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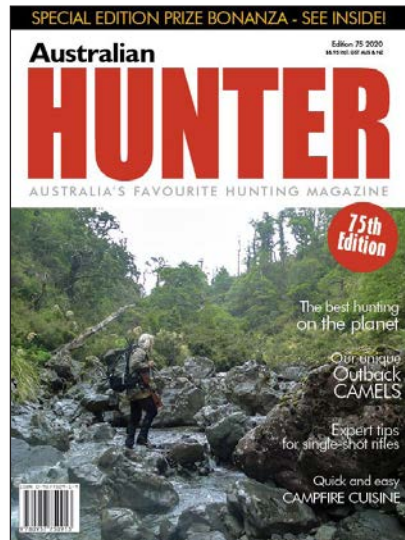
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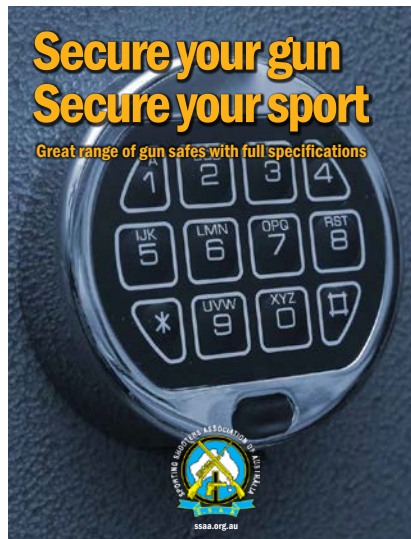
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This regular publication (online) informs shooters of what they need to know about safe firearms storage and includes:

- Up-to-date contact information on the state's firearms registries
- Safe firearms storage
- Firearm categories
- Extensive range of firearm safes available in Australia with information on how they may be obtained.

This Issue

April 2021

FIREARMS

- 16 Back in black - the Huglu HT-14 Trap
- 36 The remarkable TOZ revolver
- 44 On the right track with TAC-12
- 59 Precision is precisely what you get

HUNTING

- 30 English adventure for a lucky hunter

PRODUCTS

- 42 Pocket the change - Military Marine binos by Steiner
- 62 Best foot forward - LOWA Ranger GTX III boots
- 73 Signature signs away scope-mounting problems

AND MORE

- 24 The importance of a rest - grab every advantage you can
- 46 Adventures in reloading
- 50 Roll up for a Second Helping of goodness
- 52 What to do with your first PTA
- 57 How Howard's handgun law changes backfired
- 64 When the trip is much more than the tally
- 68 New sling proves its worth to stalking hunters
- 70 Black Powder: old, new and faux

REGULARS

- 6 President's Message
- 7 Letters
- 7 Insurance Q&A
- 8 Open Season
- 10 Bushcraft
- 12 Clay Target Q&A
- 14 Top Shots
- 77 Competition News
- 78 SSAA Shop
- 81 Members-only Competitions
- 82 Jumbunna



Our April cover

See Page 68

NEXT ISSUE



Shotgun enthusiast Paul Miller has been out and about with the latest 686 Silver Pigeon 1 from Beretta, a gun he says that - with intelligent choke, pellet size, payload selection and shotshell combination - will punch way above its weight.

Thinking of getting into reloading? Then senior correspondent Rod Pascoe has penned a must-read article on what you need to know...and what to avoid by way of the perils and pitfalls of the numerous websites and online forums dedicated to the subject.

The much-anticipated Sauer 404 Classic XT rifle was one of the victims delayed by last year's global pandemic but, undaunted, Con Kapralos was not to be deterred and perseverance saw him lay his hands on a demonstration model for *Australian Shooter*.



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AMR22LRTHS	22LR	10rd Rotary	18"	21.8mm	Thumbhole Laminate	Satin Stainless

President's Message

WITH LANCE MILLER

Communication the way forward for the benefit of all

Last month I spoke about access to our ranges and what it means to all of us, especially new shooters. I also mentioned change and the increasing rate of change, particularly around population growth and urban sprawl which can impact negatively on our ranges and access to hunting.

But change is also an opportunity. For example, last year we endured Covid lockdowns which brought about a huge uptake in digital communication, especially video conferencing which went from being a business tool to a community outlet for communicating with just about anyone. Last year's SSAA National AGM was held by video conference as were our last two Board meetings, the constitution committee meets via video conference and most states and territories now use it to stage some if not all their Board meetings.

Some states are also using video to communicate with branch executives in a Q&A style of information exchange and, of course, we also use email to engage with our members. So what does this mean for the SSAA? Simply that members are more informed than ever on local, state and national issues in an almost real-time manner and this is a powerful real-time tool to add to our stable of magazines.

And the benefit of an informed and engaged membership is the subject of this column. We're now more than 200,000 strong and while industrial and business groups lobbying government can have millions to spend on influence, we're not that model. Our needs are better represented by the honesty and factual nature of advocacy - and our currency is our membership. To have successful advocacy we need engaged and informed members as communication is the most effective tool to keep you updated and maintain your engagement.

Our magazines are a strong tool for that engagement and information but in this world of rapid change, the inclusion of email, video conferencing and even SMS can target topical issues immediately and this will become one of our most powerful

tools for successful advocacy and legislative action at both state and national level.

An example of how communication and engagement with members can generate political impact is the recent advocacy against the negative impacts of the proposed Criminal Use Bill in NSW. From the beginning of that campaign, members were contacted for input and this was used in preparing submissions. Regular membership updates on the progress of the SSAA (NSW) activities and future planning of the ongoing activities kept members informed and, when support was needed to sign an electronic petition to be presented to the NSW Parliament, our NSW members created the fastest Parliamentary Petition ever raised, achieving the required 20,000 signatures in just six days. Those recommendations have yet to be accepted by the NSW Parliament but given the power, speed and responsiveness of SSAA members in that state, it looks likely that logical amendments will be considered or the Bill scrapped altogether.

Another benefit of positive advocacy and communication is how these activities bring other firearms bodies together for a bigger united front. 'Stronger Together' was the catch-cry of that campaign and in the political advocacy space that's an absolute truth. Our membership is the advocacy advantage of the SSAA whether you're a target shooter, hunter or collector and keeping you informed and engaged is the responsibility of your state and national organisations to ensure we're the most ready and responsive advocacy organisation in the firearms arena.

Membership of this Association provides you with incredible value for money but also offers a strong voice in advocacy for our sport and recreation. We are committed to keeping you informed.



Lance Miller
SSAA National President

AUSTRALIAN Shooter

THE MAGAZINE FOR SPORTING SHOOTERS

MEMBERSHIP AND MAGAZINE INQUIRIES

Phone: 02 8805 3900

Fax: 02 9832 9377

PO Box 282, Plumpton, NSW 2761

Email: membership@ssaa.org.au

EDITORIAL POLICY

To create a better environment and community understanding of all forms of hunting and shooting sports.

EDITORIAL INQUIRIES

Phone: 08 8272 7100

Fax: 08 8272 2945

PO Box 2520, Unley, SA 5061

Email: edit@ssaa.org.au Web: ssaa.org.au

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EDITORIAL

MANAGING EDITOR.....	Allan Blane
ASSOCIATE EDITOR.....	Thomas Cook
ASSISTANT EDITOR.....	Dave Rose
CHIEF OF STAFF.....	Jennifer Martens
ART DIRECTOR.....	Mike Barr
PRODUCTION COORDINATOR.....	
& GRAPHIC DESIGNER.....	Elizabeth Tyson
GRAPHIC DESIGNER.....	Natalie Kuhlmann
WEBMASTER.....	Mark Fieldhouse
ADVERTISING & PROMOTIONS.....	Karoline Wasiak
ADMINISTRATION.....	Debbie Wing
.....	Trudy Sheffield
SENIOR CORRESPONDENT.....	John Dunn
SENIOR CORRESPONDENT.....	Rod Pascoe

CONTRIBUTORS THIS ISSUE

Peter Bindon, Russell Mark, Steve Hurt, Robert D Moore, Chas Harding, John Rutkay, Ben Gregory, John Maxwell, Mark van den Boogaart, John McDougall, Con Kapralos, Ben Unten, Dick Eussen, Chris Redlich, Samuel Mann.

STATE CONTACT INFORMATION

For SSAA inquiries please contact your state SSAA office:

NSW	02 8889 0400	WA	08 9497 7919
QLD	07 3281 3447	SA	0419 849 452
VIC	03 8892 2777	ACT	0423 043 663
TAS	0418 734 008	NT	0402 013 918

NATIONAL CONTACT INFORMATION

SSAA National Chief Executive Officer

and Chief Editor Tim Bannister

Wildlife Programs Matthew Godson

PO Box 2520, Unley, SA 5061

Phone: 08 8272 7100

SSAA National Accounts Office

PO Box 282, Plumpton, NSW 2761

Phone: 02 8805 3900

Email: accounts@ssaa.org.au

SSAA General Insurance Brokers

Unit 1, 212 Glen Osmond Rd,

Fullarton, SA 5063

Phone: 08 8332 0281

Freecall: 1800 808 608

Fax: 08 8332 0303

Email: insurance@ssaa.org.au

President

Lance Miller

Senior Vice President

Denis Moroney

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National Secretary

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Alf Bastian

Please mail all correspondence for the SSAA National Executive to
SSAA, PO Box 282, Plumpton, NSW 2761
Email: ssaa@ssaa.org.au



SSAA - Protecting shooters since 1948

A tip for your gun safe

WITH REFERENCE TO Geoff Smith's article 'Long-term storage of firearms' (*Shooter*, October 2020) I own a grandfather clock roughly 100 years old which is working perfectly to this day thanks to a wise clockmaker who shared the secret of long-term preservation of delicate working parts and timber.

In the bottom of the clock cabinet is placed a small tin or tray containing a folded rag wet with kerosene (I use the bottom of a plastic milk carton and folded handkerchief). Kerosene fumes keep the clock mechanism lubricated as well as deterring pests, bugs etc from entering the cabinet and also protects the timber from mould and mildew through reduced moisture levels.

This method could also be used in gun safes and cabinets as the fumes will protect metalwork from rust, keep trigger mechanisms lubricated and timber stocks free from mould and moisture.

Ian Cameron, via email

Never too old to learn

AT MY AGE (70 + GST) I sometimes forget I know things and it's great to be reminded. In the October 2020 issue of

Australian Shooter were two articles which fell into that category, the first by John Maxwell about risky items in my garage (I have old paint tins and petrol jerry cans which are, at the moment, empty).

The second by Geoff Smith was about taking care of firearms which have been stored for some time. I fall into both these categories and have now been reminded to act on the advice in those articles so the paint tins and jerry cans will be moved to a shed at the far end of my back yard and I'll take my firearms from the gun cabinet, check them and clean them. Please thank both gentlemen on my behalf.

Aaron Govendir, via email

Advice on binoculars

DUE TO MY age I'm now in need of a better pair of practical binoculars, just for observation on my horse/ageistment farm and wondered if any of your readers could suggest what I should be looking at buying. A good pair means I could avoid having to walk a distance to evaluate a situation from time to time. I don't need specialised extra-long distance binoculars but am willing to consider any knowledgeable recommendations and proceed from there.

Don Hungerford, Qld

Don, we have a good review on page 42.

More on that scope

WITH REGARD TO the Beeman scope Top Shots item (*Shooter*, August 2020), I'm not sure if this will answer any questions or raise more. I owned one of these little scopes more than 40 years ago and was very impressed with its clarity and, as with many things over time, wish I hadn't parted with it.

I think John Dunn is correct about its origins and believe this one was probably inspired by the type of scopes which were being mounted on AR15 black rifles around that time (they were in some cases 3x). Certainly the scope in question wasn't designed to be mounted on an AR15 as the one I owned and the subject scope appear to have 3/8 dovetail clamps. The AR15 scope mount was a single spring tension threaded peg which was mounted on the carry handle. I recently bought a second-hand Mark 4x40 and while it shows all the signs of use, it's still crystal clear.

Lionel Widdowson, via email



Insurance Q&A with Trevor Jenkin

Send questions to: communications@ssaa.org.au

Q I've just bought a new car and need to insure it. What are my options?

Rosemary Ann, via email

A There are three main types of general motor vehicle insurance you need to be aware of. If you insure your car for comprehensive cover, you have cover for damage to your own vehicle and other people's property as well as theft, some other risks and legal costs. Third Party Property Damage only covers damage to other people's property and legal costs but not damage to your own vehicle. Lastly is Third

Party Fire and Theft which is the same as Third Party Property with some add-on features which cover your vehicle. Comprehensive insurance offers the greatest peace of mind to vehicle owners as it covers the repair or replacement of your vehicle for events including theft, collision, fire, malicious damage and weather-related damage. It can also cover the repair and replacement of any other vehicles damaged by your vehicle in an accident and damage to property.

Third Party Property covers damage caused by your vehicle to other vehicles

or property but doesn't cover your own vehicle. You'd usually take this out if you have a low-value vehicle, so you're not left financially exposed to having to pay for the damage your car might do to a more valuable vehicle or property belonging to someone else. Third Party Fire and Theft offers protection of third party property policies as well as additional fire and theft protection for your vehicle up to a specified limit.

Give us a call and we'll arrange a quote and explain why one type of motor insurance may be more suited to you. Ring (08) 8332 0281 or visit ssaaib.com.au.



Frustration abounds after no-sense announcements

The dust is only just settling after the explosion of frustration from hunters across southern Australia. Game bird hunters have every right to be shaking their heads and asking questions after the announcements of reduced seasons and small bag limits hit both South Australia and Victoria and it seems only Tasmanian hunters have been spared unnecessary restrictions.

Victorian hunters have been handed a miserly two-bird bag limit for a 20-day season - which seems to be the shortest and harshest season in history - while Australia's most abundance duck species, the grey teal, has been subjected to a geographical no-take zone for the first time and that makes no sense whatsoever.

South Australian hunters fared a little better but still received a pathetic four-duck bag (with species restrictions), reduced season length and also had to endure a 'no-quail season' declaration for the second year running under the watch of Environment Minister David Speirs. He's been quoted as saying: "I'm not a fan of duck or quail hunting" at a Birds SA general meeting in 2019 and it now has been discovered, through Freedom of Information requests, that the department recommended a season but the minister chose not to listen. Thankfully he won't be the Environment Minister considering next year's season due to an expected ministerial reshuffle prior to the 2022 state election.

Hunters have been understandably scratching their heads with the decisions

announced after improving season conditions and breeding. The fact that NSW DPI lifted its cull quota after finding a rise in the Riverina duck population has left many fuming at the narrow-mindedness of authorities which lean far too heavily on the Eastern Australia Waterbird Survey (EAWS). This survey is not designed to provide an abundance measure which should be used to determine duck seasons, it really only gives an index of wetland condition on one day of the year and may or may not even be a useful tool to measure climatic changes over time.

Survey methods which are better for duck season settings purposes are used by the NSW Department of Primary Industries (DPI) to set the annual quota for their game bird management program. These surveys actually cover a variety of water bodies which hold ducks for longer periods such as farm dams, wastewater treatment ponds, irrigation channels and lakes. For their quota calculations, NSW DPI surveyed 1412 small farm dams and 63.4km of channel system using a helicopter and sub-sampled a proportion of ponds, lakes and larger dams using unmanned aerial vehicles and on-ground observations. Monitored numbers of ducks from these locations are then applied to the entire Riverina region to establish an estimated abundance for each duck species.

The Weekly Times reported NSW DPI lifted its duck cull quota by 16.5 per cent based on an estimated increased population of 460,000 ducks across the Riverina region. Compare this to the EAWS

which recorded only 91,230 ducks across Queensland, NSW, Victoria and SA and this continues to build the case that one survey type should not be relied upon for season-setting.

Victoria has now adopted its own state-wide helicopter survey in a sign the Game Management Authority (GMA) has finally realised the EAWS is not fit for purpose for duck season setting, just like NSW DPI. Unfortunately politics are at play because the GMA has not released the results of this November survey leading up to the season announcement. Something certainly smells foul here.

Then we have the SA Department of Environment and Water who will probably continue to use and rely too heavily on the EAWS. With a perceived reluctance to fund any game management project, it would be nigh impossible to see them conduct their own helicopter survey that would actually count ducks for season-setting purposes. Although they do try to conduct ground counts of 100 listed wetlands each year, this data collection is mainly on the back of volunteers' efforts, not their own.

Send questions to:
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Fire blanket a versatile addition to your kit

A waterproof shelter of some kind with thin nylon ropes permanently attached has always been part of my emergency equipment. I keep it folded or 'rolled' in the bottom of my day pack where it lies in wait until used as a sun-shelter or, at a pinch, can be pitched as a tent with no sidewalls.

A lightweight piece of surplus military kit known as a 'poncho liner' is down there in the bottom of the pack with it and, used together, they can serve as a makeshift sleeping bag or even a fairly windproof shelter if necessary. In the past dozen or so years, apart from serving as a sunshade during a stake-out on a well-used pig wallow, these haven't received much use.

Yet despite their infrequent use they've never been discarded or left behind because the idea of being stuck in the scrub with absolutely no shelter is not too appealing at my age. To my surprise - and I really should have thought about this - many outdoors people are now recommending a woollen fire blanket be added to an emergency kit kept in a vehicle.

This recommendation stems from several experiences during fire episodes in recent times where people have been stuck in cars and needed extra protection from radiant heat. While the protection of a vehicle can be something of a comfort, crouching down below the window line and covering myself with a fire blanket is the last thing I'd want to be forced into. You'd hope that in the event of an approaching fire-storm the vehicle was mobile and danger had been well and truly left behind in a timely manner, and I'd be camping in a wide open green space in the local showground by the time there was any threat.

To my surprise I found there's an Australian Merino wool fire blanket made here by a long-time manufacturer - but they're not cheap. A local identity goes by the nickname 'Onka' due to his habit of curling up in a blanket under a tree when there's any heavy work to be done, but the brand whose name he was given went off-shore a few years ago and probably doesn't make woollen blankets in Australia nowadays.

It seems there are strands of the syn-

thetic 'Kevlar' mixed with the wool in some of the Australian blankets, which is acceptable due to the very high melting point of the Kevlar fibres. But wholly synthetic blankets must be avoided like the plague because of the danger of being seriously burnt when they melt on to your clothing or worse, your skin.

I haven't been able to find a Kevlar/wool blanket to give it the 'cuddle test' but the last thing you'd want if it was going to be put to normal use in a vehicle - where I can envisage it being deployed as a picnic blanket, dog rug and the like - is to have a blanket that's too scratchy and unfriendly. After all, you're probably not in the most accepting frame of mind when it has to be called on and scratchy would make the situation worse. I like the idea of fluffy wool, partly because ants find it so hard to walk over - and ants should never be given an easy time at a picnic.





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Clay Target Q&A

WITH RUSSELL MARK

Q Please settle a debate I had recently with a group of friends. Is there such a thing as a 'shot string' and, if so, is a longer shot string beneficial in shotgun shooting?

Chris Mifsud, Vic.

A This subject pops up from time to time and is certainly worth revisiting. By definition a shot string is the spread of shot, measured from the leading pellets to those at the rear of your shot pattern. Many like to theorise this shot string looks like a huge cone, similar to something you'd eat ice cream from, but here's my take on it.

I've no doubt all your shot pellets don't arrive at the target breaking point at exactly the same time and there have been countless tests over the years to prove this. One famous American shotgun expert many years ago had his wife drive her car at 80km/h with a trailer in front of his statically-mounted shotgun which contained a long paper pattern board.

As the front of the board went past his shotgun he pulled the trigger and indeed the pellets patterned slightly longer than they would have if he'd shot at a stationary pattern board. The reason this oblong shape occurred is simply because not all pellets hit the paper at exactly the same time, therefore those which arrived last hit closer to the centre of the paper. A pretty serious test, however unscientific it was. As they say, don't try this at home!

Since then there have been countless super-slow-motion tests done, undeniably proving not all pellets hit the target at the same time. But is this an advantage? For the life of me I can't see how as we're talking milliseconds between the first and last pellets arriving. The fastest-moving clay target, duck or whatever will have travelled almost no distance in that amount of time.

One of the biggest myths I've heard around the traps over the years is that some shooters benefit from tighter chokes because they have a longer shot string, therefore at greater distances they enjoy the benefits of this huge ice cream cone 'margin for error' shot string effect, subsequently gaining an advantage over opponents using more open chokes. Those same shooters probably also believe in the Easter Bunny and Santa.

In reality the opposite is true as more open chokes give slightly larger shot strings than tighter ones. The shot string effect largely occurs due to air resistance caused by the leading shot pellets shielding those behind. There's no doubt tighter chokes at greater distances - coupled with the correct ammunition and shot size choice - is an advantage at times but this has nothing to do with some shot magically arriving in the target zone a couple of seconds after the leading pellets made the trip. Who comes up with this stuff?

The wider the shot pattern the greater number of pellets are protected from the air, thus causing slightly different velocities as the shot travels down-range. The emphasis

here is on 'slightly'. The other major factor causing this stringing effect is poorly-made, deformed shot as perfectly hard, round shot will break the air better than those less than perfectly round - that's just aeronautical common sense.

In saying that, if you believe in longer shot strings benefitting your scores then use badly-deformed shot, though not in a million years would I recommend that. Premium quality shot shells are more expensive for one simple reason - they contain perfectly round, hard shot and to make them perfect costs more.

So the answer to your question is yes, shot strings do exist. But do they help you achieve world-class scores? No chance. Buy the best ammunition loaded with the best quality hard, round shot you can afford and use it through the choke size applicable to the distance you're trying to break targets at.

I say this time and time again - 'there's no substitute for accuracy'. Work on your technique, master the basics and your scores will soon reflect this. If you're thinking a longer shot string will be the difference between winning or losing then you're dreaming. Prove me wrong!

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 • Rod Pascoe

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Q These photos are of a shotgun rescued around the time of licence regulation changes. I've done some work to restore it to a healthy working condition but haven't been able to find any information on its maker or date of birth. Can you help?

Ray Milne, via email

A The inscription on the rib says 'The Leston Ejector made in Belgium' with 'choke bore' on each barrel. The proof marks stamped on the underside of the chambers in your photo are * over AE which is the inspector's mark and the 'Perron' tower mark (one which has been in use in Liege since 1672 to confirm the gun has been proof tested).

The 12 over C in a diamond mark, adopted in October 1898 and discontinued in 1924, says the gun is 12 gauge and has a chamber, while the crown over ELG and star in an oval confirms the barrels have passed final black powder proof. The marks on the barrels include the script EL markings to confirm provisional proof, the numbers 18.0 and 18.2 which most likely indicate the choke diameter (12 gauge itself

being 18.5mm) and several more inspectors' marks as well as 70 which will be the chamber length in millimetres.

There's nothing on the gun to directly indicate who the maker was so it was most likely a 'trade gun', made under contract to supply firearms to the colonies.

These were usually made by groups of subcontractors working in Liege up until the First World War, this though leads to an interesting speculation.

A search on the name 'Leston' reveals there was an old Sydney firm of ironmongers which began early in the 19th century called Leston Daly Co. An advertisement I found on Trove for Fields Guns in Sydney shows the cost of a Leston double-barrelled hammer gun was £4 and 15 shillings in 1913 which equates to about \$9.50 in today's currency.

Having only been proofed for black powder, I wouldn't be tempted to fire the gun these days, even with modest loads.

Geoff Smith



Q I've always considered - and was under the impression - that MOA was five shots under an inch at 100yds, yet often I read in the magazine about members firing three-shot groups and claiming their rifle is now capable of shooting MOA. I know the Americans, who do things differently anyway, have used three-shot groups forever, but from my experience on the range and shooting for SSAA awards at 100 and 200yds, groups were always five-shot. What are your thoughts?

Ian, Vic.

A Minute of Angle (MOA) is an angular measurement - one degree is 1/360 of a circle and one minute is 1/60 of a degree. As shooters we tend to average this out and think of this as one Minute of Angle being 1" at 100yds, 2" at 200yds, 3" at 300yds and so on until infinity. In fact MOA is slightly larger than that mathematically, being 1.047" at 100yds, 2.1" at 200yds, 3.14" at 300yds and 4.19" at 400yds. Not an earth-shattering difference but relevant for long range target shooting or military sniping.

Your point on the number of shots used to prove a rifle's accuracy is relevant as the more shots you fire the more variables come into play, as I'm sure an experienced SSAA shooter like you would know. Three-shot groups are indicative of bullet placement and inherent accuracy, five and 10-shot groups even more so.

Years ago it was common practice to fire 10-shot groups to test rimfire and centre-fire ammunition, but with ammo becoming more expensive or shooters and manufacturers wanting their rifles to appear more accurate, the number of shots used to claim MOA accuracy has reduced. There are now rifles on the market with sub-MOA guarantees, subject to using the manufacturer's or other premium factory ammunition.

Personally, I feel three shots is the minimum number to claim MOA performance. I use three-shot groups when sighting-in and checking handloads as that's the most shots I could ever imagine firing at one animal in the paddock or hills (to date I've never needed more than an occasional second shot).

This for me is a good test of hunting accuracy and shows me where I could

expect three quick but measured shots to go. With target shooting I agree with you that five shots has often been used to prove accuracy of both rifle and shooter skills to gain SSAA awards. The good news for you Ian is you now have a little more 'wriggle room' for your five shots, knowing MOA at 100yds is 1.05"!

Paul Miller

Q The difference in performance of the .22LR and .22Mag cartridges is significant but what if they were both in subsonic, by which the same speed travel less than speed of sound. What, if anything, will separate these two?

Noel Reponia, via email

A As you rightly say, a .22 Magnum cartridge is superior in performance to a .22 LR cartridge, in fact the .22 Magnum using a 40gr projectile has a muzzle velocity of about 1910fps and muzzle energy of 324 ft/lbs, while the .22LR cartridge with the same 40gr projectile has a muzzle velocity of 1255fps and muzzle energy of 140 ft/lbs.

As you can see, at the muzzle the .22 Magnum is almost two-and-a-half times more powerful than the .22 LR cartridge. However, if both cartridges were travelling at a subsonic speed, say 1050fps, their muzzle energies would be exactly the same and the difference in performance would be zero.

Barry Wilmot

Q I have the chance to buy a 303/25 rifle on a 98 Mauser action and for a long time have lusted after a .257 Roberts as I believe it's an excellent all-round calibre. Research leads me to believe factory ammunition in 303/25 has always been very mildly loaded in deference to the many old Lee-Enfield-actioned rifles chambered in this calibre. My question is: In the Mauser 98 actioned rifle, would it be feasible to handload to match or even exceed the .257 Roberts as I believe the powder capacity of the two is almost identical?

Sam Zammitt, via email

A The 303/25 was one of many cartridges used in rebarrelled SMLE rifles which were cheap and plentiful in Australia after the war and is based on a necked-down .303 British case. And your research is spot on - factory loads were made to be safe in the Lee-Enfield action. Loading data for the .25/303, as it's also known, is similarly conservative and the ADI Handloaders' Guide shows a maximum charge of 33.5 grains of AR2208 can deliver a 100gr projectile at 2850fps.

However, by the way the ADI data is presented for this cartridge it would appear that a proof barrel was not available to provide the pressure data. Only the maximum charge for a given bullet weight is shown along with its velocity. Your Mauser action may be stronger than that of the SMLE and able to accommodate a heavier load but I suggest you have a

competent gunsmith give your rifle action and chamber the once-over before you proceed.

I'd avoid using the ballistic performance of another cartridge as a benchmark or guide to your load development for this or any other round. Practise tried and true handloading techniques and precautions, use modern components in good condition and watch for unsafe pressure signs such as difficult extraction, gas leaks, flattened or blown primers, unusual recoil or expanded case heads as you carefully and gradually increase your charge in .2-of-a-grain increments from your current setting. Maximum velocity shouldn't be your primary consideration when developing an accurate and consistent load.

Rod Pascoe



Q I wondered if you could give me any information on the Winchester rifle in this image. I think it was made between 1906 and 1920 but nothing I can find seems to match the markings.

Brett Blennerhassett, via email

A The Model 1890 was designed by John Browning and patented (No. 382238) on June 6, 1888. It was introduced in November 1890 in .22 Short, Long and .22 Winchester rimfire calibres and before 1919 in .22 LR on a limited basis. After 1919 the .22LR was a standard chambering. The serial number indicates your example was probably made in 1894 though I can't be sure as there are arguments about the accuracy of some of the numbers in given years. The rifle

was produced until 1932 and at that time in excess of 764,000 had been made so I guess you'd have to say it's fairly common. There were quite a few changes in the model over the years though the action remained essentially the same. The take-down model was introduced in 1893 and special order models were made to customer specifications as required including pistol grip stocks, better quality wood, engraved receivers, special sights - the list goes on.

Earlier rifles had octagonal barrels while later ones were round. Barrel markings vary quite a bit and can help identify the approximate period of production and Winchester also offered replacement barrels if required. The M1890 was one of the most popular and highest-selling pump-action firearms made by Winchester.

John Dunn

A man wearing a red cap with a logo, sunglasses, and a grey shooting vest is aiming a black shotgun. He is standing outdoors in a grassy area with trees in the background. The title 'Back in black' is overlaid in large black letters, and the subtitle '- the Huglu HT-14 Trap' is in white letters below it.

Back in black

- the Huglu HT-14 Trap

John McDougall

It was 2008 when I first reviewed a Turkish Huglu shotgun which was well-made, highly serviceable and tuned to the needs of the hunter. Since then I've assessed two other Huglu models and found them equally reliable. Having changed distributors from their earlier days and now supplied by Winchester Australia, I haven't heard an adverse comment about these 'Turkish delights'.

The Huglu HT-14 Trap in black on review is actually better than a base-level gun for the addition of an adjustable comb. A selection of five choke tubes coupled with Turkish walnut on the stock and fore-end should give the shooter access to numerous Trap shooting disciplines. With overall weight around 3.94kg (8½lb) and barrel weight of 1.5kg (3lb 3oz) the HT-14 swings smoothly, feels well balanced and will give newcomers or established shooters a pleasant step up to a gun of good quality promising proven service. Costing just more than \$2000 and with a two-year warranty, it's a very reasonable buy.

Barrels

It was hard to know whether the barrels were black chromed or blued until confirmation from Winchester revealed they

were indeed blued, the colour of the blueing matching the receiver. Both the top and side ribs are ventilated, the top fitted with a 10mm parallel, anti-glare rib which has a red fluoro filament for the front sight but surprisingly no mid-sight bead. I thought a mid-sight bead would be mandatory for a Trap gun as it's fired from the mounted position and such a fitting enables the shooter to check their gun mount is correct and the barrels not canted (tilted from vertical). A mid-sight can be fitted later but it would have been more complete to have one already installed.

At the muzzle end are five internal, interchangeable choke tubes supplied along with a propeller-style choke tube spanner. These are much like the older Mobil chokes supplied by a prominent Italian gunmaker as they also measure 50mm and have similar threads.

At the chamber end the gun is suited to 76mm/3" magnum loads. These are obviously not permitted in Trap shooting but it appears the maker has chambered the HT-14 so it can also be used for hunting. Further information is contained in the choke section of the instruction handbook which outlines the various chokes and their purpose, additionally for waterfowling as

well as general steel shot applications.

Jewel polishing about the monobloc and ejectors is great to see for the retaining of lubricants, while the significant ejectors are well-timed and sent empty cartridges flying clear of the chamber when the gun was fully opened. Timing of the ejectors is perfect, testament to quality assurance at the factory to ensure everything is working as it should.

Jointing of the gun is via bifurcated lugs in each side of the receiver walls which mate with slots in the monobloc. These lugs are replaceable should the gun ever need to be tightened and, due to their location in the receiver wall, enable the HT-14 to have a lower centre of gravity with improved swing and balance. This type of gun jointing, whereby the barrels are connected to the receiver, is popular with European and especially Italian gunmakers and it appears the Turks have adopted this method of jointing.

Turkish gunmakers are not affiliated with CIP, the European organisation responsible for the uniform proofing of guns to universal standards, but all Turkish guns I've reviewed are guaranteed by the Turkish Government (check the instruction booklet for further details).



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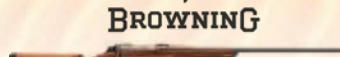
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Back in black - the Huglu HT-14 Trap



The Huglu HT-14 Trap in black fitted into its ABS case. All accessories for the adjustable trigger, comb and gun socks are supplied.



Triggerguard design is well suited to those who wear thin leather gloves. The wood-to-metal fit is excellent.



The Huglu HT-14 Trap in black with Turkish walnut stock and fore-end along with adjustable comb piece.



Treatment of the pistol grip combination palm swell is unlike what John had previously seen.

An orange fluoro filament is used as the front sight.



Receiver

Design of the receiver is stylish in its lines and wood-to-metal fit well completed, the black colouring to match the barrels quite excellent with the raised side walls highly polished. The model number is engraved into each side of the receiver and highlighted in red against the black background, otherwise the receiver sides are fairly plain. On the underside of the receiver the Huglu name is etched into the forward surface and there's an engraved company motif just forward of the triggerguard. It's a plain receiver but practical and uncluttered.

The triggerguard is generous and complements the overall lines of the receiver and gun, sufficient in size to wear thin leather gloves if desired. An adjustable triggerfoot is fitted to enable comfortable reach from the pistol grip of the stock and to this end length of pull is flexible - a useful option. Trigger pulls are around 4½lb for each barrel.

Design of the top lever is positive and reasonably smooth to operate. I found the top lever itself just barely large enough to comfortably operate for opening. The distance from the barrel

selector-cum-safety catch is perfect and the catch is not raised so proud as to affect opening of the top lever, the selector working positively for all selection purposes. Two dots to the left of the barrel selector indicates the under barrel fires first when left uncovered, and it would have been an improvement if these dots had the same red coating as on the side of the receiver for easier identification.

It's nice to use a good set of mechanical triggers and no matter how fast I operated them I couldn't cause them to lock up, so top marks to Huglu for this. Most Trap guns operate on inertia cocked firing systems but with a mechanical set, the second barrel fires regardless of whether the first barrel discharges.

Stock and fore-end

I was impressed by the character and stock dimensions, especially the inclusion of an adjustable comb piece. The walnut wood used for the stock and fore-end is well figured and has good grain structure and character for a gun of its price.

The palm swell for right-handed shooters is quite full in its grip and the additional

treatment of the pistol grip to the rear is unique, as I've never seen such on a stock in more than 40 years as a gun writer. I'm still undecided as to whether it contributed to increasing the hold about the pistol grip and whether additional lined chequering is sufficient or could have been expanded for improved grip.

It's comforting to find a reasonably ventilated recoil pad fitted to the butt of the stock. With lengthy trap breaks the rubber pad alleviates some recoil and additionally enables the shooter to adjust gun mount each time for a perfect set on the shoulder.

The inclusion of an adjustable comb piece for the stock on a competition Trap gun is almost imperative these days unless you opt to have a customised stock made. I was fortunate the Huglu HT-14 fitted me quite well straight out of its case, though others may require small adjustments so it's always good to have a flexible comb for that reason. Just make sure if making any modifications you seek advice from someone who knows what's required.

Over the traps

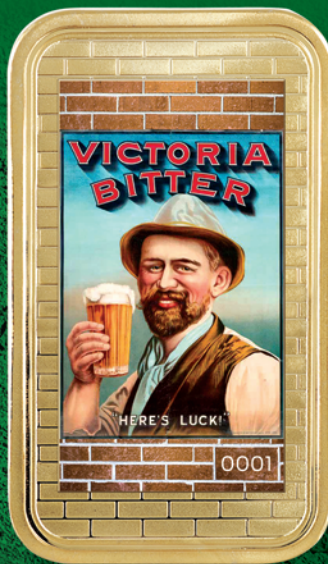
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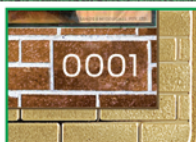
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Back in black - the Huglu HT-14 Trap



A zip lock plastic bag is supplied for retaining stock height adjustment washers and Allen key.



The Huglu HT-14 comes with five internal 50mm choke tubes.



With action open the sturdy, one-piece ejectors are exposed along the extensive jewel polishing for retaining of lubricants.



The safety catch-cum-barrel selector is nicely distanced from the top lever.

weight of the Huglu HT-14 Trap gun to be quite reasonable and the balance and swing was good. I was impressed by the interchangeable chokes as I shot with $\frac{3}{4}$ and full choke, smashing targets with the sprightly Winchester 28-gram Trap loads supplied. Travelling at 1290fps they demolished targets well, with some distant second barrel successes. Patterns seemed to favour the Huglu which I'm sure will delight Winchester, distributor of both gun and ammunition.

In conclusion there's not much on the market around the price of the Huglu HT-14 specifically for Trap shooting. Winchester back the product with a two-year warranty and I believe the gun offers great value, especially for Trap shooters restricted to one shotgun who may also want to go hunting. The Huglu HT-14 would service a Trap shooter well and can also serve as an entrance level gun for those starting off in the clay target games of DTL and other disciplines. ●

SPECIFICATIONS

Model: Huglu HT-14 Trap (black)

Maker: Huglu Arms Company, Turkey

Action Type: Boxlock, single selective ejector system with bifurcated jointing and mechanical operated/cocking hammers

Calibre: 12-gauge, 3" chambered. Bore size: over-bored to 0.735". No proof marks evident but comes with Certificate of Guarantee as per Turkish law and reported to be proofed to 1370 Bar (HP steel shot proofed)

Barrel length: 760mm (30")

Overall weight: 3.94kg (8lb 8oz)

Overall length: 1200mm (47¼")

Chokes: Cylinder 0.725"; Improved Cylinder 0.715"; Modified 0.705"; Improved Modified 0.695" and Full 0.685" (five in total). HP Steel Shot compatible to half choke

Stock: Stock and fore-end are walnut. Drop at comb and drop at heel adjustable. Length of pull: 15". Chequering complete at around 18 lines per inch

Price: RRP around \$2255 with ABS case, instruction booklet, gun socks, all choke tubes and spanner

Distributor: Winchester Australia. www.winchesteraustralia.com.au

Warranty: Two years

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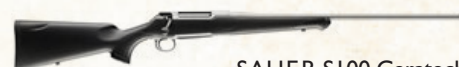
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Steve behind a custom 300 NM. This particular bipod is a CSS product with infinite cant adjustment and lock tension. Photo taken by remote means.

The importance of a rest

grab every advantage you can

Steve Hurt

As a bullet manufacturer we do a lot of product testing - at the range, over a bench and in the field and as with any form of testing, it's essential to isolate as many variables as possible and identify and quantify relationships with other factors wherever practical. While this may seem obvious it can be incredibly challenging to achieve, as there are often multiple related variables involved. The first issue to resolve is always the matter of 'dependent' and 'independent' variables . . . the old 'cause and effect' dilemma.

For example, did the chalk break because I dropped it or because it hit the concrete? It may seem a silly question but when you think about it, it becomes a long rabbit hole indeed. Apply this principle to ballistics and a lot of scientific thought, time and money are required. The biggest issue is removing as much 'human error' from test results as possible, and the number one challenge most shooters face in testing their gear is that a human being is required to shoot the total package - and we all have our good and not so good days on the trigger.

Since a human being cannot be removed from the shooting equation (at least in the civilian context), we've noted that many shooters struggle in acquiring, borrowing or accessing a suitably solid rest to gain the best, most reliable results from their testing. Now this article is not centred on testing protocols, as there are better qualified people than me to discuss such matters, it's simply an exploration of the tools we find have produced the most reliable results for analysis and hopefully give the reader something to ponder.

When testing a load there's clearly nothing more stable and consistent than a railgun, but these are specialised pieces of equipment with little practical application elsewhere. And whatever the results might be, they can't be directly transferred to performance in another firearm. This germinated in us an idea to apply the principles of a railgun to a more universal platform for testing common use firearms such as target and hunting rifles.

The idea was to remove human error as much as possible while providing the opportunity to systematically review results with

rifles as they are or components in isolation, such as barrelled actions, optics, stock and bedding issues. Load development and less obvious subjects like muzzle brake performance, among other issues, only become possible to assess when working from a known base line. The resultant contraption is what Outer Edge Projectiles refer to as their 'machine rest'.

These 'machine rests' are not made for sale but are provided for no other reason than to stimulate thinking shooters with ideas for their own consideration and application. Clearly this project was a major exercise - the steel base weighs 30kg alone, has a radial footprint of 1200mm or 2400mm in diameter and can be pegged to the ground if necessary. It isn't. This beast doesn't move at all, even when testing the heaviest recoiling rifles. It has a full 360-degree pan which can be locked into position, the braced legs provide coarse levelling (cant) adjustment as well as rock-solid stability, it's modifiable in height from 1200mm to 1300mm (frame included) and is all we need for our purposes.

The aluminium frame has fine (damped)

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CZ 457 THUMBHOLE

.22 LR (1:16) | 5

With artful design and perfect ergonomics, the 457 Thumbhole has a sturdy laminate stock in a classy grey/brown colour scheme. With symmetrical features, this modern thumbhole is equally comfortable for both right-handed and left-handed shooters and the stable nature of the laminate stock and varmint barrel allow shooters to engage medium and long-range targets.

NEW



CZ 457 LRP

.22 LR (1:16) | 5

Built for shooters who want to exploit the extraordinary accuracy potential of the CZ 457 to its fullest, the LRP is tuned to enable hits on target at extreme distances – assuming the shooter does their part!

TECHNICAL DATA

MODEL	LENGTH	BARREL LENGTH	WEIGHT	CALIBER	MAGAZINE CAPACITY	SIGHTS	TRIGGER	STOCK	THREAD
CZ 457 THUMBHOLE 20"	1010 mm	525 mm (20")	3,5 kg	.22 LR (1:16)	5	No	Adjustable	Polymer	1/2"20 UNF
CZ 457 LRP	1010 mm	525 mm (20")	3,8 / 3,9 kg	.22 LR (1:16)	5	No	Adjustable	Polymer	1/2"20 UNF



The importance of a rest - grab every advantage you can



While not originally intended for long-range hunting, the 'machine rest' is a proven asset for that application.

pan and elevation alterable and is adaptable in the clamping mechanism fore and aft to handle a wide variety of firearm types, styles and sizes and is flexible for use on concrete range benches. It can accommodate bolt, falling block and lever-action firearms and is also able to receive barrelled actions without the stock, converting it into a true railgun. The frame supports a triple rail linear bearing mechanism that's spring tensioned and damped for consistency - once a firearm is locked in, it can only move rearwards. Preload tension and recoil damping are adjustable. It also weighs 30kg for a total unit weight of 60kg plus the weight of the firearm. The frame is 1200mm long and 700mm wide including shelves.

Results from this 'machine rest' can tell us a great deal but how will the same firearm perform when used from other types of rests? Let's consider other options.

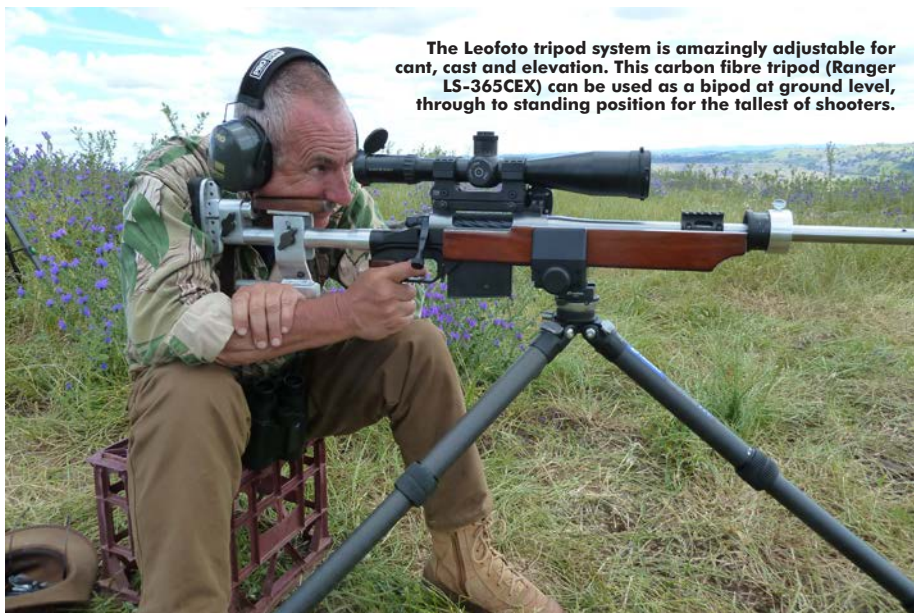
Joystick front rests and sandbags

All benchrest competitors and most shooters doing even basic sighting-in at the range have used a benchrest/sandbag arrangement at one time or other. Now like all things, there are benchrests and there are benchrests. The Seb Mini is a popular, high-quality example of innovative engineering.

Of the joystick style it's also fairly expensive (well north of \$1000) so may be beyond what most recreational shooters would want to pay, but a polite request to an experienced competition shooter at the range may open your eyes as to what's available



The Seb Mini is one of a number of superb quality 'joystick' benchrest products.



The Leofoto tripod system is amazingly adjustable for cant, cast and elevation. This carbon fibre tripod (Ranger LS-365CEX) can be used as a bipod at ground level, through to standing position for the tallest of shooters.

and whether or not it suits your particular need. An appropriate rear bag is an essential partner to this equation.

Bipods

These are the least expensive rifle support most commonly used by the majority of shooters. Not so long ago the Harris bipod was both the best and best-known on the market, now there are almost as many bipods on offer as there are opinions on them. Anything said about one brand or another, good or bad, is going to stir someone up and it's not my purpose to anoint or discredit any particular brand or type, as most seem to have a niche market or application of some description.

When the objective is to achieve the ultimate in accuracy for testing purposes, as opposed to field expedience, there are a few abiding principles to consider which have universal value. Firstly, regardless of type or style, the bipod should not engage a hard surface (like a concrete bench) without some form of shock dampener (a piece of carpet or soft rubber feet). Hard feet sitting on concrete, steel or hardwood will bounce, it's that simple. Damping shock transfer has the capacity to reduce dispersion (improve accuracy) significantly. Every bipod I've owned, regardless of type, has had any hard feet replaced with soft rubber ones from a walking stick manufacturer - Leki feet are my favourite and available in Australia.



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The importance of a rest - grab every advantage you can

The other majorly important point for ultimate bipod accuracy, as opposed to field deployment efficiency, is torsional transfer. I've watched many slow-motion videos of our testing procedures - observing muzzle brake and bipod behaviour - and it's worth noting most commercial bipods do two things consistently inconsistently. They'll bounce up and to the left or right depending on barrel twist, and require resetting of the fine cant adjustment if this is a feature option on the unit. This occurs because the bipod has hard feet and because the apex of the bipod's leg apex and fulcrum is below the barrel bore, allowing torsional leverage from the barrel's rifling to be applied to the pivot point.

A bipod with the leg apex on or above the bore will produce the most stable platform possible, as the leverage applied by barrel torque is greatly reduced. While this style of bipod is less common, more and more shooters and manufacturers are realising the benefits of these principles, with an increasing selection to choose from and an ever-widening number of manufacturers.

Tripods

Although the popular use of tripods, as opposed to shooting sticks, is relatively

new to the hunting scene (largely made popular by the rapidly-growing Precision Rifle Shooting fraternity) they've actually been used by shooters for quite a while. Again, the same scientific principles apply to tripod use as they do bipods. Central spigot-style camera bipods have major 'centre of gravity' stability issues - especially at full extension - and should be avoided.

A cone head tripod without a central spigot is the most stable option and the range of height options is amazing. From bipod equivalent prone elevation to free-standing for the tallest shooter, tripods have it covered. As far as shock absorption and general use are concerned, the carbon fibre varieties are lighter and more robust. Tripods also provide a scale of 3D adjustment which simply can't be matched by other systems.

In conclusion, a solid rest will substantially improve your results and I hope this has given you some ideas to consider. There are other worthwhile choices to ponder centred around shooting from a vehicle of course, but these are not generally used in the context of competition or testing. Vehicle rests are another subject altogether. ●



The Outer Edge 'machine rest' has made an outstanding contribution to product evaluation by notching benchmark results.

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Seeing beyond





English adventure for a lucky hunter

Mark van den Boogaart

I consider myself a lucky hunter. I'm lucky to have a family which supports my sport, lucky to have spent a lot of time hunting and lucky to have taken a trophy or two along the way. But the area I've been most fortunate is where hunting has taken me. Through friends, contacts and my writing I'm grateful to have hunted both in Australia and overseas.

A case in point was on a family holiday to England when I was invited to hunt English muntjac deer, a game animal I'd not yet had the chance to pursue. For those unfamiliar with muntjac, they're quite small with bucks measuring about 50cm

at the shoulder and ranging from 10-18kg in weight. They carry small antlers and strangely large fangs, are timid and always on the move with an odd little hopping action.

Arriving in England we settled in, reconnected with family and became acclimatised as we'd left behind a hot Brisbane summer and arrived into a chilly winter. I then reached out to Steve Kelly, the man with the invite, who works for Raytrade UK and is a good mate from Oz who now lives in England.

Soon enough it was hunting time so I loaded up the family and drove about three

hours south from our base in the Midlands to a fantastic location in the south east. Meeting up with Steve, we checked out the Raytrade base and had a detailed scan over some of their gear, the look-see including new rifles from Marlin and Chiappa as well as binoculars from German Precision Optics. The GPO optics were a real stand-out, so much so I bought a pair on the spot and brought them home with me.

A short while later we headed to our accommodation for the next couple of days, where I had the family settled before embarking on an afternoon hunt with Steve. He brought a Remington American

The team from the first day's hunt.



Young deer hunters in training.





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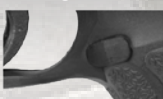


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English adventure for a lucky hunter

Wilderness Rifle (AWR) along with a suppressor for the rifle and shooting sticks - it's a very different set-up to your typical Australian gear and does take some getting used to. Is it a better system? I honestly don't know but do believe many Aussie hunters would benefit from experimenting with shooting sticks.

To cut a long story short, over the next day and a half we saw plenty of deer, a muntjac doe, some out of season roe deer who seemed keen to be shot and herds of fallow. All were healthy and perfect for the table but I was after specific game, so we left them alone. Of course that created a problem, especially for my host who was keen for me to have the chance of a buck so it was time to enact Plan B.

Plan B was this. As a family we'd continue our sightseeing tour of the south of England and in a couple of weeks Steve and I would meet on another hunting block a little closer to home. The family and I enjoyed Plan B and along the way we saw plenty of deer in different locations. Most were park deer which are almost like the local kangaroo population which takes over a golf course, though ownership is a little different. Well fed, protected and treated with kindness, it's not unusual to see a majestic red stag happily sitting in the middle of a patch of grass between walking tracks.

Those two weeks flew by and leaving early one winter's morning I drove south for an hour to a typical English farm. Again I met Steve, this time with Iain Uglow, sales executive for Simpson Brothers Gunshop who'd be our host for the day. After introductions we moved to a large, well-lit tractor shed and talked about the day ahead. With dawn the breeze picked up a little, adding to an already chilly start.

Heading into the breeze we skirted some of the farm buildings to look over the nearest paddocks and after 15 minutes of glassing still dimly-lit fields, we picked up movement. In lowlight conditions we collectively strained through our binoculars to determine what exactly it was. Eventually the call was 'hare' so we moved on. Keeping right with the wind we followed a fence line towards what was a broad field between two stands of timber. Sourcing some cover with a commanding view we set up the shooting sticks and rifle and again using the AWR, I shouldered the set-up and readjusted the scope to better suit my eyes.

Within minutes on the edge of the trees we spotted movement, the whispered call being 'munti.' It appeared to be a doe which quickly dashed across the open ground



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English adventure for a lucky hunter

and with our attention drawn, at first we didn't see the buck though luckily, like most bucks, this one chose to casually stroll. I'll admit that in taking aim on the buck I did have some issue with the shooting sticks, but in quickly sorting things out I lined and fired, dropping the buck in his tracks. On inspection I noticed two things - the diminutive size of a muntjac buck and his condition. Muntjac are small, in many ways not much like deer to someone who hunts red and fallow, but no matter the size his condition was excellent.

England's green pastures are certainly kind to deer and the muntjac looked fat and healthy with a first-rate hide. As it was still a little dark for photography we waited for the light before beginning a big loop around the farm's higher paddocks. Along the way we were presented with a clear, cold English sunrise and in full light could see the abundant muntjac sign under red kites circling the fields. It was turning into a hunt of firsts as I also saw creditable sign of badgers. Until then I'd only seen them as lifeless creatures struck by cars on the side of the road, so it was interesting to examine clear prints and evidence of activity in and around the hedgerows.

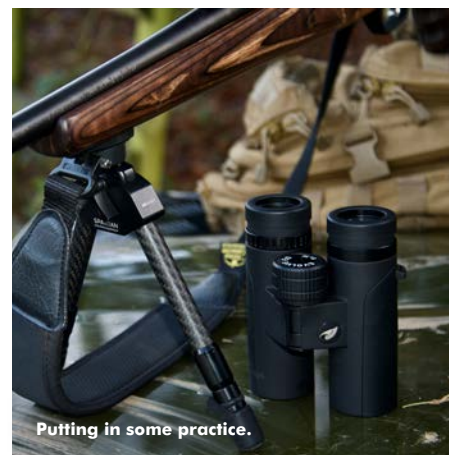
Yet the muntjac weren't playing by the rules and were staying out of sight as we checked a number of likely 'muntji' haunts to no avail. So we decided to head to a known productive wood a little north of our location. Entering the tangled timber, the only movement was the rush of pheasants and each time one would break cover we'd react, curse then move on.

It looked like 'muntjac wood' was going to let us down as we neared its edge. Up front were the remains of an old game bird pen with deteriorating wire, down sections of fence, a disused feeder and open swing gates, on the other side of the unsecure pen a grass paddock with sheep in the distance. Then to our surprise, darting from the other side of the abandoned pen was a muntjac. As we stood there was absolutely no shot and, considering our options, almost all would result in a startled buck, so we just watched him move around. A pattern started to emerge and there was a point where a clear shot could be taken - if I could move into position and if the buck continued to tread his little circuit.

Deciding to take the chance I settled and, keeping an eye on the buck, was nearly there when I lost sight of him, concerned my movement had spooked him. Then suddenly he reappeared though I wasn't in a good shooting position and if I tried to improve things I'd probably scare him off. With time running out it was now or never

so I shouldered the rifle and fired, my luck holding as I hit him squarely and he dropped on the spot.

It was probably the most awkward shot of my hunting career and I was genuinely surprised I'd made it. But the results spoke for themselves and I had my second little muntjac buck of the day. Back at the farm over a late lunch we took the chance to relive and retell the story of a dodgy shot before loading the car, packing some quality muntjac meat for the extended family and thanking everyone for their help on another successful hunting adventure. Pretty lucky I reckon. ●



Putting in some practice.



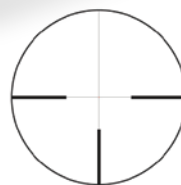
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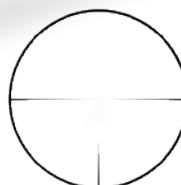
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Russian officers were armed with the Nagant 7.62x38R revolver for most of the last century.



The TOZ 38 (top) and TOZ 49 look similar but the latter was completely redesigned to improve its ability.

The remarkable TOZ revolver

Dick Eussen

Years ago I became aware what an oddball revolver the Russian TOZ is. It's based on the double-action 1895 Nagant seven-shot revolver chambered in the smokeless 7.62x38R round which was adopted by the Russians to replace their break-top .44 calibre Smith & Wesson revolvers. The Nagant was patented by Belgian gunsmith Leon Nagant in 1882 and decades later his unique system would be used to make two of the finest centrefire target revolvers of the 1900s - the TOZ 36 and TOZ 49.

Not that you see many on the range nowadays but when I noticed Mareeba Pistol Club member Nick Trabant shooting a TOZ 36 he had my attention. Nick is a keen competition shooter and it turned out he also has a TOZ 49 and was more than happy to help me out with information and photos of both. But back to the beginning.

The Nagant revolver was already obsolete as the world was shifting towards

self-loading pistols. But Russia ignored the trend and it became their standard handgun during the Russo-Japanese War, World War One and was the firearm used to murder the Czar and his family by the Bolsheviks in 1918. It saw service in the Russian Civil War (1917-23) and was still in use when Russia was forced into war with Germany in 1941. The Nagant was carried by the Russian Army contingent in China during the Boxer Rebellion and later into battle by insurgents in North Korea and Vietnam.

The Nagant was also adopted by police forces in Norway, Sweden and Greece but in different calibres, while assassins and spies preferred silenced Nagant revolvers for their dirty work. The ammo used was a 108-grain FMJ bullet with velocity of 1300fps. The projectile is seated below the mouth of the case and crimped just above the bullet (no part of the bullet protrudes from the case). This is where engineering magic happens. When the hammer is

cocked it pushes the cylinder forward so the case mouth is forced into the barrel cone. Upon firing, the unsupported case mouth expands as the bullet is forced past the crimp and forms a complete seal - and increasing muzzle velocity by about 75fps. The Nagant is one of the few revolvers which can be suppressed as no escaping gases go between the cylinder and the barrel as happens in other revolvers.

The case

The 7.62x38mmR (rimmed) is unique due to the bullet being seated inside the case while the crimp is just above it. As noted, when fired the crimp expands into the forcing cone to prevent any gases from escaping. The round is similar to the .32 H&R in performance. Cases for the 7.62x38mmR are often hard to find and some reloaders opt for .32-20 Winchester brass by using the Lee Nagant die set or at a pinch the .30 Carbine and 9mm Luger

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The remarkable TOZ revolver

TOZ 38 ruled centrefire events for years. The 7.62x30R is easily reloaded if you have the right dies (note cylinder's inverted chambers).



shell-holders, though I believe case splitting is a problem as they're not quite long enough to push properly in the barrel cone. A good source of brass is Bertram Brass who make batches from time to time while some Nagant owners have had the cylinder changed to .32 S&W Long.

The case length is important to attain the proper seal and even trimmed brass

will become too short to seal properly. But many split 7.62x38R cases can be trimmed down to fit the TOZ 49 revolver's 7.62x26.2R case which is 26.2mm long.

In search of accuracy

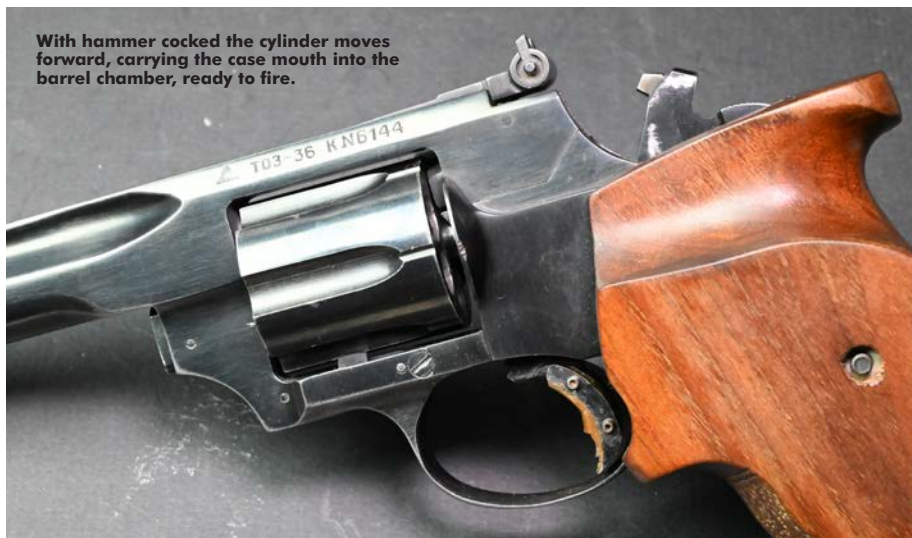
Until the late 1960s Russian centrefire shooters attended world competition shoots equipped with S&W K38s. But as the hard

facts of the Cold War kicked in the Russian propaganda machine withdrew the K38 from shooting teams and produced their own purpose-made competition revolver - the TOZ 36 - chambered for the 7.62 Nagant Largo cartridge (7.62x38R). This was a close copy of the Nagant using the same principle of harnessing all available gas the powder explosion formed. The shell-case pushed about 4mm into the chamber cone, creating a solid seal between cylinder and barrel.

The TOZ 36 was designed in the Tula Weapons Factory with advice from legendary Soviet shooter Efim Khaidurov, a world and European champion and Russian coach. Using the new TOZ 36, Khaidurov won many events and both World and European championships.

The bullet used was completely different to the 7.62x38R military stuff, with a wadcutter seated deeper inside the case. The case is the same and looks suspiciously like the .32 S&W Long and .32 H&H Magnum though is longer, even when the bullets are seated. In fact three other rounds - .32 S&W, .32 S&W Long and .32 H&H Magnum - can all be fired in the Nagant/TOZ 36 but it's not recommended,

With hammer cocked the cylinder moves forward, carrying the case mouth into the barrel chamber, ready to fire.





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The remarkable TOZ revolver

especially the latter which generates more pressure than the .7.62x38R. All three cases will bulge after firing in the .7.62x38R chamber.

The TOZ 36 proved highly accurate yet the Russians weren't happy with the combination and it was discontinued in 1977, replaced by the TOZ 49, a revolver based on the original TOZ 36. But it was completely redesigned with a shorter cylinder, while the military-inspired 7.62 Nagant Largo round was shortened from 38.7mm to 26.2mm (the 7.62x26.2R Nagant Short). The TOZ 49 is the only revolver with an adjustable firing mechanism, the trigger fully variable for weight and release with no disassembly required.

The revolver is single-action and can be safely dry-fired without damage, something not recommended in other revolvers as the unsupporting firing pin has been known to break in some instances. In the TOZ 49 the firing pin is retracted and has no contact with the hammer unless there's a cartridge in the chamber.

In line with the TOZ 36 the grips are orthodox target-style and carved from functional walnut. The sights are fully flexible and rise to battery and in direct view quickly, both front and rear sights interchangeable with others supplied. The TOZ 49 is presented in a timber case fitted with handle and locks and inside, in addition to the revolver are purpose tools, drivers, spare parts, instruction booklet and spare sights.

Both the TOZ 36 and especially the TOZ 49 are well-designed handguns of exceptional quality and accuracy, having cemented a reputation in centrefire shooting events with wins in all categories by Russians and shooters from other countries which adopted them for handgun competitions. Russia's Mikhail Nestruev shot 296 points in precision and 298 in rapid-fire for a winning total of 594 out of 600 in the 2007 European Championships. And there were many more which made Russian, Ukrainian and Polish shooters using the TOZ 49 well-respected rivals on the world stage.

But today the TOZ 49 in line with its parent 36 are collectors' items which



TOZ revolvers were well presented with carry case, spare parts, tools, instructions and more.

coincided with the fall of communist Russia in the early 1990s. In essence, Nagant and TOZ revolvers are technically overly engineered and complicated, especially the unique gas-insulated cartridge system which has little value unless you choose to fit a suppressor. But you know if you encounter a good TOZ it will be hard to resist adding to your haul, while an original Nagant in good condition is much harder to find though the price may be reasonable.

Reloading

There is little data to be found when it comes to reloading the two Russian cases, after all for most of us it's a collector's item rather than a functional gun for target shooting. But that's a mistake - if you have one use it, as it's still as accurate as it ever was. As mentioned, shells may be tough to locate though I note US reloaders use

.32-20W cases. However, if the case wall is less than .008" thick the bullet may not be secured in the case properly or seal either - any .32 calibre bullet can be used with wadcutters preferred by competition shooters. Lee #6 Universal case-holders can be used and Lee will modify the shell-holder on request and make dies, though Marden and RCBS pre-loved dies appear online at times (doubtless there are some lying about sheds as both TOZ revolvers were widely used in their heyday). Hollow-base wadcutters of 98-115 grains are preferred, seated flush to the mouth of the 7.62x26R or 9mm inside the 7.62x38R case for similar results using the same primer, charge and bullet combination.

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For comparison, from left: .32 S&W Long, 7.62x38R, 7.62x26R, 9mm Luger.

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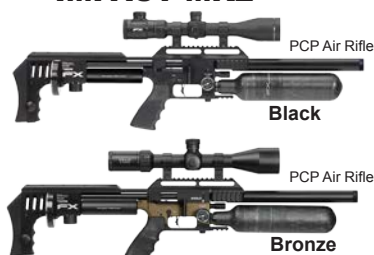
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Pocket the change

Military Marine binos by Steiner

Chris Redlich



Intrigued by the 'military' in the title, I felt compelled to accept an invite to review Steiner's new Military Marine 8x30 binoculars. That term seems to appeal to some when buying a product and I guess we can all be led to believe that if it's military, it must be good. Steiner's binoculars are actually the civilian version of their battle-proven Warrior models designed for rugged all-round use delivering sharp, clear images with a wide field of view in a lightweight, handy package.

First glance

Out of the box and in the hand, Steiner's claim of compact and lightweight could not be argued, measuring just 110mm and weighing a mere 480g. The body is Steiner's Makrolon housing made from durable polycarbonate coated with NBR long-life rubber armour, creating a lightweight, rugged chassis designed to withstand a claimed 11 Gs of impact force.

The rubber coating is impervious to harsh conditions and built for years of tough, reliable use. For at least the past two decades reputable optics brands have moved away from porro and manufacturing binoculars of roof prism design with parallel lens barrels but not Steiner, as some models are still based on the old but time-proven porro prism format.

To clarify, porro prism put plainly is where the image caught by the objective lens is reflected internally by two 45-degree lenses within each prism and that image delivered parallel but offset and viewed through the narrower ocular lens. Often cheaper to produce than roof prism binoculars, this is by no means a reflection of poor



Carl uses the Military Marine 8x30s on an early morning hunt.



Preferred method of carriage using the supplied desert camo-style padded case.



Steiner Military Marine as supplied, boxed with accessories.

image quality and Steiner have managed to produce porro prism binoculars which are both compact and comfortable to hold. Steiner's floating prism design uses flexible silicone lens mounts to help absorb severe shock, sharp impact and abuse without damage, reinforcing the binos' so-called military credentials.

Upon closer inspection, starting south it's obvious Military Marine binoculars are devoid of a centre focus wheel. However, both ocular lenses are adjustable for focus in a dual dioptre arrangement to suit the individual's eyes and, once set, are generally left alone. Steiner calls this the Sports Autofocus System which, once initially focused, keeps images razor sharp from 18m to infinity and avoids constant focal adjustments while viewing moving targets. I was a touch sceptical of this at first but my preconceived prejudices were quashed during a subsequent field test. The ocular lenses are housed and protected within rubber eyecups, gripped and rotated for adjustment by way of large block-style lugs.

The centre bridge is naturally hinged to suit the user's interpupillary distance and adjusted easily with both hands while remaining firm enough to hold the eye position, once set to the correct dimension. Either side of the body are integral provisions for a neck strap or lanyard attachment and the binoculars come supplied with a padded desert-style camo case and neck strap (I opted to carry them round the neck in the padded case).

The rubber armour housing also has large block-style lugs running lengthways, spaced around barrel circumference for a positive grip in slippery conditions. At the

northern-most end of the Military Marine 8x30s is their multi-coated 30mm objective lens combined with 8x magnification for an approximate 370m field of view at 1000m. The objective lenses are protected by removable rubber caps sitting flush to the lens' outer and attached securely to the front of the bridge hinge.

Field test

To form a definite opinion on any product it's important to put it through its paces, and over a few months I was fortunate enough to use the binoculars in real hunting environments to assess their credentials. Their compact nature made for easy transportation in the map pocket of my hunting trousers and their weight didn't make it feel like a brick - one of the big advantages of polycarbonate construction for weight reduction. My son opted to carry them in the supplied camo padded case and found them quite comfortable over many a mile through the steep country we hunted together.

As mentioned, I initially had concerns over the absence of a focus wheel in this Military Marine design, yet homing in on an object 100m away by adjusting the dual dioptre (Sports Autofocus) had me set for further viewing and I was pleasantly surprised at the long depth of field. Objects as close as 20m to as far as I'd care to look for a realistic hunting range out to roughly 1km were as good as you could expect without a centre focus wheel, images quite clear from the 30mm objective lenses paired with its 8x times magnification. Obviously, a slight adjustment to the Sports Autofocus may be necessary between users

although my son and I were able to share without adjusting.

The binoculars are now veterans of numerous early morning and late afternoon ventures, contributing substantially to a successful pig-hunting trip. The advantage a good pair of binoculars can give you on a hunt cannot be underestimated and searching areas for potential pig activity in heavily-timbered creek lines was made just that bit easier thanks to the Military Marine 8x30s.

Conclusion

I'm often critical of hunting optics as I feel you should always equip yourself with the best you can afford and was confident Steiner's promotion of 'Military Marine' binoculars was not for supplying the world's armed forces, rather a marketing strategy aimed at civilian buyers of their military design heritage.

Interestingly, Steiner supply the ADF with various models of binoculars including with range-finding capabilities. They have by no means compared Military Marine binoculars to any other high-end European glass (including their own), but have produced an affordable, good quality, entry level product for those starting out.

With a recommended retail price of \$429 (at time of writing) they're excellent value for money and well worth considering for such rugged-built and affordable binoculars. The Military Marine 8x30s are covered by Steiner's Heritage warranty and available from multiple stockists across Australia. More at www.berettaaustralia.com.au ●

The shotgun looks impressive straight out of the box.



Shells are fed from beneath.



Oversized bolt knob, carrier release button and feed

On the right track with TAC-12

Ben Unten

I wasn't sure what I to expect when I opened the box to review the TAC-12 straight-pull shotgun from Sulun Arms. The shoulders of the so-called purists will no doubt slump at the aesthetics - as they complain about new technology like the microwave oven and shed a tear into their Pimm's and dry - but best of luck to 'em. Fortunately for me I can appreciate walnut and blued steel and also find appeal in the synthetics. This is good-looking gear with its olive Cerakote finish, tubular magazine, olive synthetic stock and black-rubberised pistol grip. It handled nicely right out of the package and I couldn't wait to put it to the test.

A word to the wise - playing around cycling the action (without dry firing) without the shotgun being loaded will do nothing but confuse you. I mistakenly thought the small, forward control (called the carrier release button) had to be pushed after each time you pulled back the bolt but

I was completely wrong. I discovered this is actually a wonderful safety aspect but more about that later.

Unloaded the TAC-12 weighs 3.4kg, its tubular magazine having a fixed slotted ring for a sling mount ahead of the synthetic fore-end and holds seven shells, the rubberised pistol grip fitting comfortably in my hand. A 465mm/18" barrel is stamped "12 GA 3 Made in Turkey". The TAC-12 sports peep-type sights and the action is topped with a Picatinny rail, the action straight-pull with the 35mm bolt removable for transport and finished with a large, round knob roughly 25mm in diameter.

There's a medium soft recoil pad as well as a rear sling swivel as standard, the fore-end almost mimicking a pump-action in appearance and having a series of recessed slots cut into it for increased grip.

Loading/cycling action

Firmly pulling back the bolt will lock

the action in the open position and after checking the breech is clear, pressing the forward carrier release button will close the action. To load the shotgun you invert it and thumb shells into the magazine in the usual fashion. Turn the gun the right way up and you'd think you'd be ready to go but here's the first of several safety facets - if you cycle the action no shells will be fed into the breech, meaning you can double-check the gun is safe without having to eject a shell each time.

In order to cycle rounds into the action you must first press what looks like a second safety/action switch (called the feed ramp release) which allows shells to be cycled and fired as normal and the feed ramp release doesn't need to be pressed again. Another handy highlight is that if you don't pull the trigger, cycling the bolt will not pick up a fresh round which eliminates any risk of double loading. The TAC-12 also has a trigger lock safety which prevents



Windage and elevation adjustments with the Picatinny rail.



Fore sight and flush-fit choke.

A well thought-out genuine hunting shotgun with the field hunter in mind

the trigger from being pulled but doesn't interfere with the action, thus allowing you to safely unload the gun via the feed ramp release.

Sights and barrel

The rear sight is a peep-type which features a small ring to look through. An excellent attribute is it's adjustable for both elevation and windage via simple slot/head screws labelled 'Up' and 'R' respectively, the forward sight presenting a small painted dot flanked by two angled rails. Both myself and Jamie (my faithful sidekick and photographer, nicknamed 'Owmuch-isit' as he expresses an interest in the RRP and buying virtually every item I review) found the open sights extremely intuitive and easy to use. The TAC-12 is supplied with a choke key and five flush-fit chokes stamped I-V measuring 17.30mm, 17.59mm, 17.78mm, 18.08mm and 18.33mm respectively.

Firing

We began by loading three shells and taking our time between shots, adjusting the windage and elevation as required then graduating to rapid-firing all seven. We both felt recoil seemed more manageable than other shotguns in this weight class and no doubt the recoil pad and ergonomic pistol grip contributed to this.

Cycling the action requires firm pulling pressure then letting go of the bolt in its rearmost position. We agreed a straight-pull action is possibly twice as fast to cycle as a traditional bolt-action firearm, something which can't be understated and a huge advantage to those of us who hunt with a shotgun as opposed to busting clays. But note: keep your extremities well clear of the action as the spring strength is considerable and I imagine a blood blister would be the result of becoming lazy and leaving fingertips too close to the action.

In the field

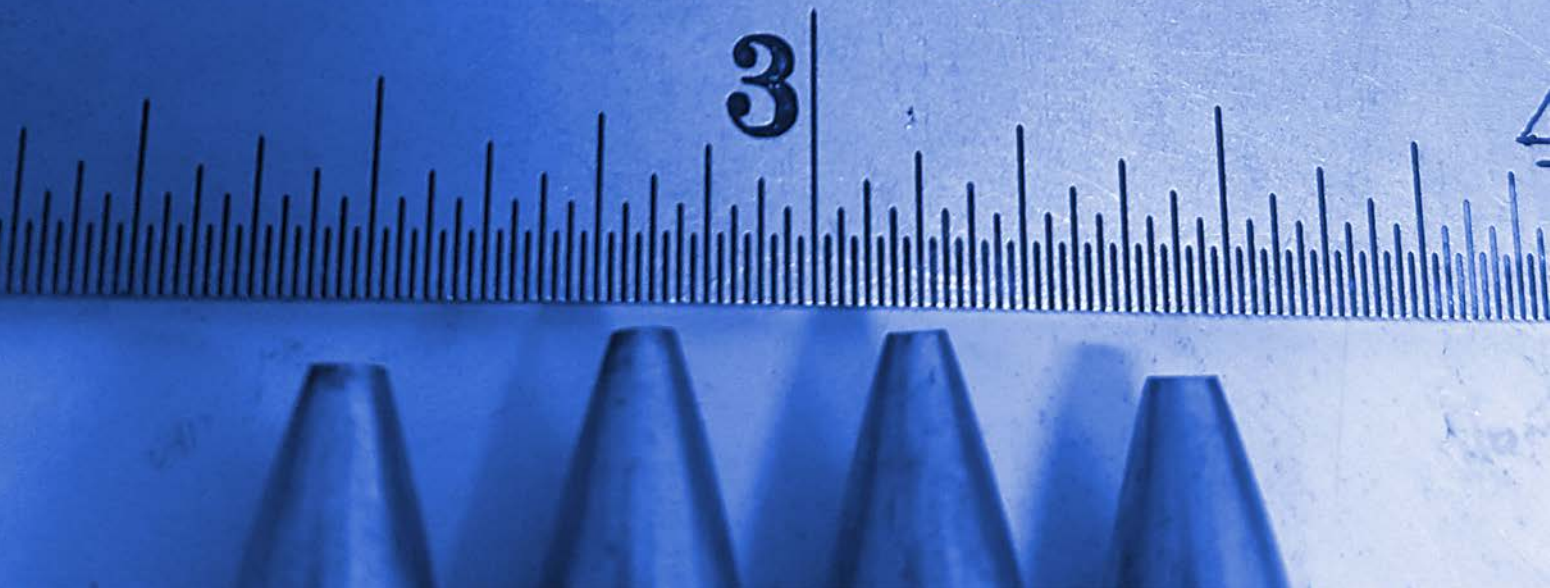
At time of writing much of regional NSW is experiencing a cracking spring season with higher than average temperatures and rainfall, the abundance of feed making it tough to spot small game before it disappears. Undeterred, I loaded up with No.4 shot and went for a wander. The first two bunnies I spied dashed into grass five times their height before a shot could be taken, but rabbits three and four were in a small clearing and both were despatched in successive shots and are destined for the pot.

Overall the TAC-12 doesn't offer a lot to complain about and as previously mentioned I felt the bolt was at maximum comfortable reach - I'm about an inch short of six feet tall and perhaps a person of shorter stature may struggle. As the bolt handle is removable, maybe a swept-back handle would be a worthwhile alternative and I'd probably prefer a forward swivel stud rather than a fixed slot for the sling mount to bring it into line with most firearms. That way, a sling could be added or removed more quickly and easily for the purpose of review though I suspect most folks who own a TAC-12 would either opt for the sling on or off.

I was most impressed with the TAC-12, a genuine hunting shotgun which has been well thought-out with the field hunter in mind and with five chokes supplied as standard, this shotgun caters to just about every hunting scenario I can think of. The TAC-12 Cerakote retails for around \$1350 and is also available in black for \$1250. More at www.sulunanz.com.au ●

Specifications

Manufacturer: Sulun Arms
Model: TAC-12
Calibre: 12-gauge shotgun
Overall length: 1010mm/40"
Length of pull: 358mm/14"
Barrel: 465mm/18"
Weight: 3.4kg
Chokes: Five supplied
Action: Straight-pull
Calibre: 12-gauge
Capacity: Seven rounds
Sights: Open, peep-type
Finish: Cerakote
Stock: Synthetic
RRP: \$1350 but shop around



Adventures in reloading

Robert D. Moore

Many of us like solving a mystery and when it involves a much-loved hobby it's even more fun. The hobby is shooting, for more than 60 years, currently with four different rifle calibres, three of which provide lots of satisfaction seeing MOA results or better on paper at increasing ranges. The exception is the much-loved Howa 1500 SA in 308W. It's fitted with many add-ons and the total cost is now more than \$2000. When the Howa was acquired, a purchase was made of 100 rounds of factory ammunition and results at that time were credible. Now with reloading they're better, often meeting the MOA standard for five shots.

Later, ever conscious of the cost of feeding the toys, a purchase was made of a bulk pack of a reputable brand of 168-grain boat-tail and hollow-point projectiles. The reloading process followed was meticulous in all matters. After bore sighting, the shots were on paper at 25 yards but the result, after some sight adjustments, was far from acceptable at 100 yards.

It was time for answers. The 'loose nut' mantra says don't blame your tools - find and fix the problem and pay careful attention to your actions, so the 308 was stripped and rebuilt with attention to detail. The stock was changed to a TSP X modular chassis, the already excellent Howa trigger reset to 2lb then a quality riflescope with mounts and muzzle brake completing the picture. A flat section on the modular stock made remounting the scope easy.

After checking the cases, primer and

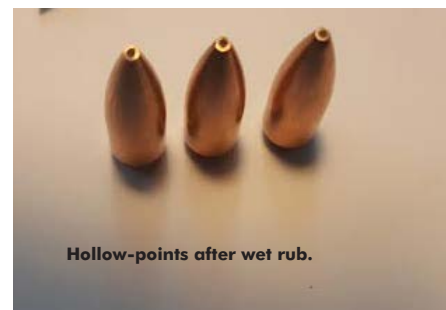
propellant the only thing remaining was projectiles. Samples had been made to check diameter and weight and physical examination of individual items found the hollow-points were formed in a less than perfect manner. The actual hollow-point was ragged round the edges and varied in diameter - a fix was required. A test batch of projectiles was given quick three or four stroke rubs on the point with some 400 grit wet rub paper. The rough edges disappeared but so did the hollow-point. The wet rub treatment was then used on the rest, about 450 in total which were reweighed using electronic scales. It was found the weight was still a nominal 168g but some were about one or two 10ths of a grain less.

Clearly making bullets of this design is an exacting process and not all will be perfect. The maker's web page was checked and it was found the projectile had a nominal length of 1.175". When accurately measuring the rest it was found they varied in length from 1.165" to 1.205". The task then was to measure the length of each projectile. The light and heavy ones were put to one side, the rest measured

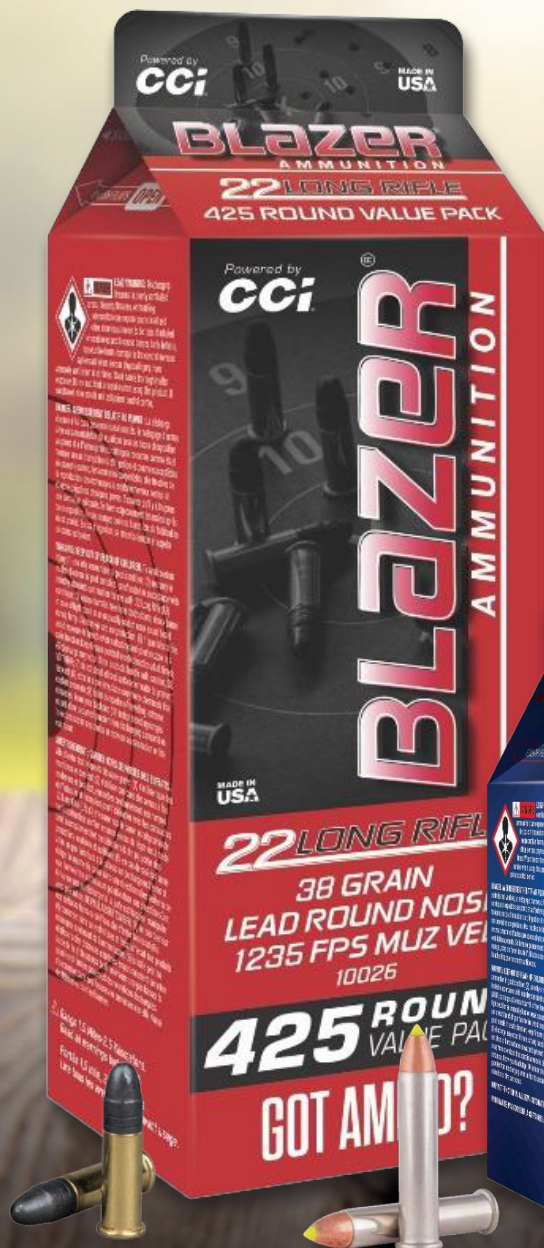
and grouped by length in .002" increments ready for reloading. The lengths now ranged from 1.170" to 1.195".

Measurement of the ogive of a large sample group was completed (the ogive measurement ranged over about .006"). The excellent text from Berger Bullets on the importance of ogive suggests the measurement should be constant in the range of $\pm .001$ ", whatever the specification for the individual projectile.

Loading test cartridges to a length of 2.800", the (SAMMI) specification showed that logically the longer the projectile the further it was pushed into the case. With a projectile of 1.195" the projectile is seated into the case to a depth of .410". It continues that the measure to the ogive to set the jump is out of the question. Makers rightly claim variations in projectile length matter little when considering the overall performance of the bullet, but if your ammunition is loaded with a mix of projectiles of different lengths, you'll see a shotgun pattern on your target. This is often due to pressure variations within the cartridge case, commonly due to the case

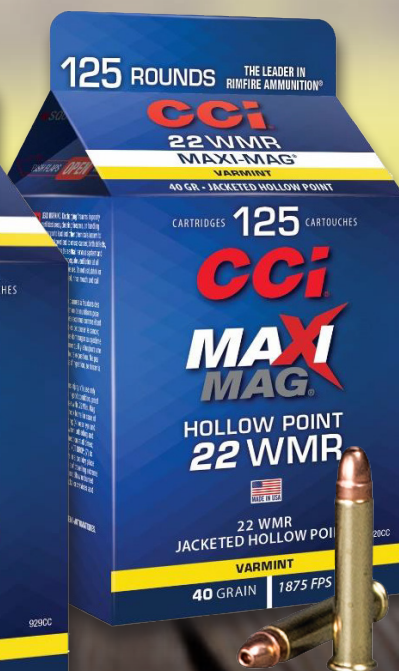


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Adventures in reloading



TPS X chassis with level.

wall thickness and different seating depth. As with all matters relating to accurate placement of projectile on target, there are many other factors to consider.

The throat area or the barrel has a torrid life. At ignition, a pressure wave of 60,000psi in the chamber is not uncommon and the temperature rises to about 3000C for a short time. This drives the projectile crashing into the start of the rifling lands in the barrel, acceleration going from zero to about 2600 ft per second by the time the projectile leaves the barrel.

It's easy to see that repeated hammering of the projectile against the start of the lands is going to result in substantial wear on that part of the barrel, the wear starting from the first bullet fired and continuing for the life of the barrel, all of which means there are more problems when measuring the ogive and setting the jump. The barrel isn't burnt out but the shape of the lands are now much different after several hundred rounds fired, compared to when the barrel was new. Determining a suitable ogive and jump for seating the bullet is far from a simple task. Clearly, the ogive and jump settings are not fixed figures.

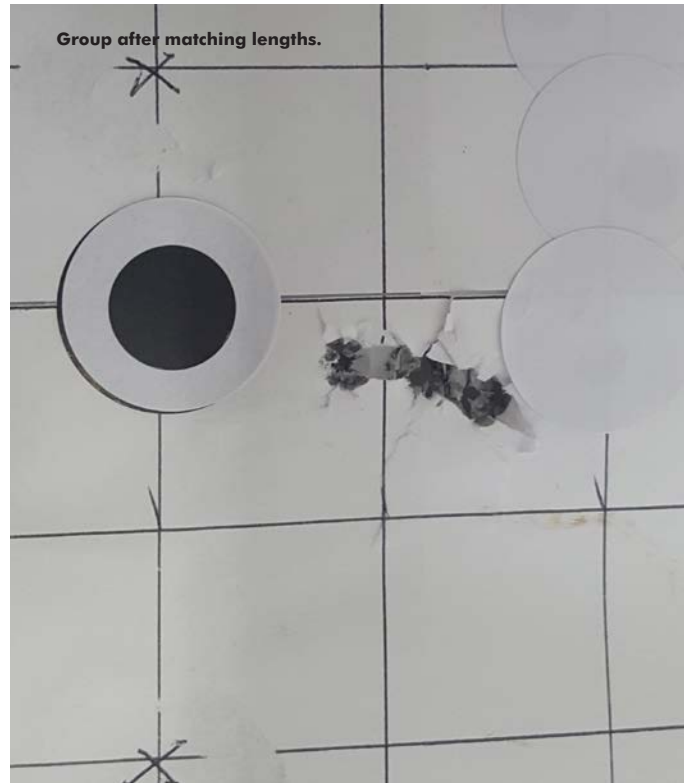
Low-cost bulk buying of projectiles may be a bargain but to gain the most from your purchase you need to do some extra work. Your handloads may well be suited to hunting with accuracy but probably unsuited for MOA target work. The

accuracy you experience, no matter how much care is taken with reloading, will vary greatly unless you pay detailed attention to the cases used and projectile length.

When reloading, using cases from the same maker provides consistent internal capacity which helps with accuracy. As a test, try accurate weighing of a selection of your own empty clean cases from different makers - you might be surprised at the various weights found. This means cases with the same external dimensions have varying internal capacity and so will experience different pressures on ignition. Different seating depth again alters the internal pressure which is important for accurate shot placement.

Far better accuracy was noted when projectiles of consistent length were loaded to a set depth in the case. After many test batches the best result was found when seating depth was set to about .320", no matter the length of bullet. This is not final as every rifle is different. The test batches were loaded using propellant weights determined from prior experience, in this case 44g of ADI AR2208. Many test batches were loaded with seating depths ranging from .310" to .350" and when loading projectiles of 1.195" length to .320" depth, the cartridge overall length (COL) will be 2.880". After all this experimentation the Howa provided results many would be proud to claim.





After making many accurate measurements on an array of bullets of different calibres with ballistic tips, the conclusion is it appears to be easier for makers to control all the dimensions of these projectiles. There were far fewer ogive variations from ballistic tipped bullets with lengths and weights far more consistent. When reloading, projectiles with a boat-tail are far easier to manipulate with older fingers though the debate over flat-bottom versus boat-tail projectiles is never ending.

Makers produce cartridges which do not consider the ogive measurement though shooters using factory ammunition world-wide and the military seem untroubled by this. Ammunition makers have a simple but effective set of rules:

- Only load clean cases of the same type, right size and length.
- Use the same type of primer, all from the same batch.
- As far as is practical, load the same amount of propellant from the same batch.
- Seat each projectile of the same weight, diameter and length to the same depth.

Many ammunition makers now feature projectiles from other producers in their premium items so perhaps we should learn from them when reloading and do likewise. Today it's near normal for *Australian Shooter* rifle reviews to show stock firearms producing MOA groups with factory ammunition. It's easy to conclude that when

reloading, the average shooter is far better rewarded by paying attention to all factors involved, including seating of projectiles based on length.

You can imagine the argument raging for some time thank heaven we no longer burn heretics at the stake. A conclusion perhaps for future guidance is to pay a little more and get a better product - the current fashion seems to be boat-tails and ballistic tips are superior. After considering all the variables we have to deal with fixing the ever-present 'loose nut' on the end of the bolt, this is but one. However, as far as the result on the target don't forget our ever-present friend, the wind. ●



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Roll up for a *Second Helping* of goodness

Assistant Editor Dave Rose

The follow-up to our Gourmand award-winning *Field to Fork* cookbook is available now and is sure to be just as big a hit with discerning cooks and food lovers as the first edition. *Field to Fork: Second Helpings* is packed with more mouth-watering recipes featuring all manner of tasty Australian game meat.

All 54 recipes were kitchen and dining room-tested before being put into print for would-be chefs to prepare whatever options they fancy. Game meats to sample are conveniently divided into their respective categories including pork, rabbit, goat, kangaroo and venison as well as duck and quail - and this time round there's even a chapter for lovers of seafood.

For your *Second Helpings* the creators have taken things to a new level by serving up a few more exotic dishes, so who's ready to dive in and give camel, crocodile, buffalo or goose a try? Or maybe you already have in some other form. Even the names of these intriguing dishes are enough to make the reader take note on just flicking through the pages when they reach the 'Further Afield' section.

We kick off with oven-baked buffalo and honey mustard sweet potato, so the meat

to put this dish together would most likely have to be harvested from Australia's 'Top End' where feral buffaloes inhabit the wetlands and floodplains.

Next up is pistachio dukkah-crusted crocodile strips and, as the book explains, the majority of the meat here is garnered from specialised farms in waters around Darwin. Rather less daunting is the slow-cooked goose breast fruit curry and in case you're wondering, goose meat is known for being just as adaptable as beef with the best way to cook it dependent on the season.

This oddball section is rounded off with Moroccan slow-cooked camel, the Moroccan link hinting at the Middle Eastern origins of many of the camels brought to Australia by British settlers in the 19th century. The wellbeing benefits of eating camel are a major factor fuelling the growth of the global camel meat market.

But let's consider some of the more accessible meat recipes within these pages. Goat has a growing following among health conscious consumers and Goat hot pot with mushrooms and bamboo shoots fits the bill, while the venison skewers with broccoli and almond salad will surely appeal to many. The seemingly unlimited array highlights how lucky we are in Australia to enjoy such



a rich smorgasbord of potential food sources from the nation's expansive tropical and desert inland tracts as well as the much-vaunted coastal locations.

Every one of the 54 recipes is explained in easy-to-follow detail with ingredients clearly laid out and step-by-step cooking instructions listed alongside. And each tempting dish is featured in a full page colour picture of the finished product, every one captured in stunning detail so you know exactly what the offering bound for the table should look like. As a helpful aside, some of the recipes are expanded to include handy hints and tips.

This 130-page second volume covers even more ground than its award-winning predecessor and there's an extensive but pared-back index to guide you, the listings clear, uncluttered and concise with each recipe assigned to its respective food category and arranged alphabetically.

So all that's left now is to order your copy of this environmentally-friendly cookbook, available at a discount price of \$49.95 including postage. It's available to order at onlineshop.ssaa.org.au or by calling (02) 8805 3900. ●

Rabbit osso bucco with polenta

Serves 4-6

2-3 rabbits - each cut into 6 pieces
½ cup plain flour
1 tablespoon olive oil
2 red onions - finely chopped
3-4 cloves garlic - crushed
3 carrots - sliced
2 sticks celery - thickly sliced
400g diced tomatoes
165ml red wine
250ml beef stock
2 tablespoons tomato paste
1 tablespoon fresh sage
1 tablespoon fresh oregano
2-3 bay leaves
500ml milk
½ cup instant polenta
20g unsalted butter
¼ cup grated Parmesan cheese

- In a large bowl, mix rabbit pieces and flour. Combine well to coat evenly.
- Heat olive oil in a frypan over medium-high heat. Add rabbit and cook for 5 minutes each side until brown. Remove from pan and set aside.
- Add red onions, garlic, carrots and celery to frypan and reduce heat. Stir for 3-5 minutes or until vegetables start to brown slightly.
- Transfer vegetables to a slow cooker or large saucepan, then add rabbit pieces. Pour over tomatoes, wine, stock, tomato paste, sage, oregano and bay leaves. Turn slow cooker onto low, cover and cook for 6-7 hours. Season with salt and pepper. Remove bay leaves from slow cooker and discard.
- Meanwhile, to make polenta place the milk in a saucepan over medium heat and bring to the boil. Add the polenta in a steady stream and cook, whisking continuously, for 3-5 minutes or until thickened. Add butter and Parmesan cheese then whisk to combine.
- Divide creamy polenta among bowls and top with rabbit pieces and sauce.



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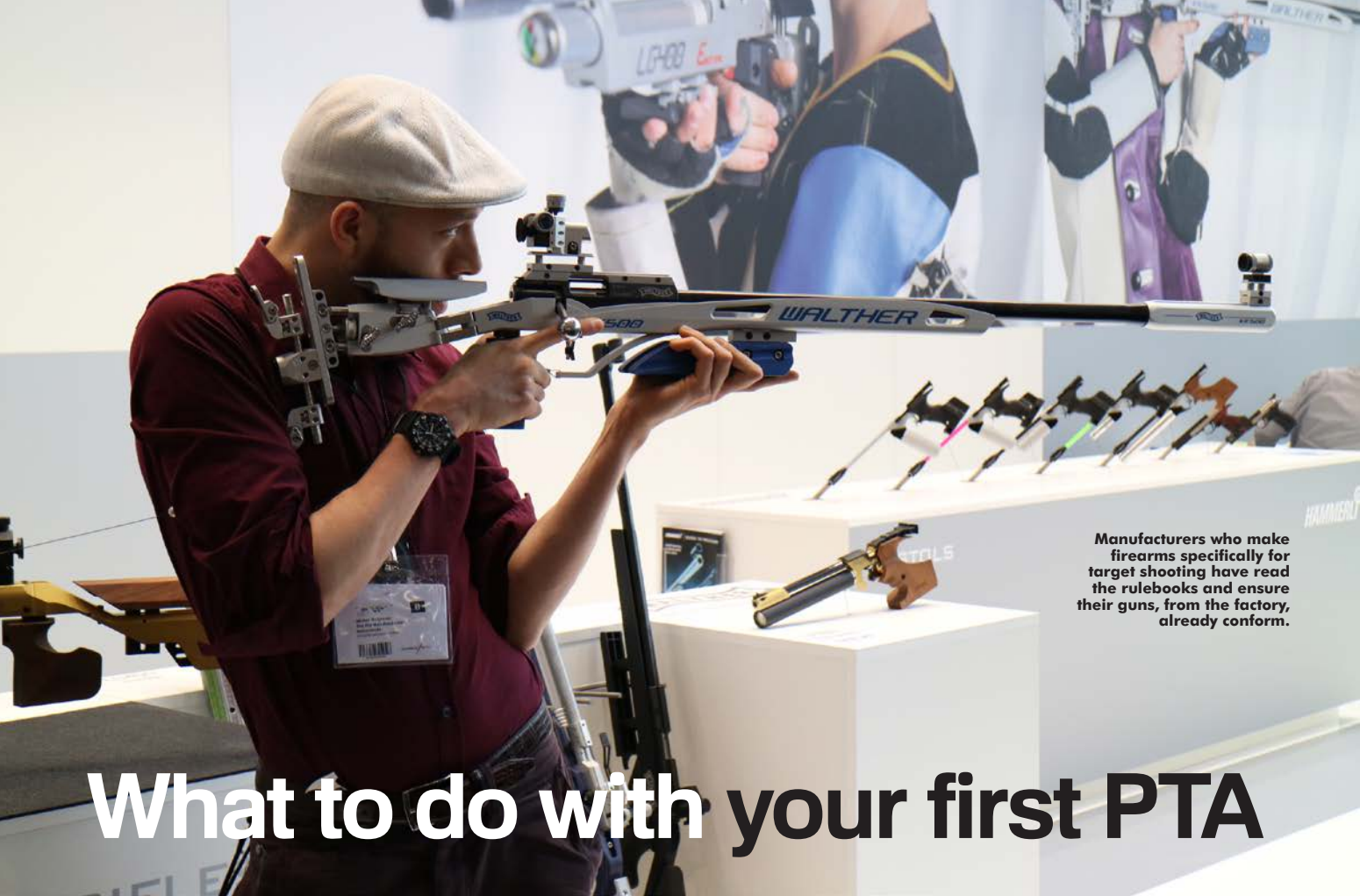
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What to do with your first PTA

New shooters are excited when they receive their first Permit to Acquire and why shouldn't they be? But what to buy? Senior Correspondent **Rod Pascoe** looks at some of the things to consider when making that all-important initial purchase.

While it may sound obvious, the overriding criteria when choosing a firearm of any type is it must suit the job you want it to do. Brand, model and cosmetic appearance can be a factor for some people but shouldn't get in the way of the important technical, ergonomic and practical features. Unlike a new car, buying a firearm from a gunshop generally means you won't be able to take it for a 'test drive', so before the Permit to Acquire (PTA) arrives, spend some time researching prospective firearms and, where possible, hook up with like-minded shooters who are already doing the thing you want to do.

They may even invite you to fire a shot or two at the local range but at the very least, spend time talking to and observing experienced shooters at every opportunity. This is by far the best form of research, so

when you do visit the gunshop with your PTA and hard-earned cash you'll have a clear idea of exactly what you want, rather than what the shop wants to sell you.

Choice of firearm and ammunition will depend on what the bullet has to do when it arrives at the target - does it have to deliver a fatal hit on an animal, put a hole in a paper target or maybe knock over a weighty piece of steel? Once you've answered this the next question is: What size is the target and how far away is it? I won't open the 'what is the best cartridge?' can of worms as this article discusses general principles of ammunition selection without favouring any particular cartridge. With several hundred options, ammunition choice is a subject worthy of further articles.

Some new shooters have expectations which may exceed the capability of their equipment and themselves, then become

frustrated and disappointed with the results. The hunter who wants to hike the high country will choose a lightweight rifle in a calibre appropriate for the quarry they're hunting. This rifle will work well up to 150m or so but isn't going to perform well over longer distances. Similarly a heavy, long-barrelled target rifle with a fast-twist barrel to accommodate heavy bullets will shoot out to 1000m with precision. But at 10kg or more you're not going to be carrying it around the bush.

Target shooters

There are dozens of target shooting disciplines each with its own appeal and enjoyment and each requiring varying degrees of skill and commitment. You may have recently joined a rifle, clay target or pistol club so by now you know what matches are shot there. Grab hold of and study the rules

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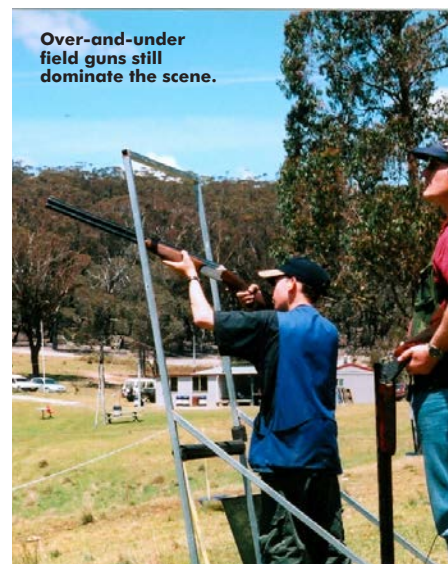
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A long-barrelled target rifle will shoot out to 1000m with precision but at 10kg or more, you're not going to be carrying it around the bush. Photo taken by remote means.



Over-and-under field guns still dominate the scene.

for the match you intend shooting as among other things, those rules will determine the equipment specifications for a given competition and form the basis of your purchase. Manufacturers who produce firearms specifically for target shooting have all read the rulebooks to make sure their guns, from the factory, already conform.

On the other hand some matches can just as easily be shot with an off-the-shelf hunting rifle such as in Rifle Metallic Silhouette. Firearm choice will depend on the rulebook and at most big competitions, shooters are required to present their firearm to a 'gun check' to ensure the equipment specifications have been met.

Apart from the technical rules, become familiar with the way the match is run as this may give you other pointers to the rifle you choose. For example, if the course of fire for a match requires you to discharge five shots in 30 seconds, a rifle with a four-shot magazine will place you at a distinct disadvantage.

Hunters

If you're hunting, the ammunition you choose is one of the most important considerations. The calibre has to be appropriate and legal for the target animal. Have a look at SSAA's *Comprehensive Guide to Shooting and Hunting* as this valuable resource not only outlines the current regulations, it gives some sound and thorough advice on all aspects of hunting and target shooting competitions. Apart from what you intend to hunt, consider the terrain and distances you're going to be shooting over. In Australia we have it all from rugged mountains and densely-wooded forests to deserts and grasslands, from tropical rainforest to dry bush and river flats, creeks and wetlands.

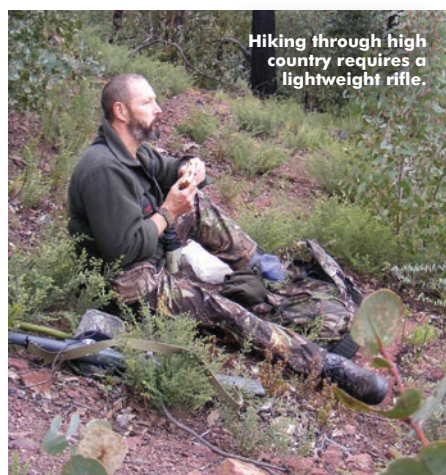
Are you trekking the countryside or waiting in a hide? Maybe you're spotlighting from a vehicle. These things will help determine your choice of calibre, rifle weight and so on. In more open country you could opt for a much heavier barrelled

'varmint' capable of longer distances. In this situation a calibre of 6 to 6.5mm or one of the more powerful .224s would work well provided you're only working with smaller game. If you're after larger animals such as pigs, goats or deer then you need to look at heavier calibres with a preference for a 7mm or .30 calibre. In thick scrub you might consider a lever-action rifle for a quick follow-up shot and use open sights for fast target acquisition at short range.

Shotguns

Finding a suitable shotgun is a little less complicated as with only four or five gauge choices and a range of interchangeable chokes the decision is made easier. There are many factory-loaded ammunition options, in terms of velocity and shot size, to cater for all hunting and target shooting situations.

Of the action/barrel options, the over-and-under field guns still dominate the scene although self-loaders, single-shots,



Hiking through high country requires a lightweight rifle.



In thick scrub you might consider a lever-action rifle with open sights for fast target acquisition at short range.



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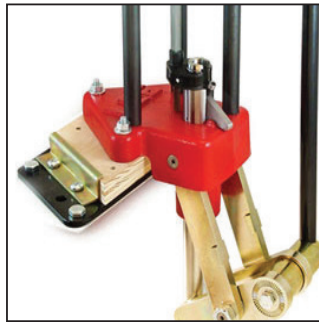
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What to do with your first PTA

lever-actions and side-by-sides still have a place in certain situations. Furthermore, you can also shoot the 5-Stand and Sporting Clays matches with a sporter or field gun and some people even shoot Skeet and Trap with them although specialised firearms are made, and preferred, for these events.

As with rifles, the rulebook for target shooters and state and territory game and wildlife laws along with ethical hunting practices will play a major part in your ultimate purchase, so read all you can and talk to experienced shooters about your options.

Handguns

Buying your first handgun requires a couple of other considerations. As with all forms of target shooting, the rulebook will determine the equipment you need for a particular match. But unlike rifles and shotguns, pistols and revolvers can only be used for target shooting as hunting with them is forbidden in Australia. Secondly, depending on your jurisdiction, a new pistol shooter may only be allowed to buy a certain type of gun with their first PTA and subsequent firearm purchases will have to wait until the end of training or probation period.

Handguns are either built for a specific competition or are adapted to a target shooting match. By that I mean an off-the-shelf, non-target pistol used in certain action or practical matches, either in their original form or after some modifications have been made. Examples of these matches are IPSC, WA1500, the Action and Service matches. Again, the rulebook will be the guide to what you can and can't do by way of altering firearms.

Another aspect to buying pistols and accessories is you'll probably seek a specialist pistol dealer rather than buying from a regular gunshop. This is because generally not many shop staff have any knowledge of, or interest in, the dozens of pistol matches and most gunshops realise pistol clubs have their favourite specialist dealer or armourer. Additionally you'll find most clubs have access to a specialist pistolsmith who'll provide services on an array of work from minor alterations and adjustments to complete trigger jobs or making and fitting custom barrels.

Other considerations

So far I've looked at buying a firearm to suit a specific purpose but you should also begin to think about your individual situation, personal preferences and where you intend to shoot. For left-handed shooters there are plenty of firearms available with either left-hand or ambidextrous grips, stocks and actions - it's certainly better than fumbling



Off-the-shelf handguns can be modified and adapted to a specific match.

around with a right-handed version of a bolt-action rifle for instance. Other types such as lever and break-action firearms are generally not an issue for left-handers.

You may have your heart set on a particular cartridge which may be rare or unique. Cost and availability of ammunition and reloading equipment and components plays a part here so choose a calibre where ammunition is plentiful or, if you decide to load your own, ensure the reloading equipment and components are readily available.

Does the ammunition match the rifle and its task? Barrel twist rate and its relation to bullet shape and weight is a consideration affecting precision. Generally speaking, heavier bullets require a higher or faster twist rate to optimise stability. Customising ammunition is a specialised topic and deserves more space than this article allows, but the point is your load development and preferred choice of ammunition will go hand-in-hand with the specific purpose of the firearm and degree of precision and reliability you require.

Your choice of sights is something determined by the particular application and distances involved. There's a mix of open sight and telescopic sight matches for target shooters so find out if you need vision correction glasses or a diopter and whether they're allowed in the rules. Some rifle models are fitted with open sights with the option to add a scope, others have 'bare' barrels and require an optical sight to be fitted.

You need to be aware of the requirements of the individual range or club you intend shooting with. This doesn't just apply to target shooters but hunters looking to develop loads and sight-in rifles or pattern shotguns. Ranges operate to a set of rules

and approvals that determine which firearms and ammunition can be used and some clubs or ranges will limit or refuse the use of certain equipment. A common issue at many clubs is the use of muzzle brakes so if buying such a rifle you could choose one where the brake is removable. Similarly, larger cartridges such as .50 BMG and a number of the Magnum-loaded .30 and .338 calibres are also forbidden at some ranges due either to approval restrictions or local rules.

You may not be able to afford a specialised firearm for every particular situation so you'd like one gun to cover a number of options. It may be for hunting a variety of species types and sizes in different environments or one rifle to shoot Rifle Metallic Silhouette and Field Rifle which does just as well for some hunting on the side.

Whatever you do, don't waste your first PTA and don't be impatient, work towards obtaining something you'll value and use forever. Some people let the heart rule the head and override commonsense and 'for sale' notices and websites are full of impulsive firearm purchases. And while it may be possible to find a one-size-fits-all solution, avoid settling for something that's going to be a compromise - unable to do any one job particularly well.

As your interest and skill in the shooting sports grow, so too will the number of firearms you accumulate and, over time, you'll build on your collection with fit-for-purpose firearms. Consider too that down the track you may be presented with new hunting opportunities or introduced to other target shooting sports and find your current firearms don't suit the new environment or conditions. Again, go back to basics, do the research and try before you buy. ●



How Howard's handgun law changes backfired

John Maxwell

The former John Howard Government made three moves to toughen gun laws, of which two should be familiar to most firearms owners - national reforms targeting longarms following the 1996 Port Arthur Massacre and handgun law changes following the 2002 Monash University murders. In between, in 2000, the government moved to tighten import controls to reduce what was seen as a growing risk of handguns being diverted to the black market.

What was proposed was for retail gun dealers to be allowed to hold only limited numbers of new handguns for the purposes of testing and demonstration to intending buyers. More would be held in a secure store by Customs and only released to the dealer once a legitimate end user (suitably licensed shooter) had been established. A similar regime already applied to Category C longarms (pump-action or self-loading shotguns and rimfire rifles).

According to Howard Government cabinet documents for 2000, released by the National Archives of Australia under the 20-year rule, the government agreed to a proposal from Justice and Customs Minister

Amanda Vanstone to amend Customs (Prohibited Imports) Regulations which would allow Customs to retain and store handguns until their sale to an end user authorised by a state or territory.

The changes would allow only 10 handguns and five Category C longarms to be released to a dealer, with no more than one of any particular model. Yet the government was cautious to ensure these changes didn't impact certain shooters, namely those arriving in Australia to compete in the Sydney Olympics from September 15 to October 1, 2000. They were granted an explicit exemption.

The justification for this change was a worrying rise in criminal use of handguns. "Handgun crime and supply of handguns to the black market are emerging problems affecting community safety," Vanstone said in her submission to cabinet in August 2000. "Current import arrangements permit stockpiling of handguns by dealers, increasing risks of diversion to the black market."

Vanstone said firearm control measures were always controversial but this didn't affect current firearms ownership - anyone now entitled to hold a licence and own a



Then-Prime Minister John Howard in 1996.



Former Customs Minister Amanda Vanstone.

handgun could still do so. Neither would it affect existing dealer stocks of second-hand handguns.

The minister did consider whether either the Australian Federal Police or Australian Defence Force could provide storage for imported handguns at appropriate locations but practical difficulties made that unsuitable, so that was down to Customs at an estimated cost of \$2 million a year. "The gun lobby consistently points to the need for government to focus on measures directed at criminal activity involving firearms - the proposed regime does that," she said.

Vanstone said the Commonwealth action on handgun imports was expected to have an immediate impact on the problem - so just what was the problem? From the Minister's submission there appear to be a number of issues but fundamentally, handgun crime was on the rise. A report from the Australasian Police Ministers' Council (APMC) Senior Officers Working Group on handgun use in crime, dated July 2000 and included with the Minister's submission, says when the APMC settled the National Firearms Agreement in May 1996, handgun possession and use was

How Howard's handgun law changes backfired

considered sufficiently well regulated.

"A potential cause is the introduction of stricter criteria in respect of granting firearms licences, driving ineligible individuals likely to engage in firearms-related crime to the illicit firearms market where handguns appear now to be a major commodity item," APMC said.

Research by the Australian Institute of Criminology (AIC) and overseas, coupled with experiences of Australian police forces, highlighted crime involving handguns and the supply of handguns to the black market. In 1999, handguns were involved in 42 per cent of all firearm homicides and information from some Australian police forces suggested handguns were used more often in other crimes such as robbery and assault.

AIC research found that between July 1997 and June 1999 only nine per cent of homicide offenders held firearms licences with no handgun used in homicide in that period recorded. That was a significant study, establishing emphatically that the vast majority of firearms crime was committed by those not holding firearms licences and who used unregistered guns - not by licensed shooters.

"The finding points to the argument that further measures to regulate legitimate handgun ownership are unlikely to have a meaningful effect on serious handgun crime," APMC said. It said recent firearms trafficking or organised crime investigations revealed a substantial trade in illicit handguns, estimated to be more than 1000 a year and largely arising from diversion to the black market of legitimately imported handguns. Those guns were starting to emerge in commission of serious crime and there appear to be a number of mechanisms by which legitimately imported guns potentially reached the black market - dealer fraud, deactivation and then reactivation of functioning handguns and theft from dealers.

Where the Commonwealth could make an immediate impact was at the border

with APMC saying there was at present no regulatory impediment to a dealer importing large quantities of handguns. One dealer appeared to have done just that by importing more than 1000 cheap Chinese handguns by way of at least three different jurisdictions. APMC said these guns were not of high quality and had limited application for sporting use, security industry or collectors.

Big dealer stockpiles also presented considerable risk of theft, diversion to the illicit market or dismantling or alteration so they disappeared from the regulatory system, APMC noting there had been several significant recent thefts of handguns and parts. In one, more than 350 complete handguns and parts for a further 250 had been stolen.

Then there was the issue of sale of deactivated handguns which was quite legal in some states. APMC said states held different approaches to deactivation of functioning handguns and depending on standard of deactivation, the gun might be restored simply by replacement of some parts, adding that differing standards and processes enabled a dealer to sell an easily reactivated firearm or the parts to enable reactivation or to falsely certify a handgun as deactivated then sell it. There was no requirement for licensing of owners or registration of deactivated handguns. "This is especially attractive to the black market since falsely certified 'deactivated' handguns can be sold to criminals without any checks or records of the buyer," APMC said.

Ms Vanstone noted a case was currently before the Queensland courts of a dealer who legitimately imported more than 1000 handguns from China. Charges related to illegal modification, failure to complete records of sales and fraudulent issue of certificate of deactivation, some deactivated/reactivated guns having already surfaced in criminal investigations. In fact two Queensland dealers faced the courts

and in 2003 both were acquitted, the court apparently accepting their standard of deactivation exceeded what the government required.

It appears the fundamental failing was with Queensland law which permitted the practice in the first place. That was speedily changed and state and territory laws have since gone substantially further by outlawing imitation guns, airsoft guns and most recently gel blasters, not because they pose any risk whatsoever but because they look too much like real guns. Deactivated then reactivated handguns are still out there.

The 2016 Australian Criminal Intelligence Commission report on Illicit Firearms in Australia noted a substantial number of handguns entered the illicit firearms pool through regulatory loopholes in legislation around deactivated firearms. "It is estimated more than 5000 handguns have entered the illicit market in this way," it said.

"Issues around deactivation are not limited to a single jurisdiction. The ACIC's FTP (Firearms Trace Program) has identified a number of previously deactivated firearms that have been reactivated. The most significant loophole relating to deactivation was in Queensland's firearms legislation which was subsequently changed in 2000."

In its 2000 submission, APMC did warn that tighter border controls might generate an increase in use of clandestine means to import handguns for the illicit market and in the two decades since that has certainly been the case. In 2017 police busted a gang in Sydney which imported 130 Glock handguns from Germany and sold them on the black market. Australian Federal Police and Australian Border Force officers have also made a number of busts of handgun and rifle components which criminals have sought to smuggle into the country hidden in otherwise innocuous items. ●

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PRECISION

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Con Kapralos

While many hunters and shooters will opt for rifles straight off dealers' shelves, there's increasing demand for items made to order. This requirement is born from the fact that factory-made rifles don't meet specific requirements for the intended application or purpose, whether that be a lightweight mountain rifle, hybrid hunting/target alternative or serious long-range or PRS (Precision Rifle Series) firearm.

It's true there are credible gunsmiths in Australia who turn out such outfits but Precision Defence Industries (PDI), which

incorporates Bolly Composite Stocks, has been quietly meeting the needs of sports shooters who not only demand high-quality custom rifles, but accessories to complement them. Head design engineer Mark Bourne has an extensive background in the aeronautical and mechanical engineering industry and the technologies it encompasses. The use of carbon fibre for aero components through subsidiary Bolly Aviation led to the manufacture of ultralight carbon fibre rifle stocks and hence the formation of Bolly Composite Stocks.

So Mark was not only content to provide top-shelf carbon fibre rifle stocks but also

a custom rifle-building service, being authorised Australian dealer for a number of highly respected brands such as Proof Research barrels, Tangent Theta, Vectronix Terrapin X, Delta Optical and more. Being Adelaide-based, PDI turn to leading Clare Valley gunsmith Jerome Ziersch to build their custom rifles, supplying components once the customer has discussed their requirements and had a blueprint drawn up.

PDI approached *Australian Shooter* with a request to review one of its custom rifles, a unit built around the Tikka T3 action and a hybrid hunting/long-range target rifle in .243 Winchester. The gun came supplied with a Delta Optical Titanium HD scope and was furnished in a superb Bolly Composite Stocks carbon fibre stock and Proof Research carbon-wrapped barrel.

At a glance

The rifle is 1165mm in length and weighs 3.87kg with the Delta Optical Titanium HD 4-24x50 riflescope on top. It is characterised by the Bolly ultralight carbon fibre stock, carbon-wrapped Proof Research barrel and APA Gen II 'Little Bastard' muzzle brake. Subtracting the weight of the scope and mount the bare rifle tallies 3.03kg.

Barrelled action

Heart of this build is the Tikka T3 action (.243 Winchester) in stainless finish. It encompasses the standard bolt, factory trigger and three-round polymer magazine but has had the action refaced prior to



The only components used from a standard Tikka T3 - receiver, bolt, trigger and three-shot polymer magazine.

Precision is precisely what you get



The APA Gen II 'Little Bastard' muzzle brake certainly tames muzzle flip in the .243 Winchester.

having the barrel chambered and fitted. The barrel is a Proof Research carbon-wrapped unit, the Sendero, with 24" (610mm) varmint profile in a one-in-7.5" twist and has a stainless steel inner tube to which layers of carbon fibre are wrapped around its length, making it strong but light.

To the eye the 610mm barrel with varmint profile would indicate a heavy one, yet it weighs the same as a standard 22" (560mm) Tikka sporter. It's fitted to the action by Ziersch Custom Rifles (ZCR) with headspace checked on a 'go gauge', the chamber polished and inspected with a bore scope as well cutting the x24 TPI muzzle thread and fitting the APA Gen II 'Little Bastard' .30-calibre muzzle brake. The twist barrel is intended to shoot projectiles upwards of 100 grains (and target ones at that) but in the review briefing, Mark asked that I view this firearm as a hybrid stalking/long-range varmint rifle and range test factory ammunition with bullet weights around 100-105gr.



The left-hand side of the Tikka T3 action with milled dovetail on the receiver top and angled profile of the flats.



Stainless barrel shank is engraved with the calibre and twist rate as well as the gunsmith's initials ZCR - Ziersch Custom Rifles of Auburn.

Triggerguard/detachable bottom metal

The triggerguard/DBM on the custom Tikka T3 was also replaced. The factory polymer unit will, over time, wear out the front lever which results in the magazine not being properly aligned at the front end, meaning feeding issues. While the polymer unit weighs just 30g, its replacement in the

Lumley Arms DBM for the T3/T3x pattern magazines is 82g and made from alloy/titanium. It's a drop-in fit and extensive testing in the T3/T3x platforms has given no feeding issues. Additionally, the trigger-guard loop is replaceable so you can convert to a larger trigger loop for use with gloves if desired.

Stock

This is the feather in the cap for Bolly Composite rifle stocks. Let's start with the weight - at 721g it's light, attributed to extensive use of carbon fibre for the skeleton and being of the featherweight specification is inletted for a right-hand Tikka T3 action and factory DBM. The barrel channel is profiled for a #6 contour and exterior of the stock is finished with 'ruff tuff' coating, which feels like a solid rubber sponge but grip is excellent and leaves other rubber rifle stock finishes in its wake.

An AirTech LimbSaver recoil pad is fitted and dampened recoil beautifully. Accessory-wise, two flush cups are fitted to the stock - one on the left of the fore-end tip and one at the toe - and anchored the GrovTech Mountain sling well and had me thinking how 'old-hat' standard sling swivels are compared to flush cups and press-fit sling swivels.

Finally a BT34 rail (2.05" long) is fitted to the underside of the fore-end tip as



The stock-mounted flush cups and corresponding swivels are mated to an excellent GrovTec sling swivel.

Con Kapralos puts the custom Tikka T3 to the test.



The Lumley Bottom Metal encompasses a triggerguard, magazine well and retaining clip.

provision for a spare stud for attachment of a Harris-style bipod. Some may baulk at paying around \$1000 for a rifle stock but when it's of Bolly quality it's worth every penny, especially if building a lightweight stalking/mountain rifle.

Scope and mount

The supplied scope is a Titanium HD 4-24x50 by Delta Optical, a Polish firm which has in recent years been at the forefront of designing top-quality scopes suited to long-range applications. The Titanium HD and Stryker models are made in Japan and highly regarded by shooters who know their optics. Englishman Richard Utting of Sharpshootinguk.com is a huge fan of the Delta marque and this is testament to the quality of their optics, coming from a man with access to the best optics on the market.

While a detailed examination of the Titanium HD isn't part of this review, the 4-24x50 lived up to its reputation with crisp, clear images out to 300m, turrets beautifully designed and positive in their movements with excellent illumination. The scope was fitted to the rifle using a quality Spuhr mount which attached directly to the Tikka T3 dovetail and fastened via three screws. Made of aircraft-grade aluminium, the Spuhr mount encompasses 30mm rings and base in a single unit and is made with ultra-precise tolerances. Expensive yes, but it's the best scope-mounting hardware money can buy.

Range test

The rifle was a proven performer with handloaded Berger target projectiles, grouping three shots into 0.3 MOA. This

range test would be looking specifically at factory loads with projectile weights of at least 100gr and upwards, so factory .243 Winchester ammunition was procured from Winchester, Remington, Hornady, Norma (all 100gr soft-point) and I also had some GECO Teilmantel 105gr soft-points.

Mark did stipulate projectile length would be more of a contributing factor (especially in 100gr loads) and this was duly noted. From the outset, at 100m the GECO 105gr Teilmantel loads shot superbly with three shots into 0.5 MOA easily. With 100gr factory loads it was a different story, the Winchester Super X, Remington Core-Lokts and Norma Oryx shooting well at around 1 MOA but the Hornady American Whitetail did poorly, with groups around 2 MOA. For general hunting applications any of the tested loads, with the exception of the Hornady, would be acceptable but this rifle deserves custom handloads and it would be easy to procure a 105-107gr hunting projectile and develop some serious long-range hunting loads.

I did manage to take the custom Tikka out for a deer hunt and it carried beautifully. If the rifle was my own I'd prefer a barrel which would stabilise projectiles in the 80-100gr range and I'd also omit the muzzle brake. But the rifle as supplied would find favour among many long-range, PRS and hunting sports shooters alike.

Summary

Precision Defence Industries can build the hunter or shooter a firearm tailored to their exact requirements and, using top-notch components, the end result is a rifle which will be a pleasure to own and use on the range or in the field. The custom

Tikka T3 in .243 Winchester was a superb example of the rifles PDI build and Bolly Composite stocks are some of the best on the market, currently offered for the Tikka T3/T3x, Lithgow LA102 and Schultz & Larsen actions, to name a few. The price tag is \$6500 but with premium components and optics, it's an investment in quality and performance. More at www.precisiondefenceindustries.com ●

What you get

Bolly Featherweight Tikka T3 right-hand rifle stock with Tikka T3 inlet, factory DBM inlet, 2x flush cups, 'ruff tuff' coating, AirTech LimbSaver recoil pad, BT34 rail.

Lumley Arms Titanium/Alloy T3 DBM.

Tikka T3 stainless action in .243 Winchester with factory trigger and three-round polymer magazine.

Carbon-wrapped Proof Research barrel (Sendero) 24" (610mm), 1:7.5 twist, .243 Win.

APA Gen II 'Little Bastard' brake - 30-calibre x24 TPI.

Gunsmithing: Reface action, chamber and fit barrel, headspace, polish chamber, install muzzle brake.

Spuhr Tikka scope mount (SCT-3001A) T3 (30mm).

Delta Optical Titanium HD 4-24x50 with interchangeable turrets and illuminated reticle.

GrovTec mountain sling.



Best foot forward

LOWA Ranger GTX III boots

Chris Redlich

I cringe on reflection, recalling how uncomfortable my feet were after a morning's roar hunt wearing my old steel-capped work boots. A hunt would often end prematurely due to chronic leg fatigue and foot pain aggravated by poor fit and insufficient support. Commonly overlooked as a vital piece of kit, the importance of correct footwear is just as crucial as good optics to your favourite hunting rifle and the success of a remote mountain hunt can weigh heavily on quality boots.

German bootmakers LOWA have been manufacturing top-notch footwear for the serious hiker, outdoorsman and mountain climbers for almost 100 years and experience gained from endless hard kilometres of use by owners across the globe makes them respected leaders in the industry.

An advocate for the preservation of foot health and armed with my own personal experience of sturdy boots, I was attracted to ads for LOWA's new Ranger boots. They appealed to my kind of hard use and I was keen to test them for myself. Supplied to me for the purpose of review was the latest release of LOWA Ranger GTX III boots, the claim being they're 'specifically designed

as the ultimate hunting boot for Australia, perfect for the harsh Australian bush and backpack hunting in the Victorian Alps'.

Out of the box

From first glance the boots exhibit all the tell-tale signs of excellent manufacture, revealing much more than a basic piece of footwear and the features supplied by LOWA list the important design aspects crucial to a hunting and serious trekking boot. It's obvious LOWA has poured plenty of research and development into the Ranger GTX III boots including a fresh 'heritage look', updated from the tried and tested previous Ranger GTX II model including rich, embossed, waxed nubuck uppers.

For the uneducated, nubuck is fine grain leather buffed on the outside to provide high resistance to wear and has a soft, velvet appearance. The nubuck leather on the LOWA Ranger GTX III is 2.2mm thick and the seams double stitched for strength. The boots are of single piece design with the patented C4 tongue stitched to the full height of the boot promoting a seal against the ingress of water. The often talked-about

but unexplained Gore-Tex inner lining protects feet from excessive moisture including perspiration, by allowing the foot to breathe while in hard use.

In the event of water seepage ('inevitable while crossing creeks particularly when deer hunting in the Victorian Alps'), the Gore-Tex lining will help shed liquid from your sodden feet and disperse it through the boots' 'outer' with the aid of your body temperature.

The importance of Gore-Tex lining cannot be understated and you won't find it on cheap boots. I've experienced water saturation first-hand when beginning a 20km climb into the mountains. It wasn't pleasant but the concern of wet feet soon evaporated as my body temperature and physical activity, combined with the boots' Gore-Tex liner, wicked away the moisture and my feet returned to an acceptably dry condition.

Ranger GTX III boots' X-lacing, using a slim nylon cord combined with a ball-bearing eyelet system promotes rapid, even lacing and a secure fit to the foot. The Climate Control Footbed 'insole' is soft, comfortable and moulds nicely to the foot. 'Midsole' is made from flexible



TOP: LOWA Ranger GTX III boots as delivered and ready for the mountains.

TOP: LOWA's Gore-Tex lining is a must to keep your feet dry.

ABOVE: Successful hunt in steep terrain with appropriate boots courtesy of LOWA.

ABOVE: A full height tongue prevents above-ankle water ingress.

polyurethane enabling shock protection during those heavy laden hunting miles. The sole 'outer' is the trail-proven Vibram used by many bootmakers and LOWA has chosen Vibram's natural design tread pattern for extra grip in rough and slippery conditions and for repelling mud and debris from the tread.

Above the sole and protecting the base of the boots' full circumference is a generous but non-intrusive 'rubber rand'. This is common on hunting and mountain climbing boots which aim to protect the outer-most leather base of the boot from rocks. Generally speaking, the more serious boot for mountain climbing, the larger the rubber rand.

Sizing is critical to a comfortable fit and before you buy LOWA Ranger GTX III boots it's important to refer to the guide and charts available from LOWA, particularly handy for remote purchasing. As always, assessing a boot off the shelf is always best and highly recommended.

Field testing

Bitten by a case of itchy feet I was eager to be in the hills and hunt with the new

boots. Confident of correct sizing and the boot designed to be worn and walked with no break-in period, I'd no reason to be concerned with a bad fit. Upon first fitment I was impressed by the speed of the X-lacing as the ball-bearing eyelets and nylon laces pulled the boots snug with speed and the tongue folded and moulded with no annoying creases which could potentially rub the top of my feet.

Once laced, the boots felt like magnets drawing me to the bush and I started the first of several hunts covering many kilometres during the week of field testing. The property I hunt for deer in winter has country more aligned to the vertical rather than flat, allowing unobstructed views from the 'highest feature' to the ocean on clear days - perfect terrain for testing the LOWA Rangers.

During a few days loaded with pack and rifle I managed to climb some steep country and the GTX III boots provided exceptional support to my ankles and feet. On this place I don't have the luxury of designated trails and we make our own through thick scrub. As with most hunts they're never scripted and if you don't put in the hard yards you'll

almost always go home empty-handed.

Wearing the new Ranger GTX III boots made a difficult task just that bit easier providing great grip on steep, slippery hills and walking across sodden creek beds. This was as close as you'll come to Victorian High country in the upper regions of the Brisbane Valley and my hard work paid off, claiming a lovely red deer hind for meat. The climb out for retrieval was difficult but the Vibram natural sole gripped strongly into the greasy hillside, providing a safe ascent without losing a foothold.

Caring for your boots

It goes without saying your hunting rifle will require a good clean after use to remain in top condition for years of reliability and the same principle applies to boots. It's vital your boots receive the correct clean-and-protect treatment and supplied to me were LOWA's recommended cleaning products available for purchase to protect your asset. Adhering to the cleaning instructions provided upon return from my hunt, the laces were removed and I washed the boots with a mild detergent in warm water.

Once air-dried I sprayed the boots liberally with LOWA 'water repellent' followed by the application of 'leather conditioner' by soft brush to all leather uppers. LOWA strongly recommends storage of your boots in a shaded and well ventilated area between use for optimum preservation.

Summary

On my first outing the new LOWA Ranger GTX III boots lived up to their reputation and pedigree. Foot health is something I take extremely seriously and I wouldn't hunt without a solid pair of boots. The LOWA Ranger GTX IIIs, now veterans of more recent hunts, have performed exceptionally and my feet are faring better for wearing them. Whether hunting pigs in the heat of a remote western property or trophy deer through the heights of the Victorian Alps and wilds of New Zealand's North Island, you can't go past the all-new LOWA Ranger GTX III boots for ultimate comfort and foot support.

Not exclusive to hunting, GTX III boots would be my first choice of hiking footwear for exploring Tasmania's uncharted wilderness. Retailing for around \$550-\$580 at time of writing, this is money well spent as they'll provide many years of good service. Distributed by Beattie Matheson of New Zealand and sold by numerous retailers across Australia, check the website for local stockists and sizing guide. Visit lowaboos.com.au ●



When the trip is much more than the tally

Chas Harding

Channel country, Western Queensland, 38C around noon, an extended line in fluoro orange. We'd been walking the creek line since first light and encounters had been sporadic. Through the earpiece came a whisper: "There's a big one here in the creek Daz, come and have a shot."

Harry's call to his cousin was a good one. Damien (Daz) was going through a lean patch with only unsuccessful shots in long grass and creek vegetation - a confidence-booster would be welcome. To my left I saw two of the three day-glos converge in a quick huddle, arms pointing then a single hat break away and move slowly through the grass in a crouched position. We waited expectantly until the orange hat came slowly to the vertical, blue steel barrel horizontal, a puff of gun smoke. Smiles all round - we were back in business.

Fast-forward two years and our biennial pig-hunting sojourn was on again in a new location. Reports had filtered in of pigs on the river system in South Australia's north. Life's an adventure and I'd never been there so it was on. It's a different world out on the edge of the Simpson and when the property manager throws you the keys to more than a million acres, it grabs your attention.

You can't help but marvel at the scale of things - property paddocks marked on maps in square kilometres, the lunch room table seats at least a dozen and beef is served with all three meals. I counted nine working LandCruisers around the sheds and yards, definitely a thumb in the eye to any Texan who thinks he's the only big boy in play.

We'd come at the right and wrong time, floodwaters from rain in the Gulf country months before having reached Lake Eyre and turned the country along the river into

a paradise. Cattle were being shipped in for the abundant tucker and birdlife had arrived in droves, skeins of pelicans filling the sky, ducks, cormorants and a multitude of others nesting in every tree above the water line.

Unfortunately for us our quarry had scattered to all points of the compass with the arrival of water and reportedly were scarce. Still, we were confident of finding something and so began our quest for the desert pig. Wet ground robbed us of the ability to travel the edge of the river by vehicle for any great distance so it was on the hoof and for eight days straight we averaged 10km a day, slipping and sliding as close as we could to the river with cover proving very demanding.

Vegetation was dense and I admired how the young blokes didn't baulk but took turns at flushing the thick stuff. The river scenery and wildlife were superb but the hunting was tough with just the odd boar

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When the trip is much more than the tally



print and digging to keep us excited. But that was all and we started to entertain sceptical thoughts about the reports we'd heard, though conceded they'd been before the floods.

Harry and Daz did have an encounter on some drier ground off the river with a lone boar. Stalking upwind they spotted him in the open and he quickly succumbed to rifle fire from Harry but generally speaking they were scarce. We tried covering more ground in the vehicle but could only work the drier country on the fringe and it was

there we found other game the manager had zero tolerance for. A juvenile camel fell to Jack's .30-06, the back straps and leg steaks magnificent, while a beautifully coloured wild dog was successfully stalked by Daz after a sighting from the vehicle. I couldn't put my heart into shooting dogs. I'd shot several in my younger days but not now as I'm too much of a dog man - I know the damage they can cause so I'll leave that job to others.

They say the ones you work hardest for are the ones you remember most and the

lone boar I took on this trip reinforced that. On day four after roughly 40km on foot in mostly mud I came across a semi-open area with a big mob of cattle, spotting steers, cows and calves through the bins. Then wait, what's that? My heart leapt. Big floppy ears, ginger coloured, covered in mud - I'd almost passed up the only pig on the river, thinking it was a big calf. Radio all the orange hats: "Hold position, one sighted, stalk in progress."

The wind was only just okay with not a lot of cover for the stalk so, hunched down,



eyes on the cattle and with the pig still feeding I was inching closer as the wind was changing and cattle were watching. As the pig started to walk I reckoned this would have to do, so lying prone with a small bush for a rest and the cattle definitely on to me, the pig stopped three-quarters on.

With the cross-hairs settled on his shoulder I never felt the recoil as the heavy boar keeled over instantaneously. The day-glo gathered and there were smiles all round as we pondered an interesting bullet performance - the pig was so solid through the shoulder that at 150m the 300-grain soft-point hadn't exited. It's no wonder they use solids on real big stuff.

Day six found us again on the river margin, the young blokes working the thick stuff which in places was well above their heads, only an occasional glimpse of orange marking their progress and enabling a line to be kept. I lost sight of Harry for about five minutes so called on the radio to check his position. A whispered: "I'm right among them," came back.

Heart rate leapt again, eyes and ears on peak performance as seconds turn to minutes before a .30-30 crashed out, two rapid. You beauty, three pigs now and things are on the up. It transpired Harry and Daz had heard grunting and closed in and while Harry had been right with them, due to movement in the thick vegetation he couldn't quite get on though Jack had picked up a flusher from the group on the perimeter.

After 10 days' hunting we unloaded the guns, took the mandatory photo and set the dashboard compass to south - three pigs down with Daz yet to score. Camping well off the road every night was great fun and being with young blokes, their laughter, camaraderie, helpfulness and strength certainly makes old blood pump faster.

Take strength and camaraderie for example. Staked tyres this trip had been

a problem and to a bloke who's edging 70, a LandCruiser flat isn't as easy as it was 30 years ago. A friendly hip and shoulder nudge me out the way, three pairs of big strong hands quickly do the tough work and the words: "Hit the compressor button, grey hair - and four beers please." You have to hope you were like that in a previous life.

So we reached the south land, reminisced on our trip to the desert and laughed at the fun we'd had, regardless of the tally. Back home people asked how we went, how many did we take? It's funny how those who go on numbers as the measure of success don't understand the true worth of a hunting trip. I'd been away with son and nephews, enjoyed companionship, shared hardships, seen new country in a rarely-repeated state, tasted desert fare, encountered wildlife beauty at its best and life's harsh realities at their worst. I knew a sojourn like this was a memory to cherish and the tally of game nothing by comparison.

Back from South Australia six months and Daz and I are at a hunting camp, fallow doe on the hooks, lunchtime beef snarlers on the grill and billy on. The talk was of our recent desert pig trip with Daz recounting when he and Harry were in the thick stuff on the river. Apparently Daz did have a stationary pig in the cross-hairs but didn't shoot.

Amazed, I enquired: "Why not?" He replied: "I heard Harry on the radio whisper 'I'm right among them' so I couldn't ruin his chance, remembering the channel country two years ago." With my back to a large comfortable rock, sun on my face and mood reflective, I cradled that enamel mug and basked in special memories with fine young blokes - all of them. That tea never tasted sweeter. ●



Finally, after 40km on foot, a desert river dweller.



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Three-point sling showing front and rear attachment points. The hunter's body inside the loop is considered the third point, hence the name.

New sling proves its worth to stalking hunters

John Rutkay



Testing carry options before the hunt show the value of hands free for stability and risk to muzzle from barrel down carry.

I enjoy hunting in the hilly, sometimes steep country of the Great Dividing Range in NSW where backpack and rifle sling are indispensable parts of the kit. Here, the quality and effectiveness of your equipment can have a large bearing on the success and enjoyment of the day's hunt, so when a new item promises significant improvements over the established one I become highly interested.

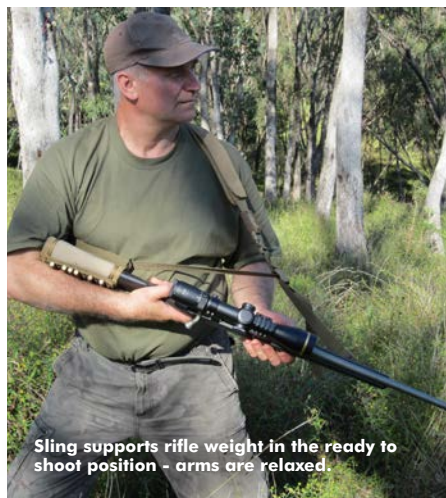
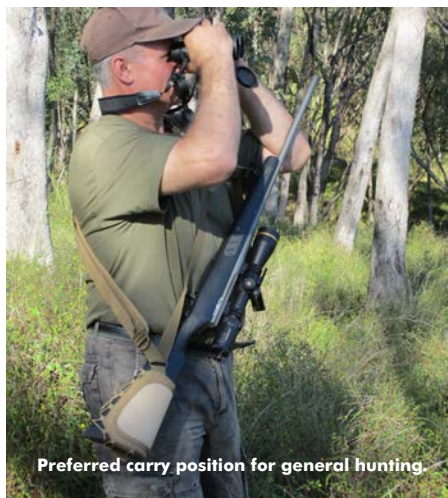
The subject of my curiosity on this occasion was a three-point rifle sling - but not the usual military sling which works well on a sub-machine gun or assault rifle due to their short length and specialised sling-attachment points. No, the sling which caught my eye was designed to function effectively on a hunting rifle, seemingly offering the advantages of three-point sling operation in a practical package. The capabilities listed in the ad made it sound too good to keep to myself and a few phone calls later we had the three-point sling organised for review and a hunting trip arranged to ensure an authentic trial.

The sling

Three-point slings were developed for military use, mainly to complement the highly successful assault rifle, a concept introduced during World War Two. These slings are compatible with a backpack, can't slip off the shoulder and fully support the rifle to give the soldier two hands free when needed. In a hands-free situation the rifle is close and ready for rapid deployment. Some readers will quickly recognise these features are much more than the two-point sling can offer and would be highly desirable when hunting on foot in challenging terrain.

The product

The subject of this review is Stason Smith's Bush Adventurer 3 Point Sling Hunting Elite Edition, a new and improved version of their standard Bush Adventurer 3 Point



Sling which retails for \$80. The Elite sling is well made with quality strength-tested synthetic materials and components throughout. Having seen most Stason Smith products while selecting the sling, I was impressed by the top-class fabrics and workmanship as well as the practicality of the items, indicating significant hunting tradition input.

Their merchandise is made in Russia using military specifications and finished by hand where necessary. The sling is adjustable to fit the hunter and the non-detachable buttstock cover is well suited to the straight combed stocks of modern hunting rifles. Rollover comb and high cheekpiece stocks are better suited to their standard sling with its smaller rear attachment. See these at stasonsmith.com.au.

Structure

The central component is a body loop or harness which lies diagonally across the chest and back. This loop passes through a rectangular metal ring of the buttstock cover which forms the rear attachment to the rifle. At the front, a conventional QD swivel attaches the front strap which links the rifle to the harness via the length-adjusting buckle.

Operation

While the sling is versatile in terms of rifle-carrying positions, the 'muzzle up across the chest' is by far the most useful for hunting, offering good rifle protection, speed of use, comfort and two hands free when needed. This converts quickly into 'ready to fire' when the front strap is lengthened.

Now the rifle needs to be held in the scope up position by one hand at least but the weight is still supported by the harness which leaves the hunter's arms fatigue-free for a potential shot. The barrel length of most hunting rifles rule out any of the

barrel down options - suffering a muzzle full of dirt due to a slip or sudden crouch is unwelcome on any hunt. However, should a belly crawl become necessary the across the chest carry can readily convert to the across the back position with barrel down (after ditching the backpack).

In use

On the hunt the Stason Smith sling proved user friendly and met all my expectations, the complex buckle which controls the length of the front strap being easy to use. A lift up on the front with two fingers of the forward hand allowed the weight of the rifle to pull through and lengthen the front strap sufficiently to shoot off the shoulder, release the fingers and the buckle locks front strap movement. After the shot, a pull on the free end of the front strap will return the rifle to the carry position by shortening the front strap, as this clever buckle can also act as a one-way control mechanism.

The removable padding on the rear (back and shoulder) portion of the harness increases the effective width of the 30mm-wide strap, noticeably reducing harness pressure for added comfort. The buttstock cover was a neat fit for my straight-combed synthetic stock and seemed a natural part of the rifle in a short time. The shallow cheek pad didn't change the stock fit and the Velcro-attached cartridge holder on the other side also remained interference free.

Agility is important in rough terrain but it sadly declines with age, which I know first-hand. So one of the personally pleasing discoveries while using this sling was the instant two hands free feature, which enabled me to compensate for a fair portion of my lost youthful balance and agility. Importantly, though different and new to me, at no time did the sling or its operation hinder my hunt.

Evaluation

The question for the individual hunter is whether the advantages and disadvantages on balance justify the change to a three-point sling. My listed advantages are influenced by experiences and near misses while hunting in rough terrain, though others may see different pros and cons.

Advantages versus two-point sling

- Two hands free reduces chance of a fall in difficult terrain
- Rifle can't slip off the shoulder
- More comfortable carry
- No chance of dropping rifle
- Quicker to take a shot away from a sling-supported position
- Rifle is sling-supported up to the point of shouldering to shoot (less arm fatigue)

Disadvantages versus two-point sling

- Lacing on and removal of buttstock cover is time-consuming
- Buttstock cover and sling needs removal for effective range shooting
- Initial adjustment takes longer
- Significantly more expensive at \$130
- More complex and bulky

Conclusion

The Stason Smith 3 Point Sling Elite Edition was found to be significantly better than the traditional sling for hunter and rifle safety, comfort, convenience and fatigue mitigation while marginally quicker in rifle use. Its disadvantages didn't affect hunting performance so everything pointed me towards changing to the three-point sling which is now part of my kit. To fellow hunters of the hills, especially those who notice them becoming steeper each year, I recommend this three-point sling and the new-found two hands free convenience, safety and hunting efficiency which comes with it. ●

BLACK POWDER: Old, new and faux

Ben Gregory



The test rifle, a Winchester Model 1892 full-length firearm made in 1926 and later fitted with a Sportco barrel.

We generally think, given the advancement of technology, that all modern items must be superior to their equivalents made a century or more ago. But every now and then we come across something which causes us to question this paradigm. Several years ago I acquired an unopened tin of black powder made by Curtis & Harvey of Hounslow, London. The style and address on the label indicated it was made sometime before 1917 and was the granulation referred to as Diamond Grain No.6.

On breaking through the century-old sealing-wax seal in the neck of the Japanned iron tin, I found the powder to be free-flowing, highly-glazed and in excellent condition. As a full tin is probably more of a storage nuisance than an empty one to a collector, I decided to give the old powder a try under uniform conditions and compare its performance against modern black powders.

The modern black powders I had available to pit against the antique stuff were the much-vaunted Swiss 3Fg along with the German-made Wano 3P and Wano 3F. I'm told the difference between Wano 3P and 3F is the former is more carefully sieved and the granulation more consistent for competition use, therefore P for premium. Also thrown into the mix were two modern black powder substitutes - Pyrodex P (equivalent to 3Fg black powder) and Alliant Black MZ, Pyrodex in particular being popular and widely available in the US.

Black powder has for centuries been a simple mixture of potassium nitrate (saltpeter), sulphur and charcoal and its formulation is well known, which begs the question why bother making black powder substitutes? The answer is to do with black powder's dangerous goods classification of Class 1.1D, which makes it expensive to transport by road and sea and consequently adds to its cost.



The black powders and black powder substitutes used in the comparison tests.



The Curtis & Harvey powder tin used in the comparison tests, the London E.C. postcode indicating it is pre-1917. Next to it is a .44-40 round loaded with a 240gr cast RCBS bullet.

Developers of substitutes sought to emulate the pressure curve and ballistic performance of black powder while slightly reducing its ease of ignition. Pyrodex is a mixture of the usual black powder ingredients plus potassium chlorate and some other proprietary additives, while Alliant Black MZ is a blend of potassium nitrate and potassium perchlorate together with one per cent carbon black, the latter I suspect added to make it look black and reassuring to the typical muzzleloader. Both these substitute powders meet the reduced ease of ignition criteria and are Class 1.3C, the same dangerous goods bracket as smokeless powder.

Initially I considered testing the powders using a muzzleloading rifle, but decided inconsistent compaction of the granules associated with use of the ramrod was too much of a potential shot-to-shot variable, and instead opted for the .44-40 cartridge fired from a Winchester 1892 full-length rifle. At some point the test rifle had been fitted with a Sportco barrel and the bore condition was excellent and with the right load and projectiles sized to 0.427", this rifle is highly accurate.

Each cartridge consisted of Winchester brass primed with a CCI large pistol primer and filled with exactly 30 grains of powder weighed to one-tenth of a grain. The exception was the Pyrodex P loads which are designed to be loaded to the same bulk volume as black powder but not the same weight (this equated to 26 grains by weight). When introduced in 1873 the .44-40 cartridge held 40 grains of black powder, hence the name, but this was with old-style balloon-head cartridge cases which were thinly-constructed and consequently held more powder.

Modern drawn-brass cases in this calibre are more heavily-constructed around the head to withstand the higher pressures of smokeless loads and, for this reason,

30 grains of black powder is about the maximum the cases will hold with bullets of 200gr and heavier.

On top of this charge was seated a 240gr semi-wadcutter projectile (RCBS 44-240-SWC) cast from 14:1 lead/tin alloy, and the lube grooves filled with a mixture of Tassie Tallow beef dripping and natural beeswax in a 4:1 ratio, together with a spoonful of Nulon 5W-30 fully synthetic motor oil. No grease cookie or over-powder card was used and the bullets were uniformly sized to 0.427". The bullets were seated to an overall length of 1.61" which resulted in light compression of the powder charge and then were gently crimped using a Lee factory die.

For each powder type a string of 10 shots was fired at a 50m target testing for precision and chronographing each shot, the rifle bore wet-swabbed and bronze-brushed after every string of 10 shots to remove any fouling build-up.

Results

Both precision and velocity testing of the

different powder types yielded markedly varying results (Table 1). The highest average velocity was generated by 30gr of the Black MZ powder (1265fps), while at the other end of the scale the same charge of Wano 3F averaged only 1016fps. The reduced amount of fouling generated by Black MZ compared to the traditional black powders was noticeable in the cleaning step between strings. Throughout the testing of all powders there was no significant leading evident in the Winchester's bore, and a small star of expelled lube around the muzzle indicated sufficient was present in the lube grooves of the RCBS projectile.

Of the true black powders, Swiss 3Fg gave the highest average velocity (1249fps) followed by Curtis & Harvey No. 6 (1188fps). The difference in group size at 50m between these two loads was chalk and cheese and while many .44-40 shooters report excellent results with Swiss 3Fg, my rifle clearly didn't like this powder and bullet combination, yielding a scattering of holes 23.5cm across, with one bullet hole indicating a clear side impact.



Close-up of powders tested, from left Wano 3F, Curtis & Harvey No.6, Pyrodex P, Swiss 3Fg, Alliant Black MZ.

Black Powder: old, new and faux

By contrast the Curtis & Harvey load yielded a 7cm group of neat, round holes with one flyer and in terms of precision on target this was the best result of the day, closely followed by Wano 3P (8cm) and Pyrodex P (9.5cm). Comparing Wano 3P with Wano 3F the latter gave approximately 50fps lower average velocity and a larger group size of 13.5cm, perhaps a reflection of the slightly higher extreme spread in velocity figures for 3F (75 vs. 63fps). Pyrodex P is also clearly a good black powder substitute, yielding a 9.5cm group and punchy performance (average velocity 1245fps) despite a load being used which was 4gr lighter than all the other contenders.

The big surprise was that of all powders tested the 104-plus-year-old Curtis & Harvey yielded the smallest group size, lowest standard deviation in velocity (12fps) and smallest extreme spread (38fps). This

brand was clearly excellent stuff and a perusal of black powder literature indicated many felt the same. Writing in 1940 and drawing on a lifetime of black powder

finest accuracy in his rifles and also burned moist in hot weather, which reduced build-up of hard fouling.

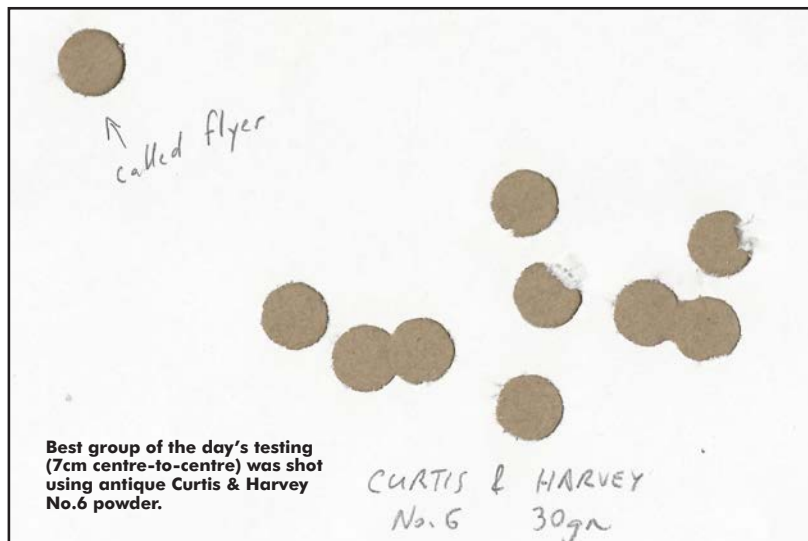
In a 1935 *American Rifleman* article he noted: "In loading the .44-40 and .38-40 cartridges I used English Curtis & Harvey No.6 black powder, which was more accurate and gave somewhat higher velocity than did any of the American black powders I used."

Conclusion

The fact the Curtis & Harvey No.6 black powder was made more than a century ago and has been stored since then under unknown conditions, yet still yielded superior performance to modern black powders and black

powder substitutes, is testament to its stability and quality of manufacture.

How did the old-timers do it better? We know English sporting powder manufacturers used top quality ingredients such as selected woods for charcoal (eg alder buckthorn *Frangula alnus*), had trade secret methods of retorting the charcoal and used longer milling times for sporting powders than for military grade powder. They'd also have been staffed by skilled operators, many of whom would have known no other occupation for their entire working lives. Few people can say the same today. ●



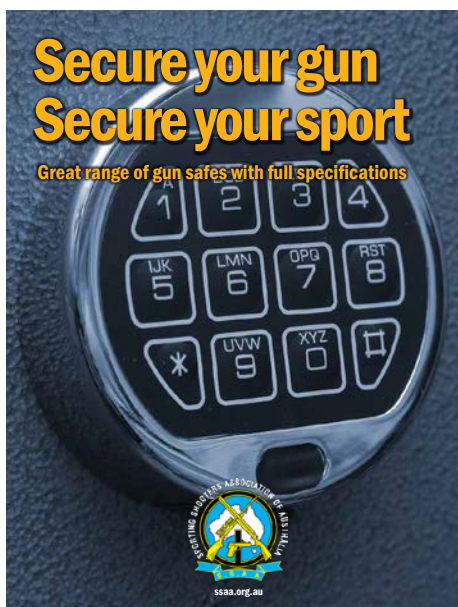
shooting beginning in the 1870s, Ned Roberts stated that when he was a boy in the US, "nine out of 10 riflemen regarded the English Curtis & Harvey Diamond Grain powder as the very best". He found No.6 grade, as used here, gave him the

Powder	Swiss 3Fg	C&H No.6	Wano 3F	Wano 3P	Pyrodex P	Black MZ
Mean velocity	1249	1188	1016	1065	1245	1265
Standard deviation	14	12	19	19	19	22
Extreme spread	44	38	75	63	64	71
Group size (cm)	23.5	7	13.5	8	9.5	13.5

Table 1: Results of chronograph and 50m target testing of powders. All velocities data in fps. All charges were 30gr except Pyrodex P (26gr).

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Signature

signs away scope-mounting problems

Samuel B. Mann

This is less a review than endorsement of a product we've needed for too long. It seems modern scopes can be put into any old mounts, taken to the range and zeroed in no time. Their constantly-centred reticles make your view look right-on, even when the scope appears elsewhere but for best performance, accuracy and reliability it pays to mount a scope in line with your preferred zero and take care not to bend it.

Failure to mount it straight can mean running out of clicks and suffering glare from the oblique erector tube, despite tunnel-vision field stops designed to prevent that. Accuracy may fall off with adjustments near the edge and image brightness can also be lost. For ultimate performance, light from an engaged target should enter the objective's vertex and follow the scope's optical middle line through a centred erector set and reticle. But even if you think that's all rubbish and happily wind the knobs for long shots, you'll need precise mounting to ensure you have the clicks to make it.

Equivalent scopes used to be heavier, many had steel bodies and the European

dural models could be millimetres thicker and stiffened by strong mounting rails. Though most scope bodies are now aluminium alloy, many are still 25.4mm (1"), remarkably light and not up to ham-fisted mounting. Bitter experience has shown me a really bent scope brings bad parallax, if nothing else.

William Hambly-Clark Jr. went to great lengths in his book *Centrefire Rifle Accuracy: Creating and Maintaining It* to show how to have scopes bore-sighted with the reticle optically centred and stress-free to make sure the mounts don't bend them - but Burris has in recent years, in my humble opinion, cut the Gordian knot.

Their Signature rings have strong synthetic inserts which don't require lapping. They swivel like ball joints until screwed tight, ensuring the scope is neither scratched nor bent in mounting. The Burris website shows Signature rings made for various bases and also wide XTR rings for tactical rifles, so take care which you're ordering. Mine fit into Burris' Universal bases via a familiar bayonet arrangement at the front and windage-adjustable cone screws at the rear.

In the event the scope has to be adjusted much for elevation Burris sells substitute, eccentric inserts which act like swivelling shims. These are called Pos-Align Offset inserts and come in kits with $\pm .005"$, $\pm .010"$ and $\pm .020"$ sets and can apparently give up to 76cm (30") correction at 91.4m (100yds). Maximum correction would be achieved by having inserts assembled one way in the front ring and the opposite in the rear one. If you use .020" inserts in each I wouldn't be surprised if you could find another 30cm (12") of adjustment, particularly on short actions.

In case you're using mounts without windage provisions and the rings don't affiliate well laterally, you can turn the Pos-Align inserts sideways. If they need both windage and elevation you can turn the Pos-Align eccentrics around to an angle that corrects both. The swivelling inserts/rings come in 25.4mm (1") and 30mm sizes and my only beef is there appear to be no low rings or 26mm inserts.

Burris says you should optically centre your scope reticle - usually by counting clicks or turning the scope around in V blocks, adjusting the turrets until the

Signature signs away scope-mounting problems



aiming means settles in the middle - and then adjust the mounts so the reticle is within 76mm (3") of bullet impact at 91.4m, then do final zeroing with the turrets.

Thousands of SSAA ad clicks suggest some readers know I like old-time, reticle-movement scopes. With these you need to have the reticle within a similar distance via the mounts (even closer in higher powers) or it will look out of centre. Shimming or milling mounts to achieve that is sometimes needed - or was until the Signature rings came along.

I bought a used Zastava 9.3x62 last year, remodelled the stock and installed a small steel scope to make it 1lb lighter than the Sako .338 I've hunted sambar with for 40 years. The scope is a 26mm Nickel 2.5x21Supralite, made after Hertel & Reuss took over around 1970 judging by the serial number.

After trying various mounts with a 1" Unertl Hawk, I acquired some Signature rings for my M98 Burris Universal bases from Rodney Purcell near Gundagai, who knows his stuff and said the inserts were

not just plastic but something akin to nylon. Tough as it is my mate Rob, a retired fitter and turner, bored out the original inserts to 26mm and the +/- .010" Pos-Align Offset inserts needed to repeat the boresight picture seen and recorded after zeroing the 4x32 Unertl.

The Burris Universal bases had angular vaulted surfaces underneath, which would have been fine but Rob is a perfectionist and, detecting the action was a little bowed, milled them to account for that. They now fit the receiver rings glove-like. Using

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these inserts it's even easier to mount those old scopes than the modern ones as having your reticle centred initially is just a matter of looking at it, though Rob went through the business of turning it around in V-blocks to be sure.

For amateur installers these rings must be the best thing since sliced bread. While you might use a mandrel or broomstick to turn the front ring the 90 degrees needed to lock it in, most subsequent adjustments at the rear cone screws can be done without further twisting up front, though loosening the ring screws will allow the inserts to swivel as you do them.

Within a few shots at the range I had the rifle zeroed and the old German #1 reticle was still nice and central. I mustn't have tightened the cone screws enough the first time though, and I had to realign the ring later (I must find a torque driver and check I have the cone screws tight enough).

Do you have such a classic 26mm scope to use? It may help to find out where the range-zeroed boresight looks with a properly centred 1" scope first then lap out just the appropriate inserts to 26mm, rather than all of them. Rob bored it in a lathe but suggests a 25mm mandrel with 400-grit wet-and-dry paper glued on but not



The front Signature ring with its insert bored out to fit the old 26mm German Nickel - the scope has the windage on the left to clear loading ports and MS bolt handles.

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overlapping, maybe with about an eighth of the metal bare at the top. Hambly-Clark suggested glue for shearers' emery-paper (for sharpening combs and cutters) but rubber-solution glue might do.

Install the mounts and screw the ring uppers down gently on the mandrel and work the rod back and forth for a couple of minutes, occasionally rotating to work the insert tops a bit. If the scope doesn't bed down in the rings by then you may have to add more paper or use a 1" mandrel. Take the ring screws down a little further and lap some more.

That may sound complicated but it's the easiest way to properly mount an older scope I can think of - and if yours has a 25.4mm or 30mm tube you don't need to lap the inserts at all. Burris claims the inserts have a better grip on scopes than steel and that may be so. In the event of them slipping though, I'm not above using some plastic-friendly substance to stop it happening.

A friend in California who has spent a lifetime in engineering, rocket science and film-industry optics suggests these inserts may be safer in our warming world, as aluminium expands quicker than steel when things turn a bit like Death Valley.



While large areas of a scope tube are there to maintain optical geometry, bare steel may cause trouble if a front ring is over tight-fitting parallax provisions or a rear one cramps an erector-tube gimbal.

Another US contact, an old Idaho cattleman, guide and gunsmith says bumping a scope can knock it 12 MOA out of zero and after carrying rifles in saddle scabbards for 70 years he should know. Next to rubber or, better still, the old Bausch & Lomb spring-loaded 'Custom' cradle, I think nylon inserts would give a scope the best chance of not being bent when bumped and maybe even returning to battery.

Signature rings look about 30 per cent dearer than standard Burris ones and the Offset inserts cost me another \$70 - but consider this comparison. My mate Rob also mounted a reticle-movement single-turret Hensoldt 1.5-6x36 on my old Sako, making the rail dovetails perfectly from scratch since you don't see stuff like that around much. He wouldn't accept money but had I paid a German gunsmith to install it even with commercial mounts, \$1000 might have been cheap. So for setting up ordinary, unrailed scopes correctly, with or without a gunsmith, Signature rings are a bargain. ●

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Participating Big Game Rifle clubs
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Handgun Metallic Silhouette National Postal Shoot

March 1 - May 31, 2021

Various locations
Big Bore, Small Bore and Field Pistol.
IHMAS rules. Contact: Russell Mowles
0418 819 945.

Field Rifle, 3P, Scoped Air Rifle and NRA Any Sight National Championships

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SSAA Majura Range, ACT
See National website for event details.
Contact: Josephine King 0424 292 115
or Matt Rogaloff 0410 895 815.

Benchrest Group National Championships

April 1-5, 2021

Jarrahdale Sporting Shooters, WA
See National website for event details.
Contact: Trevor 0417 085 528 or
email benchrestwa@iinet.net.au

SSAA WA Benchrest National Championships

April 2-5, 2021

Jarrahdale, WA
See National website for event details.
Contact: Trevor 0417 085 528

benchrestwa@iinet.net.au or
Dave 0400 205 892 benchrest@
jarrahdalshooters.org.au

SSAA Rifle Metallic Silhouette National Championships

April 1-7, 2021

Eagle Park Range, Little River, Victoria
See National website for event details.
Contact: Mark Butler 0409 135 740.

SSAA Benchrest Group National Championships

June 3-7, 2021

Springure Sporting Shooters Club,
Springure, Qld. See National website
for event details. Contact: Gavin
Marshall 0438 759 162.

2021 National Junior Challenge

SSAA Brisbane, Madden Range,

Belmont, Qld

July 9-11, 2021

See National website for event details.
Contact: Jon McCarthy 0438 756 622
or jon@bendworx.com.au

SSAA Gallery Rifle National Championships

July 17-18, 2021

Para Branch, Greenwith, SA
See National website for event details.
Contact: Don Robinson 0428 986 070
or Dave McCarthy 0414 880 333.

SSAA Gallery Rifle National Championships

July 17-28, 2021

SSAA Para, Rifle Range Rd,
Greenwith, SA

See National website for event details.
Contact: Don Robinson 0428 986 070
or Dave McCarthy 0414 880 333.

Benchrest Score National Championships

September 3-7, 2021

Dairyville Range, Coffs Harbour, WA
See National website for event details.
Contact: Ray Munro 0408 649 126 or
email: r.munro@internode.on.net

SSAA Combined Services National Championships

October 1-3, 2021

Central Qld Shooting Complex,
Gladstone, Qld
See National website for event details.
Contact: Shayne Smith: 0418 808 817.

IHMSA National Championships

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 Silhouette National Championships

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.
com.au

ACT

SSAA (ACT) Rifle Metallic Silhouette State Snowball Shoot

June 12-14, 2021

SSAA Majura Range, ACT
See National website for event details.
Contact: Mark Lovell 0401 867 839 or
email mnl1@live.com.au

NSW

NSW Combined Services Pistol State Championships

May 29-30, 2021

Emmaville Range, Emmaville, NSW
See National website for event details.
Contact: Evan Brown 0428 100 336.

NSW Combined Services State Championships

September 17-19, 2021

Windamere Regional Shooting
Complex, NSW
See National website for event details.
Contact: Anthony Gatti info@nswcsd.
com.au or 0499 987 899.

Qld

SSAA (Qld) Gallery Rifle State Championships

April 17-18, 2021

Hervey Range Shooting Complex, Qld
See National website for event details.
Contact: Don Robinson 0428 986 070
or Dave Mitchell 0476 058 893.

Qld IRB and Rimfire Benchrest Group National Championships

September 30-October 4, 2021

Springure Sporting Shooters, Qld
See National website for event details.
Contact: Gavin Marshall 0438 759 162.

WA

SSAA WA Target Pistol State Championships

April 10-11, 2021

Port Bouvard Pistol Club,
Dawesville, WA
See National website for event details.
Contact: Gary Paterson 0437 387 452.

SSAA WA Rifle Metallic Silhouette State Championships

May 15-16, 2021

Wanneroo Shooting Complex, WA
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Contact: Paul Dunn Paul@compac.
com.au or 0407 428 175.

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Made by schrade, this is the ultimate accessory pocket folder and has a fully-serrated blade and a fine-edge blade, both in high carbon stainless steel - ideal for around the campsite

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SSAA outdoors bag - black



- * Material made from waterproof 430gs, Ripstop Polyester canvas
- * Hard base sewn between bottom layers of canvas
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- * Front, rear and side pockets for essential items
- * High visibility reflective strip on front flap
- * Side footwear storage pocket

\$74

See more online!

SSAA Shotgun Vest



The SSAA Shotgun Vest is made to our usual high standards and now comes with upgraded features such as the ability to insert additional padding in the shoulders to absorb recoil.

The vest comes with lots of pockets, has front and rear leather trim and Velcro adjuster, while the back sections are mesh for added breathability.

Available in blue and green.

Please visit our website for measurements for correct sizing

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SSAA knife roll



SSAA knife roll includes a 20cm boning knife, 18cm skinning knife, 20cm filleting knife and 25cm sharpening steel.

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\$44.95

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onlineshop.ssaa.org.au

**or call 02 8805 3900
for phone orders**



SSAA MEMBERSHIP APPLICATION

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SSAA Membership Office, PO Box 282, Plumpton, NSW 2761

Phone 02 8805 3900 Fax 02 9832 9377 Email membership@ssaa.org.au

NEW ☐ RENEWAL ☐ Have you been a member before? Yes/No

Membership No.

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Title (PLEASE CIRCLE) Mr Miss Ms Mrs or Preferred SSAA Branch

First name

Middle name

Last name

Residential address

Town/suburb State Postcode

Postal address

Town/suburb State Postcode

(IF DIFFERENT FROM ABOVE)

Phone (Mobile) (Home)

Email

Date of birth Male ☐ Female ☐ Member referral number if applicable

☐ Tick to subscribe to the FREE SSAA National E-newsletter via email

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Each membership category (apart from Family Member) includes 11 issues of the Australian Shooter magazine per year.

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☐ \$70 ☐ \$100

☐ \$105 ☐ \$135

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Includes \$35 insurance premium for SSAA Member Firearms Insurance for 12 months, valid until next membership renewal.

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Supporting Adult member No.

SIGN UP ONLINE

ssaa.org.au



PLEASE READ AND SIGN

This application is made in full recognition of the Association's requirement for responsible and ethical behaviour. I undertake to 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 subject to suspension or expulsion. The Code can be found at ssaa.org.au/code

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DATE:.....

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Card number

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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 April 30, 2021

(Name of competition)
SSAA National
PO Box 2520
Unley SA 5061

Enter online at
ssaa.org.au/win

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- Winchester Temp Tattoos (x3)
- Winchester-branded Lollies (x2)

RRP \$90

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Australian Shooter February 2021

Best Shots Mug
Mark Adams, Qld

Junior Prize – Tracker long-sleeve top
Deklen Reynolds, Qld

5x Decibullz custom-moulded percussive earplugs + Decibullz lanyard sets
Dan Griffin ACT, Andrew Winton, NSW
Jacob Whitworth, Qld, Darralyn Moleman, NSW
Dean Ludwig, SA,

Walther SL torch
James Hintz, Qld

A/Hunter 75 Competitions

Water Resistant Hunting Backpack with Silent Fabric
Mark Mansfield WA

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Aaron Robeson, WA, Phillip Weston, Vic
John Horton, Qld, Glen Coddington, NSW
Gary Hopkin, Qld, Mark Risdon, Tas
Doug Griffiths, NSW, Adam Sutton, NSW
Jason Desmond, Qld, Clem Mance, Qld

SSAA Rechargeable Knife Sharpener
Shaun McKay, Qld

WX Valor 2 lens set & WX Realtree Camo Cap
Eric Vogt-Kreuz, Vic

2 Winchester Christmas Gift Packs
Brian Tull, NSW, Rob Burton, Vic

Pro Hunter – RTX – Camo Backpack
Terese Roozendaal, Tas

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A present for Preston

In September of last year our nearest neighbour asked me if I'd make a knife for his son, a simple enough request yet one which gave me cause to stop and think. The main stumbling block was the young bloke is exactly that - a young bloke - and while he has more common sense than quite a few adults I know, the laws here in NSW make it illegal to sell a knife to anyone under the age of 16. I explained this to his father and the outcome was I'd make the knife for him and he could give it to Preston as he saw fit.

As an unreformed traditionalist I've always believed parents are best placed to determine when their offspring are old enough to be given responsibility. It's a frame of mind some kids have and others don't and age shouldn't be considered a yardstick when there are youngsters out there capable of doing amazing things - and more than a few adults whose attitudes sometimes make you wonder how they ever graduated from kindergarten.

That said, when you read or hear or see some of the television footage of the violence that's become almost endemic in some urban and city areas, it's easy to understand why laws are necessary to regulate some activities, even though one size will never fit all - something the nanny staters have thus far failed to recognise in the rush to meet their perceived goals of common good.

The knife which resulted is one I'm rather proud of, though there's nothing which makes it particularly special other than I crafted it as a first knife for a sensible young fellow who happens to be a friend. Made from 1075 high carbon steel, the blade is just on 75mm long with a hidden



Preston's present: The hand-made knife and sheath.

tang epoxy glued and pinned into the handle. The shape is one I consider useful for a range of tasks including skinning and dressing game as well as cutting duties around camp. It turned out pretty much as I intended and polished up nicely on the buffer.

The finger guard is brass, as is the pin through the handle. The short piece of wood at the front of the handle is some stabilised myrtle which NSW South Coast knife-maker Rob Podesta gave me some time ago. Behind that is a thin copper spacer and the rest of the handle is a nice piece of river red gum I rescued from a likely block in the woodshed. The wood was sanded smooth and finished with several applications of a bees' wax and linseed oil mixture to bring up the grain and seal out any moisture.

Conscious it was being made for a hand much smaller than mine, the finished haft is shorter and not as bulky as others I've made. For all that it balances nicely and a couple of older knife users I showed it to would've been happy to buy it on the spot.

Both asked me to make a knife for them when I can get around to it and somewhere down the track I'll be happy to take that up as a time-filler for the few gaps I have in my plans for the year.

To finish the project I hand-made a sheath from some tanned buffalo hide, forming it up so the knife was a nice press fit and wouldn't rattle out. Then I wrote a few lines about how to look after the knife and gave it to his father. On Christmas morning, Preston rang to thank me for making him the knife, clearly excited his parents and the old bloke next door had collaborated to produce a gift that will last a lifetime given a little care.

For some time to come, parental supervision will undoubtedly be the order of the day. That's obviously a good thing and will help reinforce the idea that a knife must not only be used responsibly but safely. I reckon he'll take to it like a duck to water - especially when he goes hunting with the brand new .17 HMR that was his other Christmas present.



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