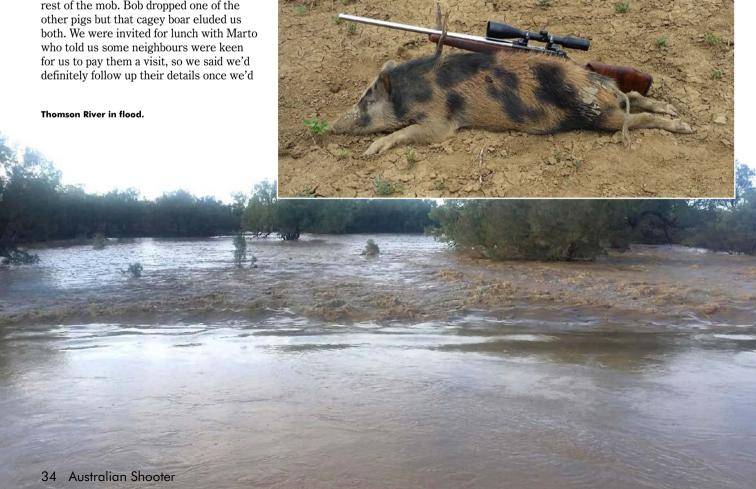
We packed the car as the rain continued then slipped and slid out of the property before finally reaching the highway. Our normal road home was closed due to flooding so a two-hour detour was needed but we made it after a memorable trip with highs, lows and everything in between. SSAA Farmer Assist is an excellent initiative, simple to organise and the farmers

The pig which met its end



are always grateful. It opens doors to new country and you just never know what 'bycatch ferals' you'll come across.

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Natural high from Alpine cham-pain

Chris Redlich

hen friends visit our home the trophies on the living room wall arouse interest and intrigue, particularly from non-hunters - "what's that one, where did that come from?" - and casting my eye around the room one trophy in particular, small in size and dwarfed by many, recalls a hefty swag of memories which far outweigh the rest.

Australian Sho

My adored little chamois trophy takes pride of place and is a reminder of one of the best experiences of my life in the Southern Alps of New Zealand. An adulthood dream fuelled by New Zealand hunting stories was about to come true as I stood with my guide by the foothills of a steep valley, contemplating our approach. There we were on the banks of a fastflowing mountain stream preparing to wade a safe passage across and while I admit the thought of crossing that creek in early morning had me concerned, there

The guide's task was to help me find a trophy animal but hauling my 90kg frame (without gear) across the river wasn't part of his job description. The chill of the Alpine water did little to dampen my enthusiasm and with my feet and legs sodden and freezing, it was half an hour later I truly appreciated the value of a good pair of hunting boots. We pushed on, traversing marshy flats and feeder gullies but our destination at the head waters of that steep valley still seemed impossibly out of reach.

My priority target animal at that stage was tahr and before proceeding up the was no alternative. right-hand ridge we started glassing for signs. With a stiff breeze building from the south we began the ascent of the ridge and after just a few steps I knew my legs were going to be given a workout. Back home



I live on black soil plains so my body had to adjust fast. Nevertheless I pushed on despite my thigh and calf muscles burning - I was here for an adventure and my mountain-dwelling trophy wasn't going to present without a challenge.

I took a well-earned breather on a flat spot and turned back to where we'd just walked. The stream seemed so far away now and thankfully my feet were much drier, though glassing again from our new vantage point

the tahrs were still nowhere to be seen. The lactic acid build-up in my legs was a constant reminder of the terrain but my guide climbed on regardless. I remained diligently in tow and, with each step advancing another halfmetre above sea level, my heart and lungs were now feeling the effects of higher altitude. My general fitness, especially cardio, was now being given a rigorous workout.

We reached another glassing point on the ridge, my body rejoicing once more for the pause in proceedings. From this location the valley opened up like pages on a picture book revealing an amphitheatre of rock formations and gullies, resembling the pipes of a church organ. The faces consisted of scree slopes, chutes and gullies choked with vegetation, the view spectacular as this part of the valley hadn't been visible from the stream below.

The beauty of my surroundings offset my aching body and I revelled in what lay before me. My guide pointed out possible places of tahr activity on the opposite faces and after a short while, as if on cue, our first sign of life presented, a tahr nanny followed closely by a bull stepping into view from behind some foliage. With the aid of a spotting scope we agreed he was of trophy size but at 600m, out of reach of the .270 Win. Although the southerly breeze wasn't in our favour we were completely undetected so the plan was to climb higher up the ridge, descend to the valley floor, scale the opposite face and stalk the bull from above.

We hauled ourselves to the next elevation off a cluster of boulders and glassed down to the area where tahrs were last seen. By now the wind had become much stronger and the higher we ascended the fiercer it grew. Although not sighted again at that stage, my guide was still confident of tahrs being there later for the stalk.

We broke for lunch, sheltering from the wind behind a rock and continued glassing the opposite faces for movement. "Now there's something I didn't expect," said my guide. A chamois buck was bunkering down in gale force winds on a boulder shelf across the valley at 900m, his face to the wind looking in our direction but we remained undetected by our new target. Typical of chamois behaviour, he was happy resting in the shaded part of the rocks instead of chasing the sun for warmth.

The spotting scope confirmed the buck had good horns and was worth pursuing, a plan then hatched to redirect our efforts to the chamois and, if enough time remained, stalk the tahr on the way out. Knowing a

Natural high from Alpine cham-pain

chamois' eyesight is razor-sharp at long distance it was important we kept a low profile and although the buck was staring our way, the strong wind behind us proved an advantage as we later discovered. Excited by the prospect of taking a trophy chamois buck I followed my guide to the the valley floor.

Protected from the wind we crossed a pristine mountain creek and took a moment to soak up the view, feeling insignificant amid stunning surrounds. There was no time for contemplation though as we made the fastest and steepest ascent of the opposite face to a new vantage point north of the buck, every bit of sharp, spiky-leafed Spaniard and Matagouri bush being hastily grasped to help my ascent.

Still separated by a steep gorge we closed the gap to 400m and hid behind a large boulder, the buck now above us and angled slightly broadside as the wind battered us the further we climbed. From this spot we could see his eyes were shut as the wind pelted his face and we confirmed him to be a shooter so, using the rocky features in front of us, leap-frogged our way to about 200m.

A decision was made to proceed no further as the risk of surprising the eagleeyed chamois was possible and while I wasn't comfortable from my new shooting platform, I'd no alternative but to adjust. Balancing on the edge of a precarious rock face in 80-100 km/hr wind gusts made for a daunting scenario and after consultation with my guide, we dropped the 120-grain projectiles for the heavier 130-grain. Settling as best I could I placed the reticle 150mm off the chamois' body (300mm to my point of impact) to allow for wind drift and squeezed the trigger. He took a direct hit to the chest and was anchored on the spot, my legs now shaking uncontrollably as adrenalin surged.



A resounding 'good shot' from the guide followed by a laugh at the sight of my trembling legs made light of what had probably been one of the most difficult shots I'd ever take. But the day was far from over and the celebrations short-lived as we'd a difficult task ahead to retrieve my trophy. Secretly fearing for my life, I trustingly followed my guide down the steep gorge separating us from the buck.







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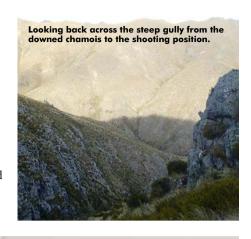
Natural high from Alpine cham-pain

Again making use of any available foliage that would provide useful support, we climbed the opposite side to my chamois which lay motionless save for his hair fluttering in the wind. He looked beautiful as the emotion of the hunt began to sink in, horns measuring an even 9.5" with typical splay and perfect hooks. Growth rings identified him as being about 10 years old and we reckoned he was a bachelor kicked out of the herd by younger bucks and left to roam in solitude.

After a lengthy photo session we caped him for the haul home. Now late in the day the decision to hunt tahrs was abandoned as we faced the prospect of a storm hitting us on the mountain. It was far from ideal but I honestly didn't care as the excitement of the day's adventure couldn't wipe the smile from my face, my new-found confidence the best stimulant and pain relief I could ask for. Another scramble up the face above the buck's resting place was made before our eventual descent of the opposite ridge from our climb in. Pelting rain made rock surfaces greasy and one bad slip had me kissing the granite, earning a chipped elbow in the process.



I was relieved when we finally reached the foothills as my knees felt as if they might explode. The flats couldn't come quick enough and that mountain stream was a welcome sight, my body feeling the effects of every step as we estimated our vertical hike to be around 20km. I'd just completed the most challenging hunt of my life which had pushed my mental and physical abilities to the limit. The hard-won chamois, taking pride of place on our wall, is a constant reminder of that adventure and my respect for the beautiful, rugged mountains of New Zealand and the game which roam them will never die. •











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Bob Boland

ith the possible exception of optics, firearms are the priciest item in our shooting budget and due to the obvious safety and legal implications I've no desire to build one from scratch. So one solution is a second-hand gun, either from your local gunshop or online from outlets such as the SSAA Gun Sales website, though a quick perusal shows even 'pre-loved' firearms can command high prices.

So unless you have a limitless budget the subject of restoration comes to mind. I hasten to add I'm no gunsmith and never mess with the mechanics of a firearm but there's plenty of work I'm happy to have a go at - and so can you. The first step in any restoration project is sourcing a firearm to work on, remembering it must be within your licence capacity and you may even have one in your safe right now which could use some TLC.

If you plan to buy a 'project' gun I suggest not only thinking about what you'd like to add to your collection but

about the level of difficulty and availability of parts for your venture. Having sourced your item the first step is to take it to a dealer, the initial query being to ensure any proposed work won't make the firearm unsafe while also seeking appropriate restoration technique advice.

The assignment I undertook was on a Lithgow Slazenger 1B single-shot .22 and while the rifling was dirty but in good condition and the mechanism sound, there was significant rust. The stock had split and been unsuccessfully repaired with a screw - it was old so I suspect the job was done a while ago - and the front sight had been painted white. Basically the old girl had seen better days but most of the damage was cosmetic.

My first task was to clean the barrel then disassemble the rifle into barrel and stock. I then further stripped the barrel, removing the trigger and slide in the rear sight and spent an hour with a scourer and some oil, scrubbing everything. By that

surface rust was gone, as was the paint on the front sight. There was still heavy corrosion damage near the breech but I deemed removing it would do as much damage as leaving it and it was well oiled, so there'd be no further impairment.

With the 'gun' back in the safe I turned my attention to the stock. Firstly I gave it a good rub-down with a rag and inspected it, the next challenge being to determine what finish had been used on it. Both my gunsmith and Google reckoned the original finish would've been boiled linseed oil, though others may have been added over time. So I started by applying some methylated spirits to the stock as that lifts shellac but not varnish. The meths lifted the finish so, with kitchen towel. I was able to gently strip the stock then remove the screw and flood the crack in the stock to clean it for gluing.

While a normal PVA glue would probably have been fine, I already had a bottle



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Flying solo on Lithgow restoration

of Titebond III which is waterproof. The main challenge in fixing the crack was that normal clamps are not great for irregular shapes such as gun stocks. The solution was to use a large rubber band so I inserted glue right along the crack, held it together, wiped off the excess and applied the rubber band.

When it dried I realised I hadn't fully aligned the crack and while visually it looked good, in my hand the join was noticeable. My solution was to use a razor blade to scrape the join, having been prewarned that sandpaper is liable to significantly change the profile. The scraping was remarkably quick and, in the end, I decided to scrape the whole stock which cleaned it up gently but still retained the patina.

The next challenge was what to refinish it with. Varnish is hard wearing as it was originally designed for timber floors but is tricky to touch up in the event of damage. Shellac is softer, easier to refinish and was what I'd just removed - but it doesn't like being wet. Boiled linseed oil is both a traditional stock finish (used at the Lithgow factory) and easy to touch up - and I had a bottle in the shed. The challenge with boiled linseed is patience as it's a slow process, even though application is quick and easy. When I was applying it the weather was wet and cool, so I rubbed on a coat of oil every two days.

After several treatments I reassembled the rifle and fired a few test shots, all of

which demonstrated the gun is shooting well though I really need to spend some time getting used to iron sights. As always, 70 per cent of accuracy comes down to the nut behind the butt.



BOILED LINSEED

This is a traditional finish for timber stocks as the oil penetrates, protects and is easy to renew or touch up. Boiled linseed oil is not actually boiled but has chemicals added, so safety is crucial - read and follow the application instructions. Importantly, rags used with boiled linseed can combust so should either be submerged in water or allowed to dry in an open space. Application is generally simple: brush or wipe the oil generously over the timber, allow to soak for 15-20 minutes and wipe off the excess. Wait at least a day and repeat until you're happy with the finish, which can be either matte or gloss.





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In search of the ideal bullet jump

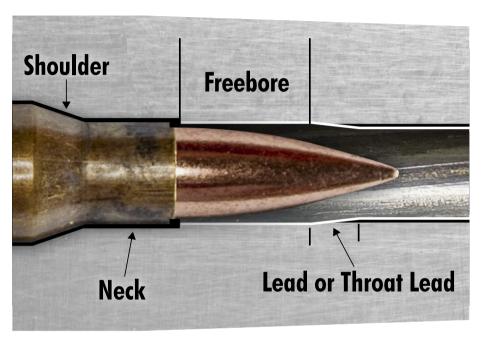
Steve Hurt

he subject of 'jump to the lands' is probably one of the more contentious issues you can raise in any reloading forum be it on the internet, at a reloading course or competition range, so it's quite surprising to learn just how little published scientific research has been done in this arena. Many shooters ardently adhere to one particular point of view or another for no other reason than that's how they were taught. Fair enough - but the science and logic has seemingly been lost along the way.

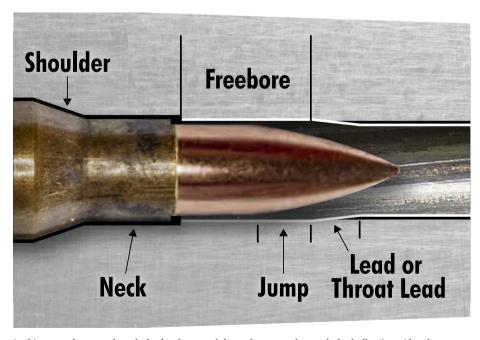
In many ways it's like listening to youngsters arguing over whose grandmother's fruit cake recipe is best. Ask them why and the answer is almost uniformly 'because I like it'. Or in a shooting context 'it works in my rifle' or 'that's the way I've always done it'. This isn't helpful from a scientific viewpoint so let's take a more clinical look at the subject. To do this we must first define what we're talking about. 'Bullet jump' or 'jump to the lands' can best be described as how far the bullet has to travel from its seated position in the case neck before it engages the lands in the chamber throat on firing.

Every rifle chamber has a certain amount of tolerance leeway to allow the cartridge to feed into the barrel chamber. Both the Sporting Arms & Ammunition Manufacturers' Institute (SAAMI) in the US and Commission Internationale Permanente (CIP) in Europe set tolerance standards for each registered cartridge design, allowing for a certain amount of Freebore (the short distance in the chamber in front of the case mouth where the bullet can move forward unrestrained by friction with the barrel). The throat or lead (section where the barrel and lands are tapered) allows the projectile to 'self-centre', at the same time allowing pressures to build at an acceptable rate.

The great challenge for standard-setters and manufacturers is the tremendous variety of bullet options available for each calibre, their ogive (pronounced 'o-jive') shapes, lengths and magazine restrictions not to mention variations in bullet structure and materials used. So let's cut to the chase: what is the ideal bullet jump? Many shooters have been led to believe seating



In this example, 'freebore' and bullet jump are all but one and the same. NB: Freebore and throat lead are 'fixed' dimensions of the chamber. 'Fixed' is a relative term as this will slowly change with wear, as the throat will move out at a rate of roughly 0.005" per 100 firings.



In this example, even though the freebore and throat have not changed, the bullet 'jump' has been significantly reduced. This gap is important for accuracy and safety. In short, bullet jump refers to a bullet's position in the chamber, and its relationship to land engagement lead.

a bullet 'into' (having the lands engage a certain amount of bullet purchase) or lightly touching or sitting just off the lands is the ultimate road to accuracy. This is what target shooters do, right? While it's true some shooters do this with competitive results and swear by the practice, there is a price to be paid.

Firstly, this habit runs the increased risk of having a bullet stuck in the chamber throat, creating a situation where the live cartridge must now be fired. The alternative is a projectile stuck in the chamber throat on extraction, a potential problem in a hunting situation and something which should never be encouraged for this application.

Secondly, jamming or limiting the jump raises pressures at a faster rate and while this may not necessarily be problematic, the evidence suggests such loads are more temperamental and are often more sensitive to changes in pressures resulting from alterations in temperature, powder charge weights and throat wear. As a result, many top-level shooters load according to the conditions on the day, based on lots of trial and error and fantastic records (clearly this isn't a realistic option for hunters).

The next challenge accompanying this practice is that to maintain consistency, we're forever chasing the lands and

adjusting loads as our throats wear. As a rough rule of thumb, throats erode at a rate approximating 127 micron (0.005" per 100 rounds). Now it's known that monometal bullets, such as copper, like a longer jump but recently, researchers and experimenters in the US such as Cal from precisionrifleblog and Mark Gordon of Short Action Customs have reported some rather extensive (but by no means universal) tests, firing thousands of rounds from a variety of cup and core bullet manufacturers.

These have revealed some interesting results, among the more surprising outcomes being that cup and core accuracy and consistency appears much more closely aligned with practices commonly associated with loading monometal copper bullets than we thought (for further reference see the precisionrifleblog website for Bullet Jump Research: Executive Summary and Load Development Tips and the 18-Shot Bullet Jump Challenge).

As a copper bullet manufacturer we at Outer Edge Projectiles, like other manufacturers, test our product to provide the best advice available for optimal results. In this process we've been able to verify through rigorous testing that best results, when using copper bullets, are most commonly

achieved with a jump of between 0.9mm (0.035") and 1.5mm (0.060"), something which comes as a great surprise for many reloaders used to using traditional cup and core bullets. We usually recommend starting with a jump of around 1.27mm (0.050") and this is universally true for both our target and hunting products but doesn't mean great results can't be achieved outside these guidelines, though the overwhelming majority comply.

Cal reports that Gordon's data suggests traditional cup and core bullets, when seated similarly, produce comparable results to their monometal counterparts and this was a real eve-opener. It also supports the idea that such loads are more flexible and tolerant of wider variations of temperature, powder charge and throat wear.

So what to do if you can't get as close as recommended to the lands because the magazine won't allow it? This is common with factory hunting rifles and one option is to use a round-nose style of bullet if your hunting ranges are limited to 200m. For sleeker bullets keep in mind that longer jumps aren't usually much of a problem, it's the closer jumps which can be more challenging to refine. Try Mark Gordon's 18-Shot Bullet Jump Challenge and see for yourself. •





Wesson's two-trigger carbine

the unique single-shot

Senior Correspondent John Dunn

he name Wesson is well-known in the firearms and shooting world and not without reason. Of the five sons born to Rufus and Betsy Baird Wesson (there were also five daughters) of Worcester, Massachusetts in the early 1800s, three made reputations for themselves in the firearms trade. Edwin Wesson, the third brother, between 1835 and 1850 earned kudos as a builder of percussion muzzleloading rifles which Ned Roberts, author of *The Muzzle-Loading Cap Lock Rifle* and designer of the .257 Roberts cartridge, described as "some of the finest, most accurate target rifles" of the era.

From 1856-58 fourth son Daniel Baird Wesson developed the .22 Short - the first truly practical American rimfire cartridge



Rifle taken down to show the relationship between barrel and fore-end. The flat spring under the barrel tips the breech up when the action is opened.

- and was one half of the famous Smith & Wesson handgun dynasty which began with the Model No.1 First Issue revolver in 1857. The youngest of the gun-making Wesson brothers was Franklin. Believed to have learned his trade under the tutorship of Edwin, he made a range of single-shot rifles based on tip-up and (later) falling-block actions. He also made pistols, pocket rifles, shotguns and combination guns but it's his single-shot rifles and carbines he's best known for.

Franklin Wesson

Born in 1826 (or 1828) Franklin initially worked with his father who made ploughs and later shoes, before teaming up with Edwin and moving to California in the late 1840s where he set himself up as a gunmaker, perhaps to service the needs of gold-rush miners. He returned to Worcester around 1859 and again established himself in business as a gunmaker. On October 5 that year, in partnership with Nathan Harrington, he was granted Patent #25926 for 'the arrangement of a breechlocking bolt, breech-elevating spring and wedge-shaped recess to accommodate the rim of a cartridge'. This tip-up action

was first used in around 100 brass-framed .22-calibre pistols produced during his short-lived partnership with Harrington.

In his own right Wesson also began making single-shot rifles based on the patent, predominantly in the rimfire .32, .38 and .44-calibres, though some in .22 are also known. On November 11, 1862 he was granted Patent #36925 for 'improvements in breech-loading firearms', a patent for a flat slotted link affixed to the side of the frame and breech of the barrel, which limited tip-up travel of the barrel when the breech was opened.

The rifle

Frank Wesson two-trigger rifles were made in five types from 1859-1888, the one detailed here a first model military carbine in .44 Long Rimfire calibre made from 1859 to 1863/64. The patent dates stamped on the top flat of the barrel narrow that down to some time after 1862 and it's thought only around 4500 were made.

The action is essentially the same as those used in all tip-up rifles made by Frank Wesson and in its day was lauded for its simplicity of operation and rapidity of fire. In July 1861 *The Scientific American* wrote

FRANK WESSON WORCESTER MASS PAT'D CCT 25 1859 & NOV.11 1862 Markings on the top flat of the barrel forward of the rear-sight - 1859 refers to the patent issued to Wesson and Nathan Harrington that year while 1862 is the patent for the slotted link on the left of the barrel which limits the distance the breech of the barrel can tip up.

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Wesson's two-trigger carbine the unique single-shot

of the rifle: "The advantages of breechloading rifles, especially for soldiers, are very important. The principle of these is the great rapidity with which the arm can be loaded and discharged; and there are others, which, though of a secondary nature, are still worthy of consideration. Among these are the perfect protection of the muzzle and facility for cleaning. The breech-loading rifle here illustrated is one of the best and most simple, if not the simplist (sic) that has vet been devised, the lock consisting of only three pieces."

The military advantages of the breechloading rifle over muzzleloaders were widely recognised. On October 3, 1862 Colonel W.H.H. Taylor of the 5th Ohio Cavalry wrote to the Chief of Ordnance in Washington: "If the Government will allow me to purchase carbines of Smith and Wesson patent . . . I will knock the socks, hats, boots off any cavalry unit in the Confederate service at 500 yards distance, emptying a saddle at every shot." Despite the reference to 'carbines of Smith and Wesson patent' there's no documentary evidence to support the statement. Frank Wesson made his own firearms at Merrifield's Building in Exchange St, Worcester. Smith & Wesson made .44 rimfire ammunition and period packets are labelled as such. At the time it was normal for arms makers to produce ammunition for their own firearms, so that may be where the confusion about who made the Wesson rifles originated.

Like many other firearms of the Civil War era the Wesson carbine has a rounded iron frame which extends well forward to also serve as a forearm. The original finish was blue but this long ago faded to a plum-brown colour on the sample firearm. The frame houses the lock which consists of just three main parts: a centrally-hung hammer, trigger and mainspring, accessible through a tight-fitted circular plate in the left side of the frame.

The hammer has a large thumb spur with chequered tip for grip and the nose is elongated, striking the rim of a cartridge through a slot atop the frame when the trigger is released. The hammer and trigger sear arrangement is the same as in the sideplate locks of the muzzleloading era, the trigger in direct contact with the bottom of the hammer which has two notches, one

for half-cock and the other full. Power to the hammer is supplied by a V-spring fixed to the lower tang of the frame and linked to the hammer by a stirrup.

The second or forward trigger on the Wesson patent is used to open the action. With the hammer on half-cock the trigger is pulled back which withdraws a coil springactivated wedge-shaped locking bolt from a recess under the chamber, allowing the barrel to tip-up under pressure from a flat spring in the front section of the frame. The barrel pivots on a lateral screw through the front of the frame. The distance the breech end tips up is limited by a patented, slotted link on the right of the frame, this link moved to the left on the second and subsequent models.

There's no extractor fitted, instead the breech is bevelled on either side to allow a spent case to be pulled out with the fingers and given the soft copper cases used in rimfire ammunition of the period, it's likely a knife blade or even makeshift ramrod may have been required at times. These shortcomings were soon recognised and on later models a manually operated extractor was provided to the right of the barrel.

The military carbines were all made with 24" octagonal barrels in .44-calibre, sights consisting of a small circular blade foresight and leaf-type rear-sight graduated to 100, 250 and 500 yards and so marked, both dovetailed to the barrel which originally had a blued finish.

One sling swivel was fitted under the barrel via a dovetailed block and another into a tapped hole near the rear edge of the frame on the left, though both have long since disappeared from the sample rifle. The triggerguard has a nickel finish with serial number stamped between the rear bow of the trigger and finger-spur under the wrist, the buttstock being walnut with a straight grip and flattened edge on the comb and fitted with a nickel-plated military-style buttplate.

Its distinctive appearance and 'twotrigger' operation are unique in the field of single-shots and though it's well and truly obsolete by modern standards, it demonstrates to perfection just how far cartridge and firearms development has come since

the Civil War era. Frank Wesson rifles are not often seen in Australia and I can count on one hand the number I've seen offered for sale at gun shows over the years, only one of those with a brass frame.

The .44 Long Rimfire

This cartridge was developed for the Ethan Allen carbine, patented in 1860 and made by Allen & Wheelock at Worcester. Massachusetts (it was also used by other rifle makers including Ballard and Remington). Though similar to the 44 Henry it's not the same cartridge and fired a 220-grain lead projectile ahead of 28 grains of black powder with muzzle velocity around 825fps and muzzle energy of around 332 ft-lb. It became obsolete in the early 1920s.



The breech end of the barrel showing a recess for the breech-locking bolt below the chamber, bevels on either side of the chamber allow the fingers access to the rim of a spent cartridge



Wesson patented parts including wedge-shaped recess on the face of the standing breech retractable locking bolt at the bottom and slotted link to the left of the receiver

First model Frank Wesson two-trigger tip-up rifle in .44 Long Rimfire.















Roof-mounted spotlights are you doing the right thing?

Douglas Riach

ave you checked the roof-mounted spotlights used for hunting and spotlighting are legal in the state you go hunting in? Australia, being a Federation of States, has both federal and state/territory laws and some topics detailed in the Australian Constitution give the Federal Government the authority to make laws on those topics taxation, Customs imports and immigration just a few examples.

The states and territories make the laws governing their own state which are not under federal jurisdiction, but what sometimes happens is the states and territories agree to allow the Federal Government to legislate on a topic or accept federal legislation and rules into that state and territory law.

Most people would be aware of the Australian Road Rules and National Vehicle Standards for cars which apply to all states and territories. National vehicle standards, known as National Standards - Vehicle Standards (Australian Design Rules (ADR), regulate vehicles and fitting when that vehicle is to be driven on a road. Driving on a road when your vehicle does not comply

with the ADR is a contravention of the Australian Road Rules and, depending on your state or territory, will incur about a \$300 fine plus levy and possibly a vehicle defect notice. In the case of the National Standards - Vehicle Standards (ADR) these rules apply nationwide, though the states have authority to make changes to suit that particular state or territory.

So what has this to do with spotlighting? All vehicle lighting is regulated under the ADR. Technically under the ADR there's no such thing as a spotlight - they must all be driving lights and must be fitted to the front of the vehicle, facing forward and work in conjunction with the vehicle's high beam. Previous changes allowed driving lights to be fitted to the roof but this does not permit the fitting of a roof-mounted spotlight which is not forward-facing and not connected to the high beam.



There's something else in the ADR called external cabin lights but don't confuse these with spotlights. Cabin lights are what trucks have on the roof (either white or vellow) and must be 17 watts or less. As roof-mounted spotlights are neither driving lights nor external cabin lights they're not approved in the ADR and therefore are not legal. More correctly, a vehicle with a roof-mounted spotlight cannot legally be driven on a road although this is where a state or territory can modify its laws to allow spotlights.

South Australia

SA appears the most complicated situation. In recognising the work done by the SSAA and its Conservation and Wildlife Branch, the South Australian state government passed an exemption to the ADR, allowing a roof-mounded spotlight in special circumstances. The approval refers to spotlights as roof-mounted work lights, then roof-mounted cabin lights and roofmounted search lights, just to confuse people even more.

To use this exemption you must have a South Australian firearms licence of either Category 3 - hunting, Category 5 - primary production, Category 7 - contract shooter or Category 12 - miscellanious. The vehicle fitted with a roof-mounted spotlight must be used for animal harvesting and feral animal control, the 'and' meaning you must be engaged in both (perhaps it should have been 'or' instead of 'and' but that's not what the exemption states).

Kangaroos are not feral animals therefore no vehicle-fitted spotlight for kangaroo culling. Shooting foxes is feral animal control but not animal harvesting so no vehicle-fitted spotlight for fox shooting either. Although if you were shooting foxes and also intended to harvest what rabbits you came across or culling kangaroos under permit at the same time, you're both harvesting rabbits and controlling feral animals. Someone once stated the law is an ass - perhaps they meant a poorly worded law is an ass.

Once you've met the criteria of the licence category and complied with the harvesting and feral control requirement, you can drive the vehicle with fitted spotlight on a road if: You turn the light around to face rearward, the handle and swivel is either removed or secured so it will not dislodge or come in contact with an occupant of the vehicle, the power is disconnected so the light cannot be turned on, and you carry a written copy of this exemption (South Australian Government Gazette notice) in the vehicle while driving on a road - and no passenger is allowed to sit under the position of the spotlight. This exemption doesn't allow you to spotlight on or from a road, it only allows the vehicle to be driven on a road with a roof-mounted spotlight fitted (if all other conditions are complied with).

Northern Territory

The NT Government's Motor Vehicle Registry Information Bulletin refers to spotlights as 'search or work lights' and allows these additional lights when intended to be used for temporary purposes such as reading signs, handling or adjusting loads or providing additional illumination in off-road situations. There's no mention of shooting or spotlighting.

Queensland

The Queensland Department of Transport and Main Roads - Vehicle Standards Instruction (24.1) has provision for searchlights or work lights while the vehicle is stationary and the light is being used for making adjustments or repairs to the vehicle or being used in an off-road situation. Again, no mention of shooting or spotlighting.

New South Wales

Rule 218.1 - using lights on a vehicle generally. Allows a spot or searchlight to be fitted and used when the vehicle is stationary but only for the purpose of examining or making adjustments or repairs to a vehicle - and the light is not projected more than six metres - or a light can be used to read signs, noticeboards or house numbers. There's no mention of shooting or spotlighting and states 'only for the purpose of' the above stated exemptions.

Victoria

The Vic Roads website does not list any exemption or approval to fit a roof-mounted spotlight to a motor vehicle.

Western Australia

Government of WA Department of Transport (IB-132C) allows for optional front lights, searchlight or work light intended to be used for temporary purpose such as reading signs, handling or adjusting loads or providing additional illumination in off-road situations and may be fitted to a vehicle in any location. Although approval for a searchlight is stated for off-road situations, it states additional illumination with no mention of hunting with a spotlight.

Tasmania

Tasmanian Government, Department of State Growth, Information Bulletin,



September 2020: Additional lighting. discussed LED, HID and fog lights with reference to the ADR. There's no discussion or approval for a roof-mounted spotlight.

Conclusion

South Australia is the only state with specific approval for roof-mounted spotlights, albeit with complicated conditions. while Tasmania and Victoria would appear to not allow them at all. Western Australia, New South Wales, Queensland and the Northern Territory do allow the fitting of a roof-mounted spotlight but not for the purpose of hunting or spotlighting animals. In those states you may argue the spotlight is fitted for the purpose of reading signs but this comes with a level of risk.

The simple solution for spotlighting in all states is to use a temporary fitted spotlight which can be removed before driving on a road. You also don't need to put a hole through the roof of your vehicle as suctionmounted spotlights are readily available from the big manufacturers such as Lightforce and it's a simple way of avoiding non-compliance issues with the Australian Design Rules as well as possible fines and defect. •



un recoil is just physics and typing 'recoil calculator' into your browser will bring up the numbers - but they're only numbers. What you experience depends on the nature of the gun and your own build and sensitivity. I heard 40 years ago the average shooter couldn't stand more recoil than from a .30/06 and that's why the .35 Remington succeeded while the 358 Winchester languished. That's fine but if you want to hunt big critters you need power unless you're Karamojo Bell, a crack shot afraid of nothing except, possibly, recoil. In the Australian sambar scene at least, those last two calibres are pretty rare yet the heftier 35 Whelen is doing fine.

For many the short, sharp jolt of a highvelocity medium rifle is preferable to the heavy push of an 'elephant gun' but I used to opt for that until thumb collected nose while shooting a 458 Lott. My 3kg 270 WSM kicks like a mule, according to some, but it's just a bump with no depth and hasn't bothered me so far. Repeated recoil can cause us to flinch if we don't prepare for it and many experienced shooters, me included, do flinch but can shoot well enough when really concentrating or, paradoxically, are completely spontaneous. The ideal situation is to use whatever's needed but not develop a flinch - forget 'manning up' and just keep your nerves uncompromised for the serious shots.

Solutions

There are obvious ways to guard against flinching. As a teenager, stick with calibres and gun dimensions matching your size -but not too light. I shortened and slimmed down an AyA 20-gauge double for my sons because I couldn't find a 28-gauge at a cutdown price. Available ammo was no lighter than 12-gauge cartridges adults were shooting at clays, so I prised open some 20-gauge pie-crimps, removed three grams of shot and replaced it with a light wad. I'm

no expert but doubt a small wad between shot and the plastic cup will lift pressure.

When you're fully grown but still young, use guns of reasonable mass to soak up recoil and if the extra weight's a problem, don't shoot big animals unless others will carry them out of the bush. Choose a calibre which fits the game category but don't overdo it. The 35 Whelen is good for sambar but kicks less than a 9.3x62 or .338 Win Mag. The .375 H&H Mag and .450/400 are both legal for the biggest African game and it's better to make a good shot with one of those than wound with a .500 NE. At the extremes I'd rather shoot buffaloes with a .577 nitro-for-black than a .600 NE and almost anything is easier to use than a 378 or 460 Weatherby.

First up install a modern, soft recoil pad. They work better than the old hard rubber ones and Savage even sells one with a gel pouch. This is the ideal time to think about fit as you may need to shorten the buttstock - longer stocks with minimal drop at heel should give less felt recoil and may limit the smack against your cheekbone. Monte Carlo combs sloping down towards the grip make sense to me. Best dimensions depend on your body size and shape and usual shooting position, of course, which should rarely be prone if much recoil is involved. Have the wood modified for you by a stock specialist or keep looking until you find a gun that really fits.

Have heavy triggers adjusted. 'Dangerous-game' rifles are safer with some resistance but Hemingway's "last turn of . . . a sardine can" described the triggers on a .470 and he found they made it torture to shoot. When installing a riflescope find one with longish eye relief and position it to use with the hunting clothes you'll be wearing - what works with winter clothes and a daypack may turn nasty in summer (or Africa in a thin cotton shirt). A bloodied nose means more than the wound as the nervous system remembers and can

later trump your ego. It may be the 'punch' from a rubber eyepiece, while not drawing blood, may be even more noticeable.

With shotguns, steer clear of heavy shot loads and high velocities. The Brits once claimed a gun should weigh 96 times the shot charge, probably more to do with imperial measures (96 x 1oz equals 6lb) than any God-given formula. They mostly used 30g (1-1/16oz) loads and would have their side-by-sides whittled down to $6\frac{1}{2}$ lb (less than 3kg) for continuous tilting at driven game, a tiring task for effete nobility on a good shoot.

Considering O/U guns are rarely that light and we're bound to use high-velocity loads at some stage in the Australian hinterland, it's time we went metric and made it the '100 Rule'. As we usually shoot at least 32g loads at game, that means your gun should weigh a minimum 3.2kg (7lb-plus), more if you ever intend using 36g or fast cartridges. Better still, go for a heavier gun but save yourself the powder, expense and kick of fast ammo. The main advantage



(left) and .30/06 are still allowed for plains game in Africa, the .338 Win Mag is safer for big antelopes and emergencies; the .375 H&H Mag and .450/400 NE are legal for the largest game but kick less than most other options; you'll feel the 'little' .458 Win Mag much more than dB equivalents if used in a light rifle.

of high-speed lead cartridges was their tendency to deform shot, causing wider patterns from the tight chokes shooters thought they needed.

With steel shot even this advantage is gone. Wind resistance affects velocity retention of high-speed pellets much more than standard loads, another take on the Law of Diminishing Returns. If you really want more power try a slower but slightly heavier load of larger shot. With newer models sold here that's not likely to need a stronger gun though you could add weight to the one you have. I don't know if tight chokes kick more but suggest using open ones - bagging the bird will help you forget the recoil - and on stationary targets, snapshoot rather than take careful aim. Loading with faster-burning powders reduces the weight of ejections slightly and some claim to feel the difference.

Sighting-in the problem

Flinches are developed at the range, not when hunting big game. I doubt the old elephant hunters did much sighting-in the maker had done that - and with the



Not so good: this steel skateboard seemed to work wonders but was so heavy it split a rifle stock within a dozen shots.

target at seven vards it didn't matter much anyway. Shoot at something big enough and you'll feel no recoil and hear nothing but distant thunder. So instead of sighting-in the big rifle yourself with full-house loads. have some old hands do it - they may like recoil, be immune to flinching or just past complaining (some instructors say this doesn't work, as individuals can shoot to different zeroes).

Fore-end grip aside, I suspect that's mostly where flinches have already developed. Then, making shots from a rest is a world away from offhand shooting, so pandering to flinches at the bench makes for a fool's paradise, better to have the sights reflect the true bullet fall and manage to shoot to it without flinching. If you do shoot it in yourself, consider exercises to build shoulder muscle, as light rifles in extreme calibres can even dislocate bones, then wear a jacket with shoulder padding or perhaps a gel pouch.

Newer ideas

Though the 1960s Hydro-Coil stock failed to take off, a mercury recoil reducer can be installed in the butt, they're heavy and good for big rifles but mercury is toxic and may be banned by some airlines. There's a commercial rest for benchwork that will take almost all the recoil if you let it and definitely save you from developing a flinch but if too much lead is used to dampen one, it might damage a fine stock or split a cheesy one (I wouldn't use one with a double rifle).

Make some sub-loads to practise with or ask gun dealers if they know who'll do it for you and use the lightest bullets and lowestlisted load of the least-efficient powder you can find. In double rifles, a bullet

three-quarters the usual weight in front of the normal powder charge often regulates adequately. The temporary addition of weight secured in a magazine will slow the recoil, though the zero reached might suffer. Tube magazines should either be full as when hunting (secure a net for when the range bell tolls) or weighted somehow.

If you do use a big rifle on a benchrest, have something to limit the recoil against your shoulder. A small flat sandbag can work as it adds mass and will spread the shock over a greater surface. My favourite these days is a medical gel pouch protected between two sheets of grainy packaging material, wrapped around the butt and secured with electrical tape. Don't fire too many heavy cartridges in one session and finish the shoot with a lighter rifle of the same design to help your body forget the abuse. Oh, and tuck your thumb in.



Aids used in limiting felt recoil at the range (clockwise): hot-water bottle filled with gardenmoisture crystals; a flat sandbag (helps as mass and cushioning); a tablecloth (to save elbows from a rough bench); medical gel pack protected by plastic packaging; slip-on pad (for use with crescent buttplate on a .45-70 souped-up by extending the throat).



Fifty years with the 22-250

Leon Wright

hile standing at the gunshop counter drooling over the vast array of firearms, one in particular caught my eye as it seemed to stand out from the rest. The salesman handed me the rifle, bolt open and said: "It's a new calibre - 22-250 Remington - the rifle's a Tikka Deluxe with Monte Carlo stock and costs \$170. The only trouble is it's a bit of a wildcat and you'll have to reload for it."

Not being all that interested in reloading I handed it back, then while still browsing I noticed in the stack of ammunition on display were several packets of 22-250 ammo. Bringing this to the salesman's attention he seemed as bewildered as I was, but nevertheless I bought the rifle and several packets of ammunition and so began a lifetime of fantastic hunting memories with the Remington 22-250 cartridge.

was hoping to encounter. The 1970s in Australia was far more free and trusting than it is today and I'd lined up a number of pig-hunting properties throughout New South Wales and into Queensland by looking up an old road map and writing to a few estates that were on it.

Living in a caravan meant space was limited so I had to settle for a Lee Loader reloading tool for the task I knew I'd eventually have to tackle. With properties lined up in Booligal, Hillston, NSW and Mitchell in Queensland, along the route I planned on following I knew reloading was definitely on the cards, even though factory ammo was reasonably priced at \$5 a packet. The only scope I had was a Gold Crown 6x fixed option which I soon found out that while suitable and certainly up to the job, something like a 4x-12x variable would have been a better bet.

We spent a couple of weeks in the caravan park at Hillston as it was close to the properties I had access to for pig hunting. At the top end of the Willandra Billabong bordering the National Park, one area was alive with pigs and while speaking to the property owner one morning regarding the high numbers, he said in a good year (meaning when numbers were low) they only had around 500 pigs on the acreage. So as you can imagine it didn't take long to work through my supply of 22-250 ammo as well as the 44 Magnum ammo in my Ruger self-loader and by the time we were ready to head to Queensland I was down to using my old .303 rifle.

While in Queensland I quickly replaced my old Gold Crown 6x scope with a Tasco 4x-12x variable, a far better choice for such







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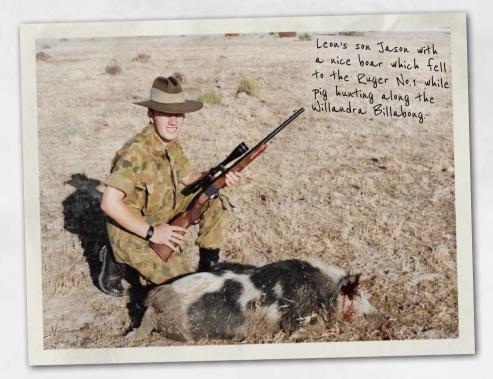
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a rifle. I had a ball in Queensland and with access to a number of properties there was plenty of hunting on offer. My favourite location, several hours from the Gold Coast where we were staying, had good numbers of pigs and goats and apart from the professional kangaroo shooter who worked the area I was the only hunter granted access.

If I timed my visits right I'd arrive just after the 'roo shooter had been and seeing

as he was only shooting for skins and leaving the carcasses, it didn't take the pigs long to find the leftovers and it was a simple matter of sussing out where they were, approach from downwind, which wasn't hard to do, and get stuck into the pigs.

But all good things come to an end and after a couple of years we pointed our noses south and headed back to my home town on the Victorian/New South Wales border. By now I was reloading for the

Leon and mate Dave were impressed with the Ruger No.1 in 22-250 on its first rabbit hunt.

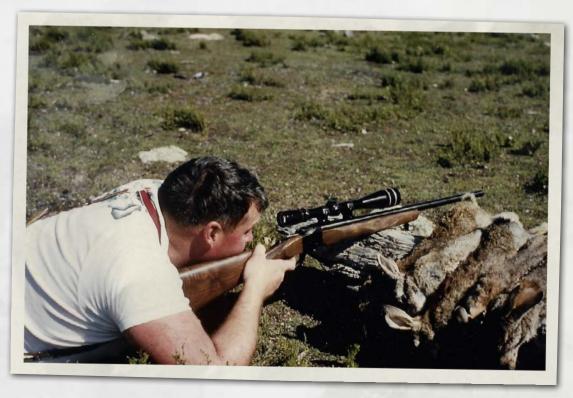
22-250 and after a bit of experimenting I settled on two loads, a 55-grain projectile pushed along by 33.5 grains of DuPont 4320 propellant and a 55-grain projectile served by 31.5 grains of Nobel Rifle No.2 propellant.

Countless trips to nearby pig hunting areas soon started to tell on my 22-250 and even though my reloads were mild, the barrel was beginning to wear out. At that time pig numbers along the flats bordering the Lachlan River were incredible and I well remember late one evening, while hunting on the Lachlan with a mate, standing by a lignum belt overlooking the plain in front of us and counting just on 100 pigs rooting in the soft soil.

I was still using my old Lee loading tool and only had one incident with it - and that was through my own carelessness. I'd reprimed a case, dropped the powder charge in but forgot to tap the sides before starting to seat the projectile and, as I started to tap the projectile home, smoke rose from the tool - the projectile while being crushed home was squashing the powder clinging to the inside of the tool. I had to keep going or dispose of the whole tool and I was relieved when I finally finished.

With the wear on my old Tikka starting to affect accuracy I reluctantly sold it cheaply to a fellow after telling him the barrel was on its way out. Yet I swore I'd have another 22-250 in my gun safe and the next one came along quite unexpectedly. A mate from the city rang me asking if I could arrange a place where he could try out a couple of new Ruger rifles he'd just bought, one a 270 and the other a 22-250. The 270 was a M77 Mark II and the 22-250 a No.1 single-shot topped with a Leopold fixed power scope 8 or 10x.

Varmint hunting with a flat-shooting rifle like the 22-250 was just starting to gain momentum, especially on rabbits, and I knew the perfect property to put it to the test. Rabbit numbers were off the chart and



we'd been hunting them in every conceivable manner. During a day's hunting we put the heavy-barrelled Ruger 22-250 through its paces and it felled numerous rabbits out to 250m, the only thing I didn't like about it being the ear-shattering blast coming from the short barrel.

Now my mate loved hunting but work commitments meant he couldn't be away nearly as often as he'd have liked, and as

he was leaving he said nonchalantly: "I'll leave the rifles with you, bring them back when you're finished." Well I did return them, albeit 20 years later, though on numerous occasions I told him I'd hand them back if he wanted but he kept saying: "There's no rush" and the years slipped by.

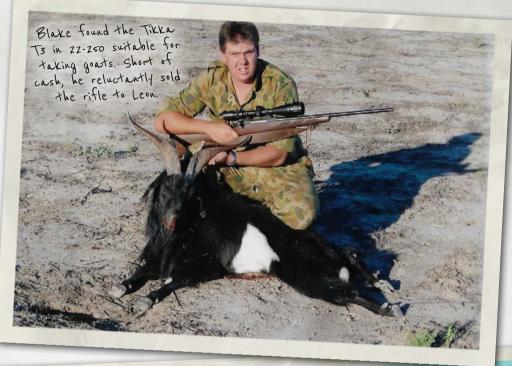
I shot my first sambar with the Ruger 270 after flushing a pair from a stand of dogwood and the 22-250 was a mainstay rifle for all my small game hunting for years. I was still keen on feral pig and goat shooting and, as luck would have it, had access to good pig country along the Willandra Billabong thanks to my aunt who helped manage the property. I was able to spend years wandering along the Willandra, flushing pigs from the lignum or taking them along with foxes and goats out on the plains. I never felt handicapped using the single-shot and some of the biggest pigs I've ever taken fell to that Ruger. At the time my aunt had numerous working dogs and each trip there I'd fill her chiller with pigs and 'roos to help alleviate the dog food problem.

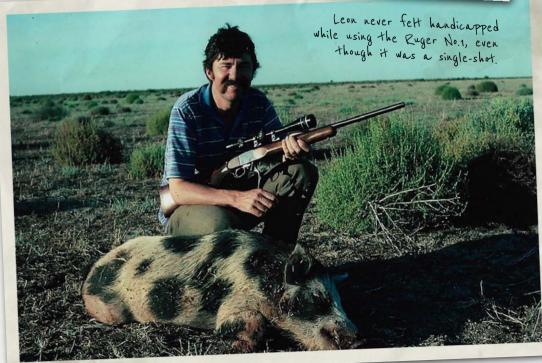
Apart from the numerous pigs I took with the 22-250, rabbits, foxes, hares, crows and feral cats were also claimed as the targets were endless. During those years the Willandra Billabong was an oasis in the middle of nowhere and the animals and birds which called it home had to be seen to be believed. Sadly, these days the Willandra is only a shadow of what it once was and the life-giving water that freely flowed down it has been stopped, turning it into a wasteland as far as wildlife is concerned.

I eventually returned my mate's rifles, a bit worn but without a scratch or hint of rust on them and once again found myself without a beloved 22-250 - but not for long. I've been hunting with my daughter's brother-in-law for the past 10 years or so and he bought a 22-250 after asking me what I considered a good calibre for despatching foxes which kept raiding the chook pen. In fact he was so impressed with it he bought a heavy-barrelled one at a later date for the

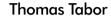
kangaroos which plague my daughter's property. I used the first one he bought for a while and seeing he didn't need two, he sold it to me for the right price so once again I have a 22-250 in the gun-rack - and this time it's staying.

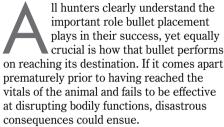
Footnote: I know the chap who eventually ended up with my first 22-250 and am seriously tempted to approach him and ask if he'd be interested in selling it back to me. •





Hunting bullets ... fit for purpose





There are essentially two starkly different trains of thought when it comes to how a bullet should perform after it enters the animal. On one side are hunters who believe the best performance is achieved when the bullet is capable of maximum penetration, even if it may in some instances exit the carcass. At the other extreme are those who want to be assured every bit of the bullet's power is expelled inside the carcass and view a potential exit only as a waste of that projectile's energy.

The best case scenario would be for the bullet to always penetrate deep enough to reach the vital organs no matter what it may encounter along the way, then provide enough energy at that point to humanely terminate the life of that creature. Unfortunately there are sometimes impediments like heavy bone, dense muscle mass and in some instances vegetation in the way of achieving those goals.

Case for deep penetration

If we could always be assured of having a perfect broadside shot where the target animal remains calm and undisturbed and without obstacles in the path of the bullet, even a thin-skinned, poorly constructed design could produce favourable results. In this case the bullet would likely only have to penetrate a few inches in order to reach the heart or lungs to seal an effective and humane kill. But as most hunters know, perfect shots like these are not always possible and for that reason it's often good to prepare for the worst and select a bullet with the capabilities for deep penetration.

Case for quick expansion

A bullet which expands quickly can be valuable in certain situations by providing a high degree of shock and in this case considerable tissue damage may result immediately after impact. In many instances this may result in a devastatingly humane kill, particularly when dealing with near perfect broadside shots. But if a hunter chooses to shoot this style of bullet it's imperative to have a thorough understanding of that bullet's abilities and limitations - or they should hold off squeezing the trigger until those conditions have changed.



The Grand Slam African bullet is a top choice for water buffaloes due to its penetrating abilities









All these were retrieved from humanely killed deer-sized game, in each case mushrooming perfectly and maintaining a high degree of original weight.













Bonded lead core bullets

Bullet manufactures have used the term 'bonded' for decades to describe the process of attaching the outer copper jacket of the bullet to different inner lead core material. In this case the jacket is intended to contain and protect the bullet's softer, more vulnerable lead centre, the challenge of maintaining that bond being a significant one with the methods used frequently varying from maker to maker. While many bullet producers continue to use the term 'bonded construction', the cautious consumer understands not all 'bonding' is equally effective.

When a bullet comes apart

A few years back I found myself wondering precisely what happens when a bullet jacket separates from its core and that curiosity led me into a fairly extensive research project. Without unnecessary details the venture essentially involved shooting a selection of different calibre bullets into a bank of old magazines which were stood on edge. All bullets were traditionally styled, jacketed, lead core designs and I'm happy to report no SSAA publications were harmed in this exercise!

In those instances where bullets shed their jackets, the forward movement was brought to an abrupt halt. At that point the lead core material continued to move forward but only by a few centimetres before the separated cores totally

disintegrated. What was once a well-formed cylindrical mass was transformed into what I can only describe as looking like coarsely ground graphite powder. Under actual hunting conditions a bullet performance such as this is likely to produce a great deal of tissue damage, but if it hadn't reached the vitals at that point the outcome may not be favourable for animal or hunter.



When Randy Brooks of Barnes Bullets developed his first solid copper bullet in the 1970s eventually becoming known as the Triple Shock X - it opened up a new era in bullet design. In the beginning many shooters (including me) were sceptical as to the performance, that concern mainly based on the fact copper is less dense and lighter











Bullet construction and shapes vary as does performance under hunting conditions.

Hunting bullets . . . fit for purpose

than lead. Some feared that difference in weight would translate into lower bullet energy on impact and a lack of expansion. Ironically, the weight difference actually worked in its favour.

When two bullets of the same weight and calibre are compared, one comprised solely of the lighter weight copper and the other a traditional jacketed lead design, the copper bullet has to be longer which translates in a higher ballistic coefficient (BC) value. That higher BC produces flatter trajectories, better wind-bucking abilities and higher retained energy at extended range.

Simply put, a complete copper bullet can't shed its jacket as it doesn't have one. Frequently this style of bullet achieves controlled frontal expansion through its hollow-point format and a series of fine scribing serration cuts along its tip, these features helping encourage rapid expansion and a high degree of retained weight. I've found these bullets also produce exceptionally good penetration even when encountering bones and heavy tissue mass.

This style of bullet usually brings good results when velocities and energy levels are fairly high, but may not be the best choice for slower velocity cartridges or when extreme long range has adversely drained that energy level. Since Brooks developed his Triple Shock X a few other manufacturers followed suit, but Randy and Coni Brooks will likely always be considered the copper king and queen of this style of bullet.



Just a few of Thomas' supply of 308 handloading bullets.

Dual core

Dual core-style bullets like the Nosler Partition and Swift A-Frame have become popular with hunters seeking potential for deep penetration, good expansion and a degree of retained weight, yet some found this style doesn't always produce quite as good accuracy as more traditional options. I also found that to sometimes be the case but the amount of accuracy loss has never been substantial enough to be a concern under hunting conditions.

This dual core is made up of two separate lead core chambers separated by a thick copper belt barrier. As the bullet makes impact and mushrooms the jacket typically peels back to the partition, at which point the front lead core frequently is sacrificed while the rear core remains securely intact, often resulting in the bullet retaining about two-thirds its original weight.

I've taken many deer-sized animals and much larger game using Nosler Partition bullets in various calibres when those bullets have performed admirably. The overall design of the Swift A-Frame resembles that of the Partition but the A-Frame is a little heavier constructed and in my opinion would possibly be a slightly better choice for larger and tougher game.

Plastic-tipped

Many modern bullets come equipped with a small plastic tip. In this case the plastic typically extends down into the pocket of the hollow-point where it's held securely throughout firing and flight of the projectile, these inserts working to improve performance. Firstly the plastic tip helps streamline the slug which increases its BC value, resulting in flattening its trajectory, increasing retained energy and allowing it to resist effects of the wind. In addition, the plastic tip works to protect the point from becoming disfigured which could lessen the bullet's BC.



Barnes' Triple Shock X has a reputation as a deep penetrating bullet and having no lead core to shed usually retains a high degree of original weight.



The Nosler AccuBond is good for medium-sized game.



Jacket variations

Jackets vary in make-up, thickness and design. Some makers maintain the same thickness throughout while other formats progressively become thinner at the tip of the bullet, a step meant to encourage quicker and more controlled expansion. Nosler AccuBond and Trophy Bonded Bear Claw bullets come with tapered jackets, both designs wrapping around the base of the bullets, helping to protect their integrity. But the Trophy Bonded Bear Claw base is considerably larger with the copper reaching nearly to its midpoint.

The way I see it

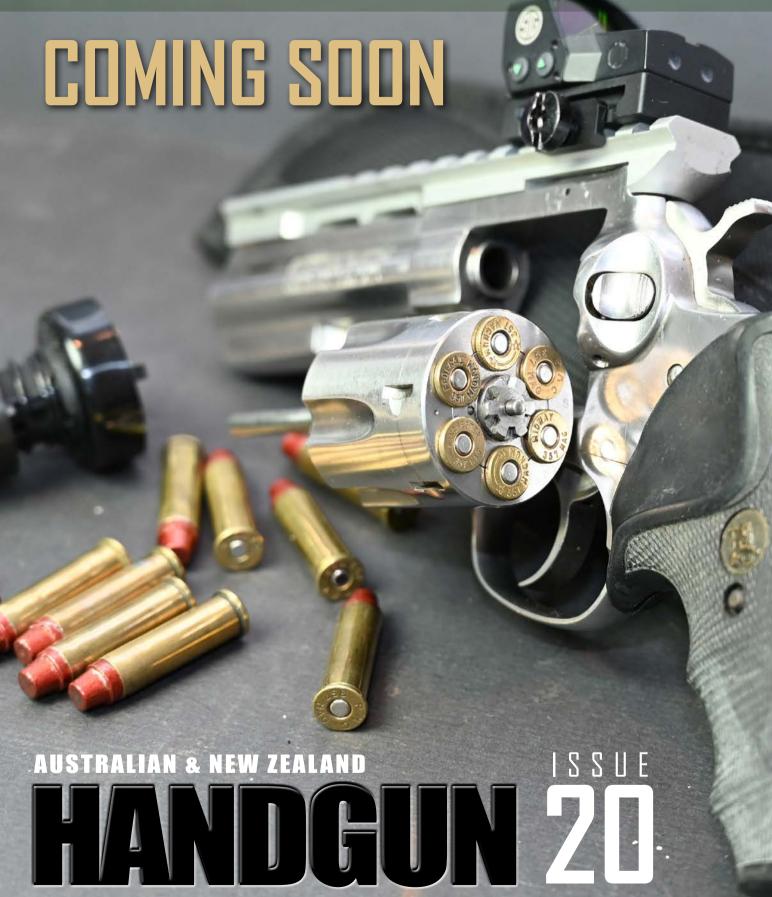
I doubt if hunters will ever reach a total consensus when it comes to the best possible bullet design as whether we choose one assured to produce deep penetration or one which expands instantly, it's imperative we understand the bullet's limitations and use that knowledge to better our hunting success.







The Nosler Partition is designed for deep penetration and good expansion.



Available to buy from late November



a joy to behold

Nightforce ATACR 5-25x56 F1, covers up and ready for business.

Daniel O'Dea

he ATACR is a Nightforce acronym meaning Advanced TACtical Riflescope and as far as long-range scopes go, this one's a beauty. To start with although large, it's comparatively compact compared to others in the same class at 390mm long. It carries a 34mm main tube which allows for a generous 120 MOA or 35 MRAD of vertical adjustment, the main tube also providing 150mm of mounting length.

Starting from the rear the ocular housing is just under 46mm in diameter and extends for around 87mm including the power change ring. The whole housing serves as a power zoom ring with a locking eyepiece design - you turn the eyepiece to achieve the correct diopter adjustment then use the locking ring to set and forget it which allows for fast power change adjustments by turning the whole housing. The power change ring is clearly marked in bold recessed numbering at 5, 7, 9, 11, 14, 19 and 25, a broad arrow indicating

the selected magnification. The ring also has a Power Throw Lever (PTL), an arm extending about 12.5mm proud of the ring to further aid adjustment.

Moving forward another 64mm we come to the turret housing which dominates the scope. All three turrets max out at about 39mm in diameter, these oversized turrets being easy to grasp and lend to simple adjustment. The left-hand turret serves two functions - firstly it controls your parallax side from 45m to infinity, the scope for review in MRAD having approximate parallax marking in metres but MOA versions in yards.

The other function is to control Nightforce's Digillum reticle illumination system. The gold-coloured face of the turret is a button and a quick press and release turns on the illumination (the system memory will start up on the last setting). You adjust the brightness with a press and release of the button with each press increasing the intensity brightness.

When maximum brightness is reached the reticle flashes before returning it to the minimum setting with the next press. The reticle flashes when reaching both the top and bottom intensity and brightness adjustment is incremental with each push both on the up and down intensity settings.

The reticle can be illuminated in red or green and to change between colours, press and hold the button for three-five seconds. Finally, pressing and holding for one-three seconds then releasing turns the system off. All powered by a single CR2032 battery beneath the cap, it's a clever way to obtain multiple functions from just one control.

The central turret manipulates the elevation, individual adjustments via precise clicks with each having a value of 0.1 MRAD or 10mm at 100m. Turret markings match the clicks in visible increments and are numerated at half MRAD intervals so 0.5, 1, 1.5, 2, 2.5 etc. One full turn gives 12 MRAD or 120cm at 100m, full turns expose

rotation indicators with a line marking denoting 1 and then 2 full rotations respectively. The 35 MRAD tuning means just short of three full turns of vertical alteration and theoretically when mounted to take full advantage, that would give turret variation out to approximately 1850m using my 6.5 Creedmoor with Hornady American Gunner 140gr HPBT Match.

Another standard feature of the elevation turret is the Nightforce ZeroStop function. When dialing for elevation it's important that once you've taken the shot, you can dial and not go past your zero position and ZeroStop provides this. Once set it allows you to dial up as much elevation as you like, even full rotations, and when vou've finished vour engagement vou simply dial back down until you come to a hard stop at which point you're at the set zero, hence ZeroStop.

The right turret controls windage with a screw-on cap prohibiting accidental adjustment. Once the windage is zeroed you should leave it alone, hence the turret cap. Left to right there's a full 80 MOA or 24 MRAD total adjustment, click marking values the same as for the elevation turret but shown to 6 MRAD Left or Right. Once tweaked, the turret can be manually lifted and reset to zero using the hex key.

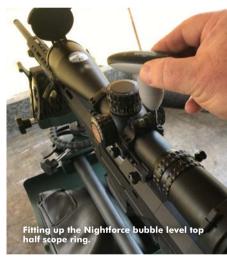
The main tube runs forward for another 42mm before a long taper up to the 56mm objective lens housing which carries an outside diameter of about 65mm, both front and rear lenses protected by excellent Nightforce-branded Tenebraex flip-up covers. The front cover rotates on a bezel and can be moved to any position around the circumference of the objective housing while the rear cover is friction fit and can



also rotate or be tightened up to affix the position with a hex key.

After all that it's inside the scope where the real magic happens. According to the website, pre-production riflescopes are tested to a pressure equal to 30m of water for 24 hours, they're frozen to minus 26 degrees Celsius then heated to above 70C in a one-hour period to test for thermal stability. Recoil and impact testing occur to 1250 Gs, both negative to positive forces.

In production all air-to-glass surfaces receive a proprietary broadband multicoating applied to tolerances of 1/4 wave deposition (.000005"), this exceeding the toughest Mil-Spec abrasion tests. Every lens is aligned by hand in a process called optical indexing and yielding the highest







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Nightforce ATACR a joy to behold



possible optical performance. The scope tubes are machined from solid bar stock 6061-T6 aircraft grade aluminum and are two-to-three times the thickness of other riflescopes, providing less stress, greater thermal stability and protection of the precision optics.

The titanium spring is optimised for lifetime performance and designed to never reach its fatigue limit (it's said to guarantee zero loss of integrity and repeatability). The screw controlling the elevation is machined to an amazing 110 threads per inch and again has to be mated and lapped by hand resulting in a tactile feel and backlash clearance of less than ½0th the thickness of a human hair. The ATACR 5-25x56 tested, as designated F1 has its reticle in the first focal plane meaning the cross-hairs actually become bigger as magnification increases. As a result, subtension values remain relative to target as magnification changes.

This means the scope can easily be used to estimate range on a target of known size regardless of the power setting. Say there's a target you know is 40cm in height top to bottom, you look through the scope and the target takes up exactly 1 Mil (1 MRad) on the cross-hairs subtension markings. One Mil equals 10cm at 100m, 20cm at 200m, 30cm at 300m, 100cm at 1000m and so on, so if 40cm (the target) fits into 1 Mil value in the reticle it has to be 400m away. The equation is as follows: Target size in centimetres divided by image size in Mils (as

measured in the reticle) multiplied by 10 gives you the distance in metres.

Speaking of reticles, Nightforce offer five MRad variants including options for tactical and competition applications and one MOA variant, the test scope fitted with the Nightforce MIL-C F1 reticle. Designed for Precision Rifle Competition the MLR-C features two thick horizontal posts reducing to a fine cross-hair with clearly numbered subtension values out to 5 Mil either side of a .2 Mil centre dot for precise aiming. The vertical values are numbered to 5 Mil above and 30 Mil below on a fine cross-hair and beside the numbered subtension values other markings appear at .2 Mil increments. Lastly, in the lower left quadrant is a separate small 'Milling' tree for rangefinding which measures 2 Mil high centered on a 2 Mil base with precise .1 Mil subtensions.

Mounting the ATACR on the Mossberg MVP Precision I felt spoilt. Not that the Mossberg is any slouch but I'm sure even



Effective raised machined grip surfaces in the power change ring and the Power Throw Lever combine for quick magnification adjustments.



it felt like a five that just swung a date with a 10, certainly two products from different ends of the price spectrum. The 34mm, 20 MOA Ultralite Unimount placed the ATACR at the perfect height and a Nightforce bubble level top half ring (also on loan) finished off this long-range set-up perfectly.

The MVP Precision proceeded to shine at its price point by delivering groups better than ½ MOA, all the time the Extra-low Dispersion (ED) glass on the Nightforce providing a bright image on target in changing light conditions. Adjustments

were easy to dial on and precise, tracking was prefect and I found the MIL-C reticle simple to use although the lower subtension values on the vertical, from 15 Mil down to 30 Mil. are superfluous as they're so small below 14x magnification I couldn't read them. I'd likely prefer the MLR-R version that's similar but has a thick post below the 15 Mil mark which would be more useful on lower power settings.

Summing up, I loved the Nightforce ATACR and if I was in the market. for a Precision Long Range scope I

honestly don't think I could want more. Unfortunately the barrier for most will be the price as you're likely to pay around \$4500-\$5000, but if you have the budget I doubt you'll be disappointed.

To be enlightened on the robust qualities of the scope, visit the Nightforce website for a detailed YouTube video. •

Specifications:

Magnification range: 5-25x56 Focal plane: First focal plane (FI/FFP) Body tube diameter: 34mm Overall length: 15.4"/390mm Mounting length: 5.9"/150mm

Weight: 37.6oz/1066g

Click value: .250 MOA or .1 MRAD Internal adjustment range: E: 120 MOA/35 MRAD W: 80 MOA/24 MRAD

Parallax adjustment: 45yd to infinity

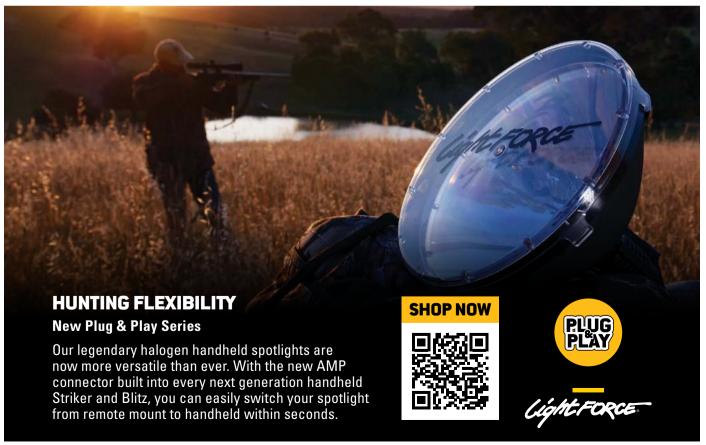
Eye relief: 3.5"/90mm

Field of view at 100 yd/m: 5x: 18.7ft/6.2m, 25x: 4.9ft/1.6m

Exit pupil: 5x: 8.3mm, 25x: 2.3mm

Illumination: Digillum Elevation feature: ZeroStop Power Throw Lever: Standard







Staying power of the evergreen MP34

Ivo Dimitrov

he MP34 (Maschinenpistole 34, literally 'Machine Pistol 34') is a submachine gun (SMG) which was manufactured by Waffenfabrik Steyr as Steyr-Solothurn S1-100 and used by the Austrian Army and Austrian Gendarmerie then subsequently by units of the German Army and Waffen SS during World War Two. A fully machined and exceptionally well-made firearm, it was used well into the 1970s. The MP34 was made from the very best materials available and finished to the highest possible standard, hence it was eventually nicknamed the 'Rolls-Royce of submachine guns'.

The MP34 started life as the S1-100 when development began in Germany in 1924 at the Rheinmetall factory. An employee of the company by the name of Louis Stange (who went on to develop the famous FG42) produced the first set of blueprints, his design similar to the MP18 which was the world's first SMG to see service in the final year of World War One by the German Army. Restrictions on the manufacture of armaments by the Treaty of Versailles forbade Germany from making certain types of weapons such as SMGs, so to circumvent the restrictions of the treaty, Rheinmetall acquired large shares in Swiss munitions firm Waffenfabrik Solothurn in 1928.

A year later, Stange took the blueprints to Solothurn and oversaw construction of the first prototype models, Solothurn essentially used as a proxy under which Rheinmetall could develop the gun legally outside of Germany. But Solothurn was

small and didn't have the appropriate facilities in place to mass-produce the S1-100, so entered into a merger with Austrian firm Waffenfabrik Steyr which resulted in the establishment of a Zürich-based sales outlet known as Steyr-Solothurn. The gun was then sold to both the commercial and military markets.

Full production of the S1-100 began at the Steyr factories in 1930 with the first iteration - known as the Model 1930 - produced until 1935, after which it was replaced by the slightly modified Model 1934. It was offered for export sale in a variety of calibres (including .45ACP) to South America and in 1934 the Austrian Army adopted the Model 1934 in 9x25mm Mauser and designated it the MP34. The Austrian

Gendarmerie also adopted it but in the 9x23mm Steyr cartridge.

Portugal bought in small quantities of the .45ACP version in 1935 and embraced it as the Pistola-metralhadora 11,43mm m/935. They also purchased a small amount of the S1-100 in 7.65x21mm Luger in 1938 and this was adopted as the Pistola-metralhadora 7,65mm m/938 Steyer submachine gun. In 1941 and 1942, larger numbers of 9mm Luger MP34 guns were delivered to Portugal by Germany and in Portuguese service the 9mm MP34 was known as the Pistola-metralhadora 9mm m/942 Steyer.

The m/942 guns carry a Portuguese crest just forward of the safety mechanism as well as on the stock in combination



with Waffenamt markings. The m/942 remained in service with the Portuguese Army into the 1950s and was used until the 1970s by paramilitary and security forces in Portugal's African colonies during the Portuguese Colonial Wars. During the late 1930s Japan also imported a number of MP34s in 7.65x21mm.

When Germany annexed Austria in 1938 the MP34 entered into the Wehrmacht and Waffen SS inventory under the designation MP 34(ö) (ö for Österreich or Austria) and it saw limited use by German troops, particularly in the early stages of World War Two. Being a labour intensive, fully machined and high cost product to manufacture, meant outlay for German use finished by mid-1940 and the manufacturing lines at Stevr were moved over to the MP40.

The MP34 is a select fire (single-shot or full auto) blowback-operated submachine gun which fires from an open bolt. It uses a loose firing pin and the return spring is unusually located in the wooden stock and linked to the bolt by a long push rod attached via a pivot to the rear of the bolt. Easy access to the bolt and trigger assembly is by a hinged top cover which opens up and forward by pressing two release catches.

On the left of the stock is a sliding fire selector switch, marked by the letters E and D for the German contract guns and T and S for Portuguese versions. Early

p of the push rod which retracts e recoil spring in the sto

production runs had a Schmeisser-type bolt-locking safety (similar to the MP40) in the form of a hook-shaped cut-out used to engage the bolt handle when the bolt was cocked. Later models included a manual safety on the top cover, just in front of the rear sight which could lock the gun in both cocked or closed position. The safety features a latch which engages one of two recesses on top of the bolt in either the forward or retracted position.

A 32-round single-stack box magazine is fed horizontally from the left side and the magazine well is angled slightly forward to improve cartridge feed and prevent jams. Additionally, the same magazine housing incorporates a quick-load refilling feature an empty magazine could be inserted vertically from beneath and locked into place, while stripper clips of eight rounds each could be fed from above. Consequently the mag well features two releases, one to free the magazine from the horizontal normal feeding position and one to discharge it from the vertical stripper clip loading berth.

All MP34s were fitted with a walnut stock and semi-pistol grip, the barrel enclosed into a perforated cooling jacket and with a bayonet lug on the right-hand



side. The barrel screws into the upper part of the cooling jacket and the gunner's kit includes a spanner for barrel removal. The rear sight is graduated from 100m to 500m. The example featured here is a 1942 Portuguese contract gun, one of the last MP34s made when the contract finished at the end of that year. It comes with a full set of accessories - bayonet, magazine pouch with three spare magazines, oil bottle, spare recoil spring and cleaning kit with barrel disassembly spanner. •





Security vital for firearms owners

or all shooting enthusiasts whether newcomers or seasoned veterans. providing adequate security for their firearms is of paramount importance. Whether you prefer a certain discipline or hunting trips to the Outback, once the action is done and dusted it's time to ensure your firearms are locked away in a safe and secure manner.

Legislative developments down the years have meant a gun safe is now a crucial part of the shooter's kit, with the days of farmers keeping a rifle behind the kitchen door in the event of pest critters wandering by as potential targets have been consigned to all our yesterdays.

So gun safes, in all their many and varied forms and sizes, are the name of the modern game. An excellent starting point of reference for shooters seeking to add a safe to their domestic armoury is a brochure published annually by the SSAA. Secure your gun, secure your sport features the various safes on offer from leading manufacturers such as Spika, Beretta's Lokaway, Winchester and Hunt-Pro. These can accommodate all quantities of firearms, be that enough room for just a couple to as many as three dozen in a single, extensive safe.

These are bracketed as small safes for handguns and ammo, medium for sporting shooters and up to extra-large safes for clubs, businesses and serious collectors. Each entry in the publication is illustrated and their respective specifications listed - these cover everything from firearm categories, capacity, dimensions, weight, construction and other alternatives including the all-important recommended retail price. Secure vour gun, secure vour sport is also available to view on the SSAA National website.

So once you've decided on the gun safe which potentially fits your needs, how do you know you've made the right decision? What constitutes a good safe and what might be unsuitable? One man who's an expert adviser is at the helm of Captain Safe, a company operating out of Geelong. Nigel Henning is the firm's business manager and offers safes for a variety of purposes, some specifically designed to suit the needs of shooters.

Safes can be customised from their previous duties in secure environments such as banks, police departments and other settings with vital protection demands. "A lot of gun safes simply aren't safe," said Nigel. "A safe is not meant to look pretty, it should be there to protect the contents. A lot of them meet minimum legal requirements and are marketed as sturdy and hard to break into."

But Nigel says there's more to that than meets the eye. "We can show potential customers how quickly a bad safe can be broken into if it's similar to the one they own," he said. "We take obsolete examples from banks and the like that were used in the 1960s, are still in pristine condition and will last another 60 or 70 years."

Nigel admits that good quality, secure safes don't come cheap but buyers will know they're installing functional, guaranteed protection. "We have perhaps a niche market that caters to older and

wiser firearms owners," he said. "Some of our remodelled safes can be very heavy so have to be delivered - they can't just be driven off in a ute. But rest assured, Captain Safe will serve you well."

To make sure you make the right decision for your needs, as well as for more information about legal requirements and safe firearm storage, be sure to check out the latest edition of Secure Your Gun, Secure Your Sport publication on our website.





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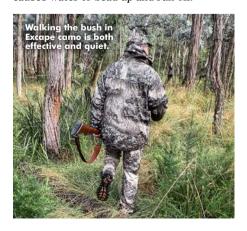
Camo clothing has come a long way since the days when hunters and freshwater fishermen bought ex-Army surplus gear in more traditional patterns, designed for tropical or desert warfare and made from basic but durable cotton fabrics. Today there's a wide variety of camo gear available for military and civilian use, everything from Special Forces desert designs to camo meant for urban warfare and police work.

Civilians can also choose from a huge array of patterns for hunting in various environments or trying to fool wary trout in luscious Kiwi landscapes, as well as the more muted brown high country colour schemes we have in our Alpine regions and rocky lake foreshores. Coinciding with the clothing's arriving came an invitation to hunt trophy fallow deer on a private property, the timing and subsequent poor weather ideal for a real life 'road test'.

Men's Microlite Puffa jacket

This is incredibly light and comfortable, ideal for multi-layering in really cold weather or wearing with just a shirt around town where its smart look will turn heads. For anyone in the know, the Excape camo internal lining of the hood is a giveaway as it's visible when wearing but certainly won't see a SWAT team arrive - at least it didn't on the several times I wore it in Bowral main street!

The jacket is surprisingly warm for its weight and is both water resistant and windproof, the fabric breathable which is important if you're exerting yourself. It'll wick moisture from inside to out and is made with 3M Thinsulate synthetic insulation, meaning even when thoroughly wet it will remain warm under normal conditions and it has a comfortable fitted hood. The Puffa has a nice feel and is very guiet when walking through bushy timbered areas. It's treated with DWR (Durable Water Repellency), a chemical treatment which causes water to bead up and run off.



Men's Microlite Ionasleeve quarter zip top

This lightweight forest green polyester top goes perfectly with the Puffa jacket or on its own as a shooting or fishing shirt. Longsleeved with a quarter zip top it features an anti-bacterial finish for odour control and UPF 40 sun protection. The fabric is breathable, wicks moisture away from your skin and has multi-directional stretch for extra comfort and movement. Very light weight and the odour control certainly works.

Men's stealth pants

These are both light and comfortable with an internal waistband which sits snugly around the hips with the rest of the pants unlined. Three generous zippered pockets and fly with quality YKK zips are a feature. The polyester fabric has a slight stretch to it and the ankle cuffs are elasticated to keep them fitted to your hunting boots. These pants are not windproof or waterproof but do breathe and are very quiet when hunting. They also have an antibacterial coating to reduce the chance of body odours and prolong wear. These will be pleasant in hot weather and are fine as a layer with either thermals underneath or in combination with waterproof and breathable coveralls.

PackLite waterproof jacket

This super-lightweight offering is part of Ridgeline's Performance Rain Protection wear, packs into a small Excape camo bag with drawstring and can be carried in a pocket or backpack. It has a full length quality zip front and is waterproof and seam-sealed to ensure no rain can enter, always a clue to quality wet weather gear of any brand when you see seams tape-sealed. The hood is generous to accommodate a peaked cap or beanie and can be adjusted snug around the face for extra protection from the elements with two toggle cords. The material is stretch polyester with a 2.5L-rated membrane and 10K/10K water and wind resistance (see fact box).

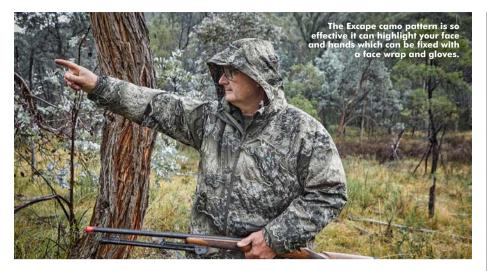
Packlite pants

These are made of the same polyester material and waterproof membrane lining as the PackLite jacket and ensure a perfect complementary kit which uses minimal space vet affords good waterproof protection under normal conditions as described above. They have an elasticated waist and drawcord for a snug fit with no fly or pockets as they're simply a waterproof layer to go with the stealth pants or other items you may be wearing in the event of a shower.

They feature well-tailored lower-leg zips to ease pulling on and off over hunting boots with quality zips and effective zip-protecting flap. There's also a Velcro tab to seal the base of the zip and pants and prevent sticks being caught between boot and pants. They have the same wind and waterproofing as the PackLite jacket and are also seam sealed. Comfortable and quiet.



Don't stand out from the crowd





Summary

The items in this Ridgeline Excape kit work well individually and complement each other perfectly as a camo clothing combination. All garments reviewed were well tailored and finished, superbly designed for the purpose and worked perfectly when hunting in the rain. I stayed warm and dry on a cold wet day during five hours of continuous hunting and also used them fly fishing and found they worked perfectly for that game where stealth is important.

I really like the Excape proprietary camo pattern and found it broke up my outline brilliantly in the areas I hunted and fished. The photos with this review hopefully illustrate the effective concealment this pattern provides. All garments were quiet when sneaking through the bush and the stretch fabric meant there was never a feeling of being constrained when getting up and down off the ground or kneeling to glass for deer.

If anything this type of camo tends to leave your face and hands as standouts because it's so effective and using a face mask or camo scarf and gloves will mean you almost disappear if you stand still in the shade or with a background which breaks your outline. Deer tend to spot movement so hunting slowly and stopping regularly to observe is always advisable.

Get these items dirty and a quick cold wash only will have them looking and feeling like new again (when I washed and hung them out they were dry in no time). As they're polyester with hi-tech spray finishes and the waterproof ones have membrane linings, they should not be heated in any way for drying or ironed under any circumstances. They come with a lifetime guarantee for reasonable use but heating or ironing will invalidate that.

Photos by Mark Kelly of MK Images.

Fact box

Hunting in wet weather can be very uncomfortable without the right rainwear. Plastic raincoats are waterproof but when you exercise in one of those on you sweat like crazy and that moisture can't escape. Wearing that sort of protection while doing something physical makes you wonder why you bothered wearing the coat at all.

Breathable fabrics are available from numerous manufacturers featuring membranes with thousands of tiny holes which allow moisture to wick out through the fabric but, by virtue of the size of those holes, stop water droplets getting through. These fabrics have varying degrees of waterproof and windproof characteristics, generally the more waterproof a fabric is which still allows ample vapour to escape, the more expensive it is to produce.

Waterproofness is measured by Hydrostatic Head. This is measured in millimetres and tells us how waterproof the fabric is - 10K or 10,000mm fabric equates to the pressure created by a cylinder one inch square and 10,000mm (10m) high and filled with water. If no water penetrates the one inch square of fabric it's rated 10K which is a reasonable degree of waterproofness. Bad weather conditions look for 11,000 to 15,000 on the label while 20,000-plus is for use in extreme rain and snow, including high Alpine winds.

Breathability is expressed in terms of how many grams of water vapour can pass through a square metre (m2) of fabric from inside to outside in a 24-hour period. In the case of a 20K (20,000g/m2) material this is said to be 20,000 grams of moisture transfer, the greater the number the more breathable the fabric.

Durable Water Repellency (DWR) is a chemical treatment applied to the outside of a garment which causes water to bead up and run off. It's not waterproof but will endure light showers and over time will likely need further applications to keep reproofing it.

So when assessing wet weather gear, especially if you'll be active, check if the manufacturer provides figures for breathability and waterproofness on the garment or labels, remembering the higher the figures the more suited it will be to active wet weather hunting or other outdoor pursuits.

PackLite jacket: \$199.95 PackLite pants: \$129.95 Stealth trousers: \$99.95 Microlite Puffa: \$249.95 Microlite quarter zip top: \$79.95



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Weather

The sky was overcast, the air humid and heat steadily building to a forecast 34C with no rain predicted. Pulling up under a towering forked gum tree, we paused for a bite before tackling the hilly terrain and scrub in pursuit of our quarry. With backpack and rifle shouldered, I left in the opposite direction to my two mates who'd hunt the valleys with their varmint rifles and we agreed to meet back at the vehicle before dark.

On this occasion I didn't bother carrying drinking water as it was overcast and the distance I planned to cover wasn't far and the terrain not unduly demanding, yet I'd underestimated the effects of the sun's radiant heat and my own drive and physical exertion to trek further and harder in search of game.

Bagging rabbits

The first was spotted close in, squatting next to a fence line at the base of a hill but snuck into the scrub before I could move within shooting range with the .22LR. After reaching the spot I spied the furry form weaving among the sparse, tangled growth and dropped it with a head shot when it momentarily stopped. "That was easy," I thought to myself.

As I zig-zagged up and down the undulating hills to cover as much ground as possible, only a few rabbits were visible in the distance but none within shooting range. By now the clouds had burnt off sufficiently to allow the sun's piercing rays to shine through and, feeling uncharacteristically drained and somewhat lethargic, I

couldn't understand my symptoms considering I hadn't worked that hard, had kept reasonably fit and was travelling light.

No substitute for . . .

Experience has taught me not to push things when feeling out of sorts or unwell, rather listen to your body, take stock and rest before deciding whether to continue or return to base. Removing the backpack and leaning the empty .22LR rifle against a tree, I sat in a small clearing under a shady gum and from the high vantage point overlooking a small gully, glassed for quarry. I spotted a pair of mature rabbits nibbling green shoots on the far side of the gully, the landscape suitably inviting and inspiring I took a few snaps with the camera. After the short break I felt better so picked myself up and continued the hunt.

An hour later and having missed a couple of easy shots, an overcast sky returned and the prevailing high humidity had perspiration trickling down my face. While I could've used a drink of water, I pushed along a stretch of ground beside a creek that led to the next fence line and a section of the property which in the past had housed rabbits in and around the wooded thickets. As drained as I felt, the prospect of bagging game lifted my spirits and took my mind off the oppressive conditions. Indeed the area proved as rewarding as anticipated and I collected a few rabbits in quick time. To avoid spoilage under the hot conditions they were gutted there and then, placed in cloth game bags and hung up in the shade to cool and drain of blood - while I enjoyed another breather.



Hunt smart under the hot sun



Creek water

A nearby trickling creek with its clear water was enticing but I couldn't risk ingesting potential bacteria or farm pollutants which may have found their way into the stream (a portable survival water filter straw would've come in handy). The creek brought to mind a late-October NT buffalo hunt a few years ago when heat and high humidity made for heavy going and the hunt barely tolerable. While we'd carried plenty of drinking water and shady gum trees provided protection from the intense sun, it was also a matter of maintaining reasonable body temperature to avoid heatstroke.

Even Glenn, our outfitter that day who lived in Darwin and was used to hot and humid conditions was feeling the effects. After our efforts in downing a trophy buffalo and retrieving the cape and horns I was red-faced and drained of energy so, as an added precaution, Glenn suggested I soak my T-shirt in the remnant waterhole of a drying creek and put it back on to cool down, which I did. Sometimes you need to think outside the square, even though it may seem obvious and luckily all ended well.

Timina counts

Back to the rabbits. I'd started in early afternoon, hunted the hottest part of the day and even though bunnies were out and about, I'd misjudged the conditions as not even the cloud cover could shield the radiant heat. Thirty years ago when obviously a lot younger, I didn't think twice about hunting in heat up to the mid-30s but today I feel a different heat with far more bite.

As animals adapt to changing conditions to cope and survive, so hunters and outdoors enthusiasts also need to take heed by staying well hydrated, wearing protective breathable clothing, including headwear, and perhaps being more selective on when and how to hunt in conjunction with prevailing weather conditions. Events made me realise I need to give greater consideration to future hunts in this regard and, whether it's an intended short or long hunt, to always carry a good supply of water or hydration fluid (a water filter straw is now part of my regular backpack gear).

On reflection, I must have experienced some of the dehydration effects which can occur in a very short time - under



Hunt smart under the hot sun

hot sun it can take as little as 30 minutes to feel them and in an hour you can shed up to two litres of fluid, some of the symptoms being dizziness, weakness and muscle cramps. So instead of retracing my steps I slung the strapped rabbits over my shoulder and, with a dry mouth and increasingly tired body, headed for the vehicle by the shortest route.

On the way - not that I needed another rabbit to carry - I couldn't resist taking a crack at one directly in front at 80m which emerged from the bushes and was sitting on its haunches, the longish shot with the .22LR hitting true and adding one more to the bag. On reaching the vehicle and meeting my mates who'd also claimed a few, the water in the canteen bottle went down a treat, a few sips at first to wet the mouth and gullet then the entire contents. Not surprisingly my companions, who'd been in the open most of the afternoon, had experienced similar heat effects and felt far more drained than on previous occasions.

Conclusion

Pushing yourself in search of game through exertion and mental determination can be admirable and prove rewarding so long as your efforts are measured, you know your physical and mental capabilities and you're properly equipped to cope. Always carry plenty of water and at least a snack depending on the proposed duration of your hunt - at the end of the day it's about returning home safely so you can do it again.





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Con Kapralos

erman Precision Optics has been quietly delivering quality products to hunters and shooters since 2016. The brainchild of senior executives in the optical industry, their aim was to provide top-notch sports optics without having to charge consumers for supporting corporate profitability structures through increased pricing or decreased eminence on their offerings.

With all design, engineering and value management done in Germany, they source the best materials via worldwide supply chains and have products built to stringent processes and requirements by optics manufacturers located outside Germany. Their current line-up of binoculars and riflescopes look great but are also built with high performance and reliability in mind. GPO caters to the Rangefinder market and feature both binocular and monocular styles.

Raytrade, Australian importer and distributor for GPO, sent *Australian Shooter* the Rangetracker 1800 monocular Laser Rangefinder for evaluation and it was eagerly received. These items have become an indispensable asset to the modern hunter, allowing them to quickly ascertain ranges in the field at the press of a button - no more guesswork.

Up close

The Rangetracker 1800 is supplied in a neat cardboard box with two compartments, one housing the Rangefinder and the other a storage pouch, handy user manual and lanyard with clip for attachment to the unit (buyers have the option of either black or olive green colour). Measuring 94mm in length by 33mm wide and 76mm high, the Rangetracker fits beautifully in the palm of the hand and could be easily carried in a coat or shirt pocket - it's small but spot-on for the hunter after a compact option and at just 148 grams it won't weigh you down.

Checking the technical aspects, the Rangetracker has magnification of 6x with a 20mm objective, is capable of distance measurements up to 1800m on reflective objects and for things such as trees, animals and the like, 700m is quoted by the manufacturer. It can gauge distances in Hyperscan mode with three measurements per second and, together with the Dual TargetSeeker Technology, the user can choose between the LAST or BEST target distances, making it extremely versatile. The Rangetracker 1800 also has inbuilt Slope Correction software which, when activated, shows the distance to the target with terrain angle taken into account. Other attributes are eye relief of 16mm; exit pupil of 3.33mm; fast diopter setting for better ergonomics with diopter correction of +3; HLCD display - 25 per cent higher transmission compared to standard displays; easy to use battery compartment housing a single CR2 Lithium battery (up to 4000 measurements with one battery); laser response time of 0.33 seconds; minimum range of 6m; angle sensor of +/- 60 degrees.

The carton containing the Rangefinder and promotional leaflet.



I initially intended to use the Rangefinder for hunting, but it was put to the test in a completely different scenario when I was called on to perform some field work during the course of my employment as a senior research technical officer and needed to measure accurately the distance from a static point to the sampling spots down a hill slope.

Here, the compactness of the unit was appreciated as was its weight (it was barely noticeable in my raincoat pocket). Even with fine drizzle that evening I was able to quickly range the distances I needed with the angle sensor calculating the correct

ones up the hillside. When my colleagues asked me how I measured the distances up to 200m in this instance - thinking I had a very long tape measure, I showed them the GPO Rangetracker 1800, much to their surprise. It made my task a whole lot easier that night.

Back to shooting and hunting and the unit was taken to the rifle range several times and used to ping distances from the bench to the target frames and in





The carton has two compartments, one for the rangefinder unit and the other (lower) for the zippered clam-shell cover and accessories.

Set your sights on GPO Rangetracker

all instances performed superbly. I also lined up a few trees and outbuildings way past the 300m rifle range maximum and was able to take readings up to 1500m on outbuildings and 800m on larger gum trees, the unit's simplicity and compact nature being its best asset.

I eventually managed to go after deer in late autumn and the Rangetracker 1800 was in my daypack (when stalking it was kept in my coat pocket and quickly accessible). What I like most about its design is the fact the top of the unit has only a single button that's used for ranging the target, a separate menu button located on the left, well away from the fingers and palm of the hand (this is the best feature). Many similar rangefinders have two buttons (menu and range) in close proximity and it's easy to press the wrong button but with the GPO Rangetracker there's only one button for the index finger to press on the top of the unit.

Once again the Rangetracker 1800 performed brilliantly in a hunting scenario, the 6x magnification being spot-on and its compactness without comparison. If I didn't already have a Rangefinder in my kit bag, Raytrade would have received a cheque instead of

the unit being returned to them, that's how impressed I was.

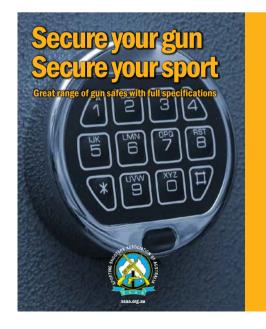
In summary

This GPO product makes for an excellent addition to the hunter's daypack or shooter's range-bag. It quickly measures targets out to 1800m and is easy to use and superbly compact in nature. With its

6x magnification and array of features, it's definitely worth considering if you're in the market for a monocular laser rangefinder and comes with a retail price of \$695.

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Competition News

National

Big Game Rifle National Postal Shoot

Jan 1-Nov 30, 2021 Participating Big Game Rifle clubs See National website for event details. Contact shoot captain at your local club.

National Junior Rimfire Field Rifle Postal Championships

June 1-October 31, 2021 All clubs and branches. See National website for event details. Contact: juniorsports@disciplines.ssaa. org.au

Rifle Metallic Silhouette National Rimfire Postal Competition

June 1-November 30, 2021 See National website for event details. Contact: Kathy Tobler toblerkathy@ gmail.com

Muzzle Loading National Postal Match

July 1-Nov 30, 2021 All participating clubs. See National website for event details.

Benchrest IRB and Rimfire Group National Championship CANCELLED

September 30-October 4, 2021 Springsure Sporting Shooters, Qld See National website for event details. Contact: Gavin Marshal 0438 759 162.

SSAA Combined Services National Championships CANCELLED

October 1-3, 2021 Central Qld Shooting Complex, Gladstone. Old

See National website for event details. Contact: Shayne Smith: 0418 808 817.

IHMSA National Championships CANCELLED

October 1-8, 2021

Majura Shooting Complex, ACT See National website for event details. Contact: Russell Mowles handgunsilhouette@disciplines.ssaa. org.au or Cheyne Fischer ihmsa.act@ gmail.com

SSAA Lever Action National Championships CANCELLED

October 2-4, 202 I SSAA Alice Springs See National website for event details. Contact: Brian Knappstein president@

SSAA Action Match National Championships

ssaaalicesprings.com.au

CANCELLED October 9-10, 2021

SSAA Bundaberg, Qld Program: See National website for event details. Contact: actionmatch@ disciplines.ssaa.org.au

Law Enforcement Activities Police Service Match National Championship CANCELLED

October 9-10, 2021 Belmont Shooting Range, Qld See National website for event details. Contact: lawenforcementactivities@ ssaa.org.au

SSAA Lever Action Silhouette National Championships CANCELLED

October 28-31, 2021 SSAA Majura Range, ACT See National website for event details. Contact: David 0423 043 663 or Mark 0401 867 839 or email mnl1@live.

SSAA Long Range Precision National Championships CANCELLED

October 30-31, 2021

Captains Mountain Range, Queensland Program: See National website for event details. Contact: luna@ssaaqld.org.au

SSAA National 10m Precision; NRA 3x40 3-P; and Field Rifle **Postal Shoots**

September 1-November 30, 2021 Nationwide locations Program: See National website for event details. Contact: Jennifer Ingram jenniingram I 978@gmail.com

Old

SSAA (Qld) Law Enforcement **Activities Police Service Match**

October 9-10, 2021 Belmont Range, Queensland Program: This is an amended Covidrestricted Registered Match. See National website for event details. Contact: lawenforcementactivities@ disciplines.ssaa.org.au

WA

SSAA (WA) Practical Handgun **State Championships**

November 6-7, 2021 Boulder Branch, Egan St, Kalgoorlie Program: See National website for event details. Contact: Steve Genovese 0437 442 884, Paul Fitzgerald 0407 773 286 or Shane Livingstone 0409 596 959.

Tas

SSAA (Tas) Single Action State Championships

November 27-28, 2021 Westbury Shooting Club, Tas See National website for event details. Contact: Steve Collins 0428 63 | 322.

SSAA (Tas) HMS Big Bore State Championships

November 27-28, 2021 Oakdale Pistol Club, Tasmania Program: See National website for event details. Contact: codyabel@spin.net.au

SSAA (Tas) Handgun Metallic Silhouette State Championships

November 27-28, 2021 Oakdale Pistol Club, Tasmania Program: See National website for event details. Contact: codyabel@spin.net.au

SSAA National Event Cancellation/ **Postponement Policy**

SSAA National championship events may be subject to border controls and other COVID-19 impacts. In addition to general border closures, many states and territories may prohibit persons from known COVID hotspots. An event may be postponed or cancelled at any time by SSAA National, SSAA State Office or club directive.

It is recommended competitors consider any potential COVID-19 impacts on travel, accommodation plans and insurances etc. SSAA National will not be liable for reimbursement to competitors for any costs associated with a postponed or cancelled SSAA National championship event for any reason, including COVID-19. Competitors planning to attend an event should consider options for free cancellation or refund of travel and accommodation costs where available.







Get help from 4-time Olympic shooter and lawyer, Glenn Kable

Get the right legal advice! Available Australia-wide.

Having spent a lifetime around the sport, I have an intimate knowledge of the workings of all the bodies affecting the decision-making process, whether it is police or courts, local councils or governments, clubs or associations.

For a no-obligation assessment, phone 0407 962 200 or email glenndkable@yahoo.com mail@hartmann.net.au

OVER 200 **TABLES**

9am - 4pm

Sat I3 November _ Sun I4 November 9am - 2pm

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Due to Covid 19 restrictions, please check Facebook and **brisbanegunshow.com.au** for updates closer to the event or call Paul Brush on **0412 562 252**

SSAA Member Alert

Please be aware that state and territory police firearms registries regularly crosscheck firearm licences and your member status. To support your genuine reason and keep your firearms licence and to make sure that SSAA can support you, make sure you renew your SSAA membership.

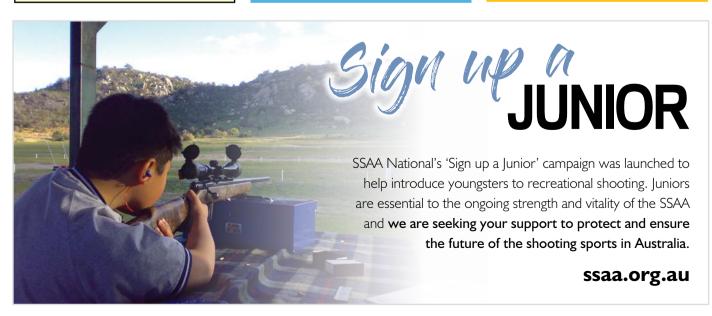


Yes, it's true - all the best shots are members of the Sporting Shooters' Association of Australia. Now you can be the proud owner of one of a limited number of Maxwell & Williams coffee mugs emblazoned with exactly those words to tell the world and be the envy of your mates.

You can't buy this mug, no matter the size of your wallet. So if you want your shot of coffee in the SSAA Best Shots mug, you better get your entry in for your chance to win one! SSAA members only.

Enter online at ssaa.org.au/win

To advertise with the Australian Shooter please email advertising@ssaa.org.au





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Shop now for exclusive SSAA products, including clothing, camping, accessories, knives, books and more.



SSAA Razor Polo

The new SSAA Razor Polo Shirt is a stylish and comfortable grey polo shirt with contrast panels and lime-green fluro piping. Made from 100% BIZ COOL Polyester Sports Interlock material, the polo shirt has grid mesh underarm and side panels for breathability and a knitted collar with contrast placket.

The polo comes is sizes ranging from S to 5XL

\$42.00



SSAA Multi Tool

The SSAA Multi Tool, with stainless steel handles, comes with 11 functional tools in one handy unit.

\$39.95



SSAA Card Holder

The SSAA Card Holder is a slim, lightweight and stylish leather-look wallet, it features four licenced-sized card holder slots, two large slots and a clear slot.

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SSAA Cool-Dri Polo Shirt

SSAA Cool Dri JB Polo is navy blue with white trim and made with a moisture wicking material, so you will always feel dry and cool.

The polo comes is sizes ranging from S to 5XL

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SSAA Magnum Shooting Glasses

Comes with three interchangeable lenses, visit our online shop for all the details.

\$49.95



Trigga the Koala

Trigga measures 32cm in length, is fully machine washable and is made from 100 per cent polyester fibre.

\$24.95



Ladies Polos

The SSAA Ladies Polo has a feminine styled 'V' neck with contrasting piping panels. The easy care fabric is 160gm 100% DriWear polyester with moisture removal and mini-waffle knit.

Wear the SSAA logo with pride!

The polos comes is sizes ranging from 8 to 26.

\$42.00



SSAA Traditional logo belt buckle

The SSAA Traditional Logo Pewter Belt Buckle measures approximately 8cm x 6cm, comes with protective pouch and Care Instructions – just add your favourite belt!

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SSAA Buffwear

Look stylish in the great outdoors with one of the new SSAA Buffwear which come in five great options – Iron Bark, Bullet, Coloured Leaf, Distressed Leaf and Oz Flag.

Perfect for men and women alike, the SSAA Buffwear can be worn in a multitude of ways and comes complete with a cheat sheet to show you a dozen different options to get the most out of yours.

\$15.95

ee vhore online!





\$124.95 See full details online

Glow-in-the-dark fishing knives

When you are on the water instead of in the bush, you can't go wrong with the new SSAA SICUT Fishing Knife Pack, with glow in the dark knife handles!

The SICUT Fishing Knife Pack is designed in Australia for use in Australia's harsh conditions. The SICUT Fishing Knife Pack comes with a heavy-duty, four-pocket canvas wrap and contains:

- Pull sharpener, which is ergonomically designed to keep your knives sharp
- 6" curved boning knife, with glow-in-the-dark knife handle
- 8" semi flex curved fillet knife, with glow-in-the-dark knife handle
- 12" slicing knife, with glow-in-the-dark knife handle



SSAA caps

Great caps in a variety of colours with embroidered logos on the front.

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Get in quick!

SSAA Hoodie

One can never have enough hoodies! Why not add our SSAA Navy Hoodie to your collection? With the traditional 'kangaroo pouch' and hood, it is sure to keep you warm as you show off the cool SSAA logo.

The SSAA Navy Hoodie is a Gildan heavy blend top made from 50% cotton and 50% polyester preshrunk yarn.

Available in sizes S to 5XL.

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SSAA Bullet Case Pen

The SSAA Bullet Case Pen has been crafted from a part form bullet case.

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SSAA Ka-Bar Warthog Folder

The reinforced tip of the tanto blade is extremely strong, making this knife not only an excellent everyday carry option but also a great tactical tool for puncturing tough objects. It features a non-reversible tip-down pocket clip and gunmetal grey stainless-steel bolsters. For more information, see the website.

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Adventure Cooking Fire to Fork by Harry Fisher

His first cookbook, Fire To Fork - Adventure Cooking combines everything he knows about cooking over an open flame with over 60 of his favourite bush recipes, desserts and cocktails. If you like campfires, unreal camping and great food, this book will transform how and what you eat when travelling.

\$44.95



Outback Survival by Bob Cooper

Outback Survival covers what you need to do, and how, to survive in the great Australian outdoors. The 230-pages take you through every aspect of a survival situation from bush tucker and bushcraft to off-road driving and survival kits. Based on Bob's tried and tested Big 5 survival techniques, supported by diagrams and photos.

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The automatic opening SSAA Sports Umbrella has eight strong 190T showerproof polyester panels and eight windproof 76cm ribs. It has a fiberglass shaft with a soft EVA hand grip.

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SSAA MEMBERSHIP APPLICATION

SSAA Membership Office, P	BERSHIP APPLICATION ABN 95 050 209 688 D Box 282, Plumpton, NSW 2761 Membership No. 12 9832 9377 Email membership@ssaa.org.au Have you been a member before? Yes/No	ASSOCIATION OF AUSTRALIA
First name	iss Ms Mrs or Preferred SSAA Branch	PLEASE READ AND SIGN
Middle name Last name		This application is made in full recognition of the Association's requirement for responsible and ethical behaviour. I undertake to
Residential address Town/suburb		the do all in my power to preserve the good image of the sport and the Association. I understand that members breaking the Code of Conduct may be sub- ject to suspension or expulsion.
Postal address Town/suburb		The Code can be found at ssaa.org.au/code
Phone (Mobile)	(Home)	DATE:
Email		refundable, nor can they be transferred. SSAA Inc collects personal information of members. The
Date of birth	Male Female Member referral number if applicable	information you provide on this form will be disclosed to the state or territory branch of the SSAA to which your membership application relates. A copy of SSAA Inc's privacy policy can be found at ssaa.org.au/
Tick to subscribe to the FREE SSAA National E-newsletter via email MEMBERSHIP CATEGORIES AND SPECIAL OFFERS Each membership category (apart from Family Member) includes 11 issues of the Australian Shooter magazine per year. Add four issues of the Hunter magazine per year. Add four Membership category (apart from Family Member) includes 11 issues of the Australian Shooter magazine per year. Add four issues of the Hunter magazine per year.		
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Members-only competitions

For your chance to win one of these competitions, write your name, address, phone number and membership number on a piece of paper and place it inside an envelope, along with the name of the competition on the front of the envelope, as shown in the example. Alternatively, you can enter online.

Competitions close October 31, 2021

(Name of competition) SSAA National PO Box 2520 Unley SA 506 I



Enter online at ssaa.org.au/win

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Bore Inspection Camera Kenneth Holst, Qld

GlowShot Double Action Self-Healing & Hit Indicating 6" Gong Jake Hall, NSW

Junior Prize - Winchester Prize Pack Damian Keightley, Qld

> **Best Shots Mug** Rob McPhee, Old

Australian Hunter 77

Field to Fork: **Second Helpings Cookbook**

Douglas Hutchings, SA Colin Want, Old James Griffiths, Vic Wayne Rush, Old Dierk Payne, NSW

Howard Leight Earmuffs Margaret Ellis, Qld

Warthog V-Sharp Classic II **Knife Sharpener** Angelo Ferraro, Vic Nick Lamprey, Tas

AUSTRALIAN SHOOTER is published monthly and is printed by IVE, 83 Derby St, Silverwater, NSW 2128.

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The wrath of Mother Nature

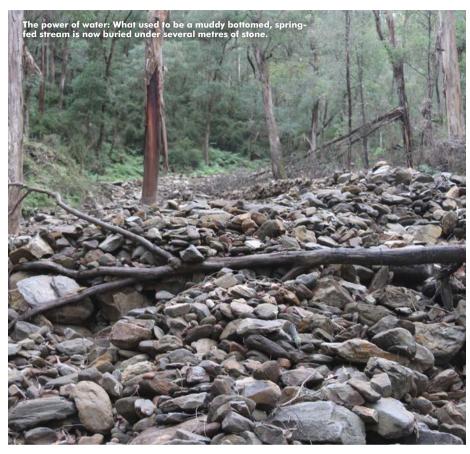
wo winters back. Dixie and I followed some fresh deer marks into a steep little gully that wound its way back from the farm fringe country we mostly work. Less than a kilometre in, the dog stopped and indicated there was a deer in the scrub on the other side. She was right but I didn't see the animal until it moved, the brief glimpse I had enough to tell me it was a stag.

On the gully bottom we found a wallow about twice the size of your average dining room table and along one side a stag had raked his antlers through the grey muck. The water in the bottom was still slowly turning, splayed running marks and gouts of sloppy mud splattered on the bracken showing he'd left in a hurry and gone uphill into the scrub. It all looked very promising.

We hunted that wallow half a dozen times during the next few months, learning a little more each time and beginning to appreciate why the area was such a good spot for holding sambar. Whichever way we approached it, no matter the time of day, there was always a drift or swirl of gully breeze which gave away our intentions, so eventually I decided a tree stand high on a side spur, well back and looking down into the wallow was probably my best bet for taking a crack at the stag.

Despite my good intentions the tree stand didn't happen - 2020 was not a good year. The summer brought bushfires which scorched a lot of the mountains, then COVID-19 stuck its paddle into the mix with travel restrictions and border closures. We moved house and while I was working through that, winter became the hunting season that never was.

While talking to the property owner one night not long after the fires, he told me a storm had come through with heavier than usual rainfall. The river was filthy, loaded with mud, ash and all the other fire debris the rain had washed out of every gully on the face of the mountain. My little gully had been one of the worst affected, probably because it was so steep and narrow to begin with. It had run a virtual avalanche of water and rocks and smashed trees that swept down and flattened all before them. None of it sounded good but it wasn't until May of this year I had the chance to see what he was talking about.



The fences around the bull paddock were gone. Below a farm dam that somehow remained intact, the creek line was layered with rocks and studded with boulders, the largest as big as the cabin of my ute. A shallow drainage line I'd been stepping over for 30 years had become a ravine of sorts, four or five metres wide in places and at least that deep in others. The mouth of the gully where generations of wombats had mined the dark soil was covered by a layer of shingle and grey mud, thousands of tonnes of once-buried stone and gravel washed out and down and left exposed to the elements.

All of the understorey species and most of the trees which once thrived in the creek bottom were gone. Of those that remained, many were scarred by all that had swept past them in what can only have been a maelstrom, their roots exposed, trunks stripped of bark several clear metres above the new, post-flood ground level. The little

flat where the wallow had been was no longer there. The preaching tree had also gone but perhaps unremarkably, the deer hadn't. There had been marks all along the creek and somewhere up on the northern side of the gully a deer had barked and crashed away as we walked in.

In the confines of the gully it was impossible not to be awed by the level of change the power of the water had made in what amounted to little more than a blink of an eye. And though there were already small

signs of recovery, I had to wonder how long it would be before some of the deeper wounds healed. I'll be keeping an eve on them as long as I can. •



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