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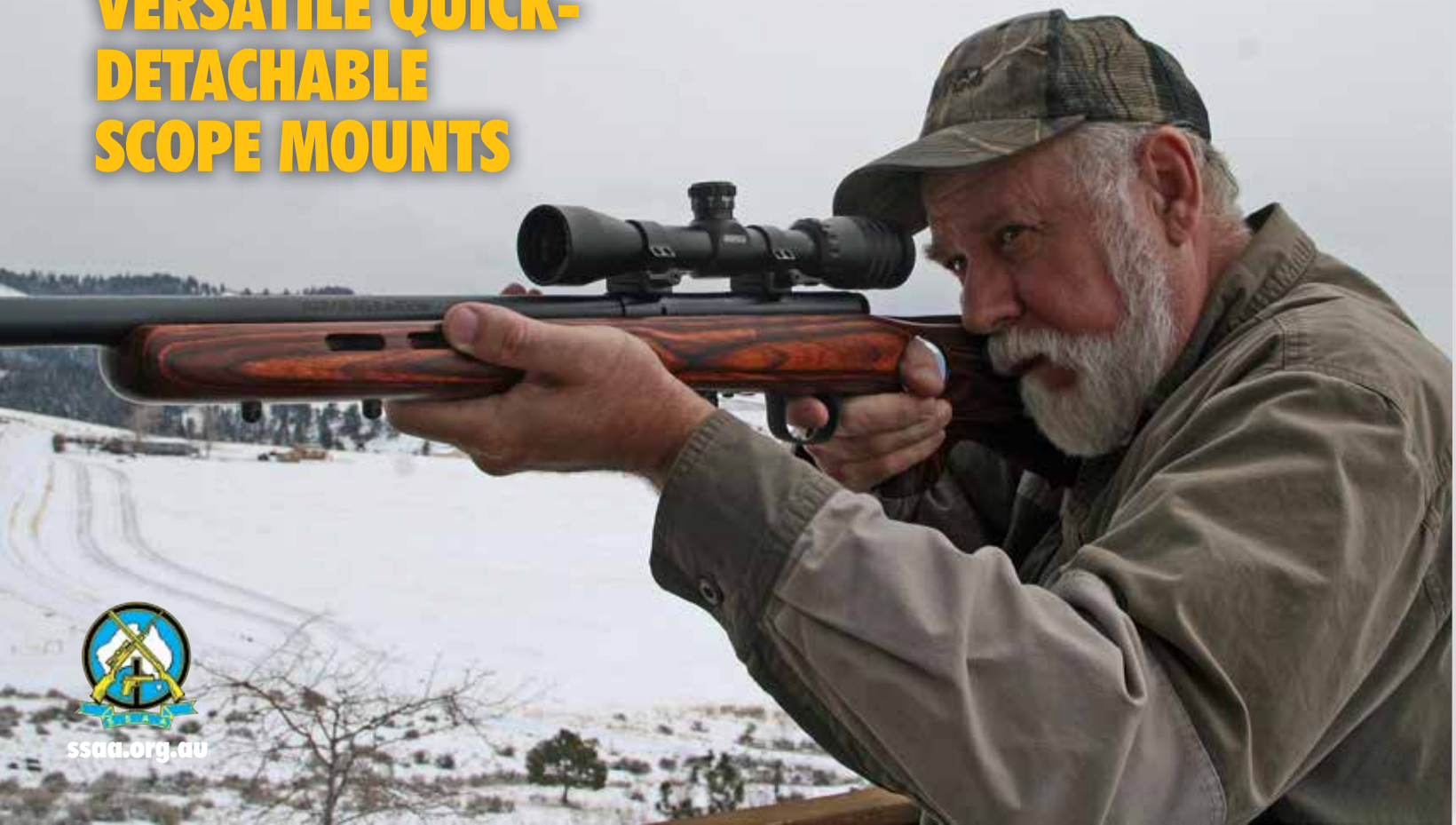
VERSATILE QUICK-DETACHABLE SCOPE MOUNTS



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Feral cats

and the risk to hunters

A feline predator.

Douglas Riach

The damage to native wildlife populations caused by feral cats is well known but there are two other concerns to be considered by hunters. Firstly, cats pose a risk of transmitting disease directly to those involved in culling and handling the animals. Secondly, harvesting wild game meat means an increased risk of germs being passed on from feral cats to wild animals and from them to the hunter. Cats are hosts and spread a parasite and illness known as toxoplasmosis which can infect most game including rabbits, goats and deer and can also be transmitted to humans.

What is toxoplasmosis?

A cat-borne parasite/disease which produces initial symptoms then cysts in the second host which can be humans, these cysts reasonably large and often visible to the naked eye. The parasite is known as *toxoplasma gondii* but will be referred to here simply as toxoplasmosis.

Life cycle

Toxoplasmosis has a two-host life cycle, the first host the cat (feral or domestic) where the parasite reproduces (sexual reproduction) in the animal's digestive tract. A cat can produce millions of microscopic oocysts (cysts containing a zygote) which can be considered like an egg. Cat faeces spread the eggs (oocysts) which can survive for more than a year on the ground, in water or on grass. The second host eats the grass or drinks the water and becomes infected. In this part of the life cycle the eggs develop into a stage of the parasite which rapidly divide (asexual reproduction) and spread throughout the body, at which point the majority of symptoms appear.

Toxoplasmosis can infect most warm-blooded animals. The second hosts don't produce or spread oocysts but are themselves infected. The true life cycle of toxoplasmosis is for non-infected cats to consume the infected second host animal - mice, rats, bilbies etc for the parasite's life cycle to start over.

Larger animals such as sheep, goats, deer, kangaroos and humans are not normal prey for cats but may become hosts in the life cycle of the parasite. After

the initial infection in the second host, the parasites enter a latent period where they form cysts protected by a membrane not responsive to antibiotics and resistant to the body's immune system. In humans the cysts can form in the muscles, tongue, esophagus, diaphragm, heart, brain and spinal cord. When detected in sheep, toxoplasmosis cysts are trimmed from the meat or, in highly infected cases, the carcass is deemed unfit for human consumption. South Australia employs a slaughterhouse surveillance program to reduce the risk of toxoplasmosis.
In many cases the original animal may not have any obvious signs or symptoms of the illness, so deciding whether or not an animal is 'sick' is impossible when looking through a riflescope and deciding whether to harvest it or not.

A native bird is the target.

Feral cat stalks a penguin.

A feral cat kills a native possum.

Symptoms
According to Tasmania's Department of Primary Industries, toxoplasmosis spread by cats has taken a massive toll on local wildlife. Apart from a high death rate, indications of infection include neurological signs such as blindness, altered behaviour and unsteady gait.
In humans, initial symptoms are usually stated as flu-like illnesses, nausea, vomiting, stomach ache and diarrhoea. Sometimes there are muscle aches and tender lymph nodes which can last for months though in healthy adults there are often no initial symptoms.
In a few cases eye problems such as blurred vision, inflammation of the retina, seizures, lung problems (which resemble tuberculosis) and poor coordination have been reported. Toxoplasmosis has been associated with birth defects, foetal deaths and abortions as well as neurological deficits and neurocognitive deficits in infants.
Portugal, France, Austria, Uruguay, Italy, Germany, Switzerland and Belgium routinely screen pregnant women for toxoplasmosis. Several biologists have a theory of toxoplasmosis affecting human behaviour, which is supported by research linking it to schizophrenia, high incidents of motor accidents, impaired psychomotor performance and risk-taking. Obviously cysts in the heart, brain or in a foetus can be fatal and those in the lungs or other vital organs can cause serious consequences. In people with a compromised immune system the risk is higher.
Arthur Ashe, the renowned former tennis player who won three Grand Slam titles, is reported to have suffered neurological problems from toxoplasmosis and died aged 49. Merritt Butrick who featured in two Star Trek movies died aged 29 from toxoplasmosis.

Diagnosis
Toxoplasmosis mimics several other diseases, making diagnosis difficult. The presence of the parasite may be detected in the blood, amniotic fluid and cerebrospinal fluid if a test is conducted for toxoplasmosis antibodies.

How it is caught
Exposure to cat faeces or eating undercooked meat containing cysts are the most recorded means of infection in humans. However, humans can also become a host for this parasite from drinking raw milk (cow or goat), ingesting its eggs on unwashed salad or vegetables, having contaminated hands from handling feral cats (dead or alive), contaminated game animals, gardening or cleaning cat litter trays.

Prevalence
Prior to the Kangaroo Island bushfires, a far higher density of toxoplasmosis was detected there compared to mainland South Australia. Factors affecting the

Strung up.

prevalence include cat density, type of soil and environment. A 2019 study identified an 11 times greater feral cat abundance on Kangaroo Island compared with the Adelaide Hills and Fleurieu Peninsula areas.

Prevention

Person-to-person spread of toxoplasmosis normally does not occur. A cat's fur or faeces may contain toxoplasmosis eggs so when handling feral cats or cat bodies, gloves should be worn or hands washed thoroughly immediately after handling. Washing to remove possible eggs is more effective than using hand sanitiser.

Meat must be thoroughly cooked to kill parasites inside the cysts if present in the animal, while freezing for 24 hours at -20C or for 48 hours at -4C has also been found to kill parasites and render the meat safe to eat. This may be nothing new for some people as reptile owners regularly freeze rats and mice for 48 hours before feeding to their pets to prevent transmission of parasites. For human consumption all meat should be cooked thoroughly though this may be an issue for those who enjoy their meat rare or medium-rare, especially with venison which often goes dry when fully cooked. The Quality Deer Management Association (US) issued a recommendation for cooking venison if you insist on a pink centre. The safest way is to fully cook the venison but treat the meat at high temperature (at least 63C) then allow it to rest for three minutes before carving, which should produce enough heat to kill parasites. Of course if previously frozen for the required period and temperature (see above) the meat doesn't need to be thoroughly cooked to be safe.

Water can also be contaminated so should be boiled, filtered or treated with UV such as a Steripen when drinking from a potentially suspect source. Chlorination has been found to be less effective and requires more time and free chlorine to kill parasites, so if using chlorine-based water purification tablets, ensure the chlorine added to your water bottle is of the right concentration to guarantee the water safe to drink.

Vegetables should be properly washed before eating with all soil removed. Hands and cooking utensils should be washed after handling raw products and gloves worn when emptying cat litter trays. Pregnant women or immune compromised people should avoid changing cat litter trays.

Children's sandpits should be covered when not in use. A few years ago child care centres removed these or covered them at night after a reported increase in toxoplasmosis in children, traced to such areas contaminated by stray cats. Wear gloves when gardening, especially if the area is visited by cats, and if you own cats don't allow them to hunt or roam. RSPCA Australia policy encourages the containment of cats at least from dusk to dawn.

Summary

During initial infection in humans, if correctly diagnosed, treatments are available in the form of combinations of drugs. There is currently no vaccine to prevent toxoplasmosis and no drug has been confirmed effective for the parasite once the cysts have formed.

This article is merely a summary of known information on toxoplasmosis and not written as a medical observation or advice. It is of general information on the illness spread by feral cats. Emphasis is on safety when handling feral cats, prevention of illness, care of field harvested game and in supporting the removal of feral cats from Australia. Further advice on toxoplasmosis should be obtained from medical specialists if needed.

Versatile quick-detachable scope mounts

The .300 Win Mag with quick-release scope took this trophy bull elk.

Thomas Tabor

When my brother bought his new .270-chambered Savage Model 110 rifle in the late 1960s he also purchased a set of detachable scope mounts for it. If memory serves, those mounts were produced by Redfield but that was a long time ago and I could be mistaken. My brother had high hopes a set of quick-detachable mounts would be perfect for the variable hunting conditions he often faced. Unfortunately, those mounts proved unreliable when it came to retaining the same bullet impact point after the scope had been removed and remounted.

For decades Europe seemed way ahead of the rest of the world when it came to producing quality detachable mounts and European hunters loved the concept of being able to quickly and easily remove their scopes. In many cases, at the end of the hunting day those same hunters would ceremoniously remove scopes from their rifles to store them in separate cases.

Some of those European mounts gained considerable favour on the Dark Continent. Safari hunters, especially those seeking dangerous game, became particularly fond of the ability to swiftly ditch their scopes in favour of using the iron sights on their rifle. In these situations when things had a tendency to turn close and personal, opting for a set of open sights over that of a scope simply made good sense.

As far as I know, most of those European mounting systems were fairly reliable when it came to maintaining the same point of bullet impact but on the downside most of those systems were expensive, heavy and bulky, especially by today's standards. From the beginning I could clearly understand the potential advantages inherent in these mounting systems, but my brother's poor experience weighed heavily on me for years. Eventually a pair of Leupold QRW (quick release) mounts found their way into my hands which caused all of my perceived reluctance to disappear.

Leupold & Stevens systems

For the usual hunting-style rifles Leupold now has two systems to choose from - the QR and the QRW2 mounts. These two are starkly different in design but both are reliable when it comes to returning to the same general impact point of the bullet.

Leupold & Stevens' QR system includes rings and the bases.

Warne's quick-detach rings are similar to Leupold QRW2s but rings are split vertically, not horizontally.

A benefit of quick-release mounts is being able to have a couple of different-sized scopes zeroed in for the same rifle.

The original QRW design was produced decades ago but has recently been upgraded to include a new easy-installation ring-top format, an improved keeper and larger contact area with the bases to encourage a more precise and reliable seating ability.

These rings have only become better over the years. The QRWs are steel cross-slot designed which includes a bar in the foot of the rings which fits into a matching slot within the bases. This helps prevent any movement forward or aft as a result of the rifle's recoil or from other outside influences. To secure the scope in place, each ring comes with its own locking lever and once tightened down the position of these levers can be changed simply by pulling upward on them and turning them to the desired pointing direction. Once that new position has been achieved, internal springs hold the levers in place.

One of the major differences between the QRW and QR mounts lies in the location of their locking levers. While the QRW levers are located on the rings themselves, QR mount levers are built into the corresponding scope mounting bases.

A big advantage of the QRW and new QRW2 rings is the fact they're compatible not only with their corresponding Leupold brand bases, but can be used with most Weaver-style bases and even today's popular standard mounting rails. On the other hand, QR rings must be used in conjunction with their specific corresponding QR bases.

QR bases are available to match most rifles but there's also a base specifically intended for older and less common firearms - the QR Gunmakers 2-PC is a work in progress. While it comes equipped with all the necessary locking mechanism, the base itself consists of an oversized triangular block of steel which can be machined to match whatever dimensions and contours needed.

Both Leupold mounting systems use Torx-style screws which the company says can be tightened with up to 25 per cent more torque than slot-headed type screws and in this case a special star-headed Torx wrench is needed for installation, though Leupold supplies one with each set of rings or bases.

Warne quick-detach mounts

These are similar to the Leupold QRW system and also come with Torx screws. Like the QRWs, Warner rings come with a steel cross bar which corresponds to a slot cut in the bases and can be used with Warne, Weaver-style mounts or a standard rail. The main difference between the Leupold and Warne designs is Warne rings are split in the company's signature vertical fashion as opposed to Leupold's horizontally split design.

For years I've used Warne quick detach mounts and found them to be just as reliable and consistent in their abilities as the Leupold QRW-style mounts. I favour Leupold QRWs slightly over Warne rings as I find the horizontal cut ring to be easier to assemble and, like the Leupold QRWs,

the locking levers of Warne rings are fully adjustable by pulling upward and turning them to the desired direction.

Advantages

Being able to remove your scope then remount it with an assurance there will be little or no change to the point of bullet impact is certainly a worthwhile consideration but there are other advantages which can go unrecognised. I sometimes find having a second scope ready to be slipped into place provides flexibility. The most common situation would be to have a high magnification scope for when long shots are the norm and a secondary scope with lower magnification for close shots ready to mount, though that could also include some form of night vision optics or even a reflex-style sight.

Having a secondary back-up scope set up with quick-detachable mounts could make good sense in another way too. Unforeseen problems can occur while hunting in the outback and if that should involve taking a fall, your scope could be damaged or knocked out of alignment so having a back-up ready to slip into place could salvage an entire hunting trip.

I sometimes find it beneficial to remove scopes while cleaning rifles and have always harboured a fear that cleaning chemicals used to scrub the bore and for lubeing could penetrate the scope seals. While those worries may not be totally founded it still lends a degree of confidence my scope will come through those activities unharmed.

The target on the right was shot from Thomas' .300 Win Mag at 100yds followed by the one on the left after the scope was removed and remounted.

All these were shot at 100yds from Tom's Winchester Model 70 .375 H&H Mag.

Both these targets were shot at 50yds from Tom's Savage .17 HMR rifle.

Tom's quick-release scope on his .17 HMR worked well on squirrels.

Reliability

Conditions in the outback can be harsh, dry and dusty and, as a consequence, I became curious about how a light deposit of dust on the mounting surfaces of these mounts could affect scope alignment. In an effort to simulate those conditions I removed the QRW-mounted scope on my Model 70 .375 H&H rifle and sprinkled the surfaces with some baby powder and remounted it. In my opinion the results of that test showed an inconsequential amount of variation in the impact point.

In addition to testing my Winchester Model 70, I also put a couple of other rifles through their paces by shooting a group followed by pulling the scope and remounting it with Leupold QRW quick-release mounts, including my Savage rimfire .17 HMR and custom Mauser in .300 Win. Mag, the results shown in the accompanying photos.

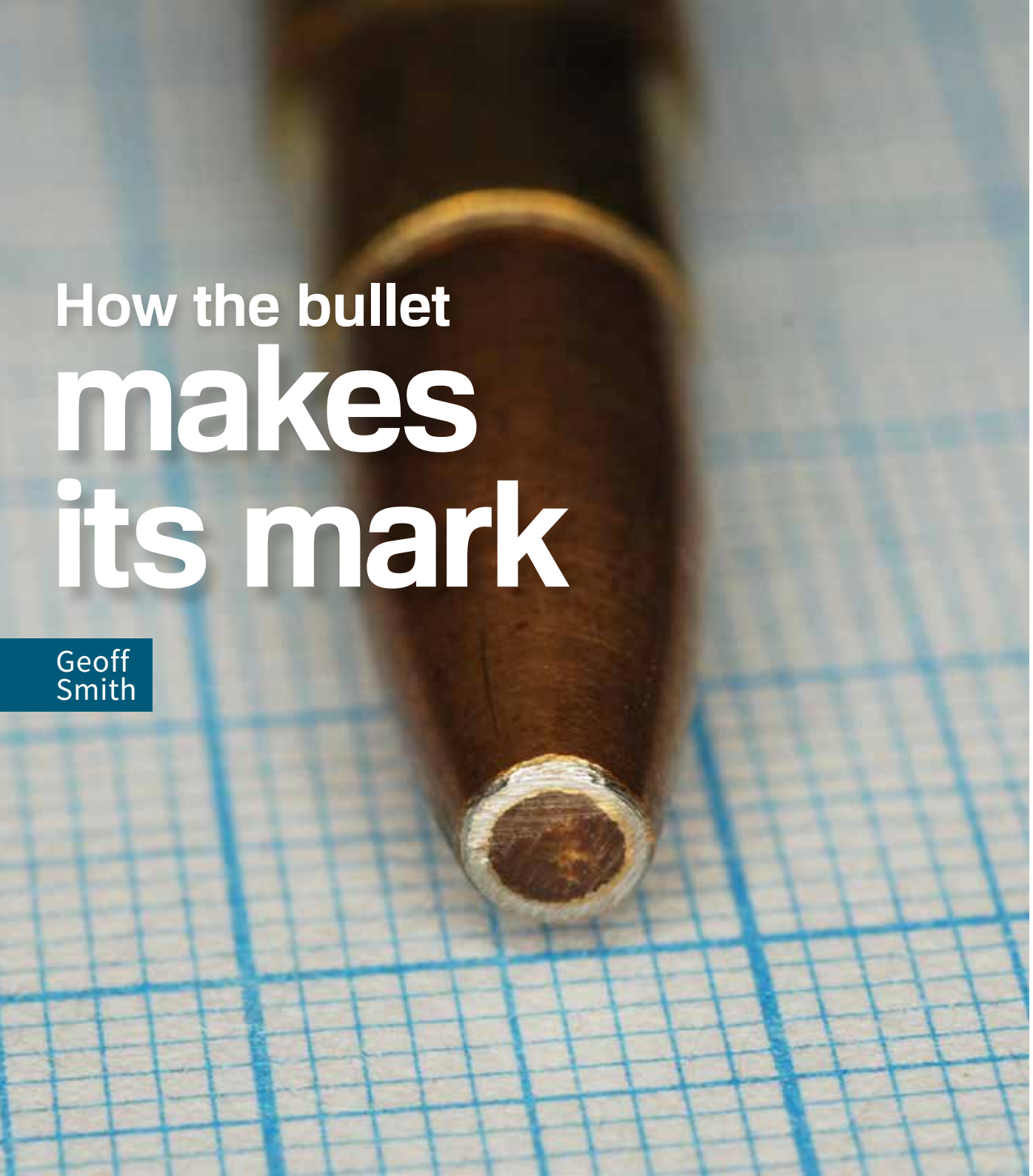
The way I see it

Over the years I've used all these systems and found reliability to be essentially on par. As mentioned, I have a fondness for the Leupold QRW-style mounts but that preference has little to do with their actual differences in performance. Nothing in this world is 100 per cent and neither are these quick release scope mounting systems. While I've found they all return their point of bullet impact point reliably, frequently there's a minor amount of deviation and while that could have consequences for a 1000m long-range shooter, it would mostly go unnoticed by the everyday hunter. As a result of my favourable experiences with these systems I have quick release mounts on almost all my hunting rifles, centrefire and rimfire.

One piece of advice I always follow when mounting scope rings and bases, including remounting quick release rings, is to tighten the screws gradually, alternating back and forth from screw to screw or lever to lever. Much like when you replace a car tyre, it's best to rotate tightening of the lugs to encourage uniformity.

How the bullet makes its mark

Geoff Smith



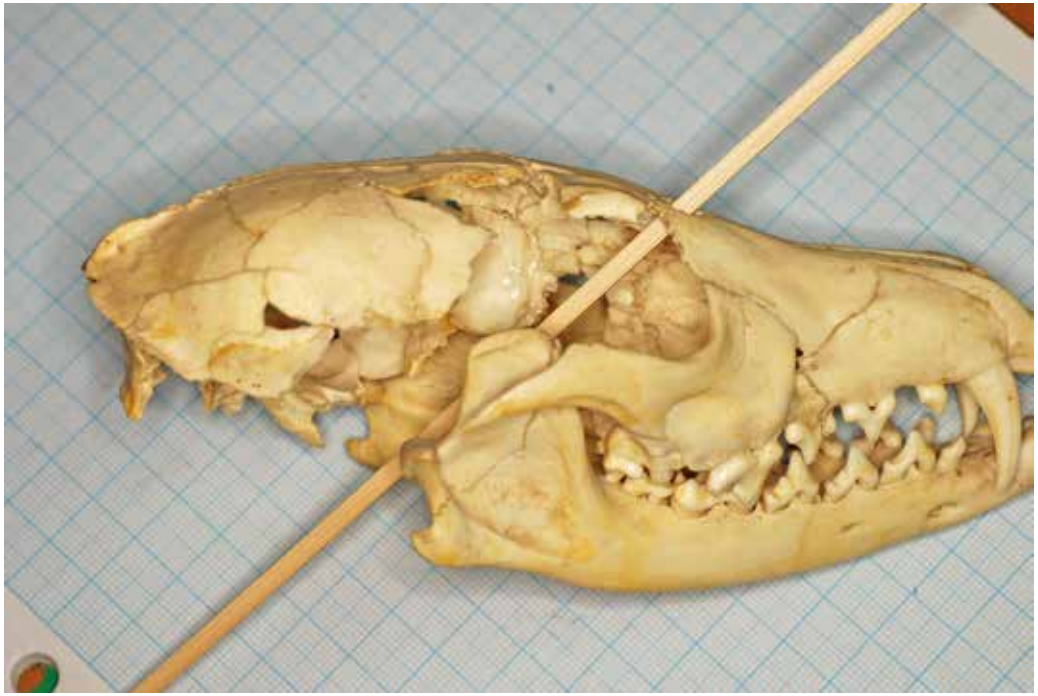
Close-up of the bullet tip of a.303 showing how the original meplat has been removed.

The word 'projectile' derives from the Latin meaning to cast forward, while 'bullet' comes from the French for little ball, both words central to what our sport of shooting is all about. The role of a bullet, like the rock, spear and arrow before it, is to travel from shooter to target and, having arrived there, to transfer its own kinetic energy to the target itself, in the process doing work upon it.

Variables include the nature of the target, distances involved and energy required to carry out the desired objective. If shooting at a paper target we don't need much energy to punch a hole but we certainly need enough to make the bullet arrive with accuracy, particularly over a long distance. If, on the other hand, we're shooting at a living target, we need enough energy, momentum and penetrating power to humanely cause it instant, fatal damage. The firearm looks after accurate delivery of a projectile while the projectile itself is what completes the job.

Bullet design has evolved relatively quickly during the past 150 years. In *Gunshot Injuries* (Lancer Militaria, facsimile edition, Arkansas 1991) Dr Louis Anatole La Garde (1849-1920) contrasts the wounds suffered by soldiers during the American Civil War caused by large, slow-moving lead bullets, with those during World War One using much faster but lighter, jacketed rifle bullets. In the former, wounds were relatively more 'crushing' and more casualties resulted from infection than from direct impact. The higher velocity wounds

The fox skull that was analysed.



produced by modern firearms tend to damage tissues extensively through the shockwave and cavities during impact. The bullet, originally evolving from a round lead ball, morphed in the early 19th century into the elongated lead version. This became feasible only after the adoption of rifling to impart spin and thereby stabilise the bullet in flight so it travelled point first. The early muzzle-loaded lead bullets had a hollow base (as typified by the Minie design) since they had to slide into and down the barrel before being blown out again, and the hollow base ensured a good gas seal. Next came the metal jacketed bullet designed by Major Eduard Rubin (1846-1920), director of the Swiss Army Laboratory in Thun in 1882. Having a copper alloy jacket over the soft lead core meant much higher velocities could be achieved without damage to the projectile.

Rifle and handgun projectiles are characterised by their weight, diameter and shape, a typical projectile having a base, shank, ogive and meplat. The base is the area exposed to the massive pressures generated during firing, shank the rear cylindrical section of the bullet which engages the rifling in the barrel and the ogive section usually curved to provide aerodynamic shape with the radius of curvature often expressed in calibres. A bullet with a half calibre radius would have a hemispherical front (ie round-nosed) whereas most 'spitzer-style' projectiles have an ogive whose curvature is at least several calibres radius. There are other shapes including wadcutter, semi-wadcutter, conical pointed and so on. The meplat is the front section which meets the atmosphere head-on and can be flat, curved or even hollow in the case of hollow-pointed bullets, its exact configuration greatly affecting its air resistance. Ballistic tables often quote ballistic coefficient (BC) for projectiles, a number derived from the bullet's shape, weight and length. It roughly compares the bullet in question with a theoretical 'standard projectile' and while it can be estimated

How the bullet makes its mark

Carefully cutting around the jacket in the 'clipped' .303 projectile and removing it shows how the core is not supported at either end.

The 500-grain hollow-based .58 calibre bullet morphed into the fully jacketed .30 calibre projectiles, with the Mk7 .303 bullet (middle) and boat-tailed 7.62 (right).

The tiny 25-grain .17 calibre hollow-point is dwarfed by the 500-grain .45 calibre round nose.

using a simple formula, in practice it varies according to velocity, air pressure and temperature.

Theoretical BC is obtained by dividing the projectile's 'sectional density' (sd - weight in pounds divided by squared diameter in inches) by its 'form factor' (i), a number describing the bullet's shape, typically ranging from 2.4 for blunt bullets down to 0.55 for pointy aerodynamic ones. In other words BC = sd/i. Ingall's tables as described in *Hatcher's Notebook* (Stackpole, Harrisburg PA, 1962) can be used to give workable numbers - the higher the BC the better its ability to retain velocity over its flight.

The sporting bullet usually has an enclosed base with the jacket cup installed from the rear, whereas the fully jacketed military projectile (FMJ) typically has the jacket installed from the front with the base exposing the metal (usually lead) in its core. Handgun and some rifle projectiles are made from cast or swaged lead of varying hardness, some able to be driven at higher than usual velocities by using a gas check pressed on to the base to prevent damage during firing.

The pitch of the rifling (inches per turn) coupled to the velocity will give the actual spin rate, which can be breathtakingly high. For example, a projectile fired through a barrel with a one in 12" pitch at a velocity of 3200fps will be spinning at 3200 revs per second (192,000 RPM). Consequently, some shooters discover their projectiles inadvertently strike vegetation on the way to the target and simply explode in a puff of grey dust, such are the centrifugal forces from the high rate of spin.

Projectile diameters are usually not the same as the 'calibre' of cartridge in which they'll be used. A nominally .30 calibre cartridge such as the M1 carbine or.30-06 Springfield will usually have a diameter of 0.308", while the .303 British cartridge will shoot projectiles of 0.311". People who reload their own ammunition need to understand this as it's important to use projectiles which accurately fit into their respective barrels in order to maintain 'obturation' or forming a gas tight seal. Higher velocity projectiles need an appropriately designed jacket which ensures it can withstand centrifugal forces while heading to the target, yet soft enough for expansion and clean kills on arrival.

On a cautionary note, since FMJ projectiles are forbidden on many ranges and further are often unsuitable for hunting since they don't expand on impact and yield much energy, shooters sometimes clipped the tip from FMJ projectiles thinking this was a safe way of having an expanding bullet. What can happen when this is done is the core of the bullet blows through the jacket, leaving the jacket behind in the bore so the next shot either ruins the barrel or maybe even blows the gun apart.

A similar hazard sometimes occurs with swaged soft lead hollow-based wadcutter bullets used in target handguns if loaded too heavily. The skirt of the bullet separates, firing just the front section out of the barrel and leaving the rest behind. It's always good to keep an eye on the target and an ear on the sound where possible, so this is avoided.

A practical example of terminal ballistics goes back about 40 years when the fox pelt market was going well. This led

How the bullet makes its mark

At the top is a 1918 vintage 7.92mm German military cartridge and below a Mk4 .303 with the hollow-point dum-dum style projectile ultimately outlawed by the Hague Convention.

to a massive rise in popularity of the .17 calibres, these tiny 0.172" diameter bullets proving sensational on foxes. While there are now both rimfire and centrefire .17s available, back then the .17 Remington became popular despite the relatively poor barrel life obtained with a bullet leaving the muzzle at around 4000fps.

As a young zoology student with a passion for hunting in the early 1980s, one night after skinning the carcass of a fox I'd head-shot at a measured distance of 200 yards, I removed the head and carefully de-fleshed it chemically until I had a pile of clean, dry bone fragments and teeth and subsequently glued the 400-odd biggest pieces back together to gauge the impact on the fox.

In an attempt to prolong barrel life my loads, which were 23 grains of IMR 4895 powder, reduced muzzle velocity to around 3800fps, a figure which many years later I confirmed using a chronograph, and the then-available ballistic tables suggested a velocity reduction to about 2700fps at 200 yards with the 25-grain Hornady bullet.

Ever curious, I worked out the bullet would have taken approximately 185 milliseconds to reach the fox based on average velocity of 3250fps over the 600ft and, at impact, its energy would have been about 407ft-lb. In striking the fox at 2700fps and coming to rest some three inches later, the average time taken for the bullet to give up its energy would be almost exactly one-thousandth of the time of flight, namely 185 microseconds.

Since power is the equivalent of energy divided by time, the blow to the fox's head was just under 50 kilowatts, while the sound of the gunshot would have travelled out to the now quite dead fox in just over half a second.

So to summarise, it's important to use the right projectile to suit the task and ensure it connects with the target as accurately as possible.

Simple steps to avoid pinch marks

A close-up of the dreaded pinch.

Chris Redlich

Have you ever experienced that sinking feeling when you remove one of your favourite scopes from its rings only to find the dreaded pinch marks on the tube? I have and probably wouldn't be writing about it if I hadn't. I'd often be the reader skipping over important articles on scope mounting techniques, content to lose myself in a juicy hunting story and not worry too much about rifle set-up.

Recently I removed a nice scope from one of my rifles and noticed ring pinch marks on both sides of the tube and was disappointed in myself for not taking more care in the mounting procedure and more notice of those all-important articles on scope mounting.

While not detrimental to optical performance, pinch marks on a scope tube look unsightly and will almost certainly render it worth only half its second-hand value. With recent experience gained in riflescope mounting techniques, I hope the following steps offer a basic knowledge of pinch-free riflescope set-up.

Step 1

Check for burrs or sharp machined edges which sit proud of the ring-to-scope mounting surface, most commonly found where the half rings meet for clamping. Generally, these sharp edges are on the outermost circumference and are main offenders for pinching the tube when mounting the rings tight.

Red arrows indicate slight modification to the rings.

Step 2

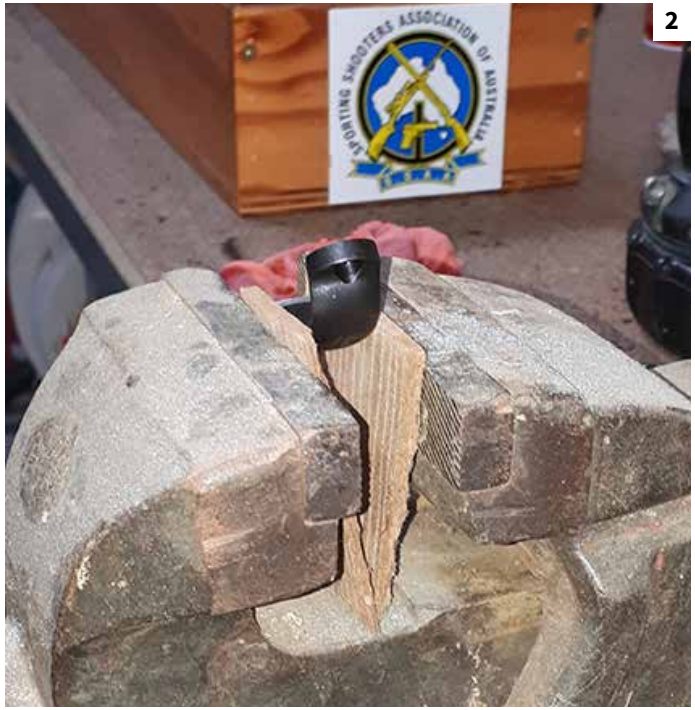
Position the rings in a vice with soft jaws - a solid piece of folded cardboard or thin MDF packing board works well for soft jaws which will prevent the steel of the vice from damaging the rings while clamped tight.

Step 3
Using a fine hand file, proceed with a cutting stroke along the width of the rings and towards the base until the sharp edge of the outer ring circumference is removed. A slight chamfer or bevel will be noticed upon filing and if your file is new the process should only take a few light strokes.
Be careful not to remove too much steel. It's important to aim for an even amount of filing for all the rings to look consistent and not resemble a backyard butchering of your scope rings once mounted (see the red arrows on completed rings). Alternatively, a Dremel-style electric hobby die grinder can be used though I prefer less aggressive hand tools.

Step 4
Check you haven't created any new sharp edges and prepare for blueing. Remove all traces of oil from the steel by wiping the rings with methylated spirits and a rag.

Step 5
Mix a small amount of blueing paste and rub into the bare steel surface. Neutralise the surface by wiping with a wet rag or washing under a tap, repeating the process until desired blueing depth is achieved.

Step 1: Identify the potential pinch of a sharp edge.



Step 2: Place rings in the vice between soft jaws.

Steps 4 and 5: Prepare for blueing then apply the blueing paste.

Step 6
Wipe or blow-dry the steel rings and apply a light coat of your chosen gun oil or silicone spray to the surface. The rings are now ready for mounting to the bases.

Step 7
The most common riflescope tube diameters are 1" or 30mm. For mounting both diameter tubes I use a machined bar stock in 1" or 30mm. To avoid damage to the rings while positioning, use a timber dowel to turn into the base receptacle. Once the rings are mounted in their bases (I'm using Leupold STD dovetail turn-in rings and bases) position the bar stock in the rings and tighten. Use the bar stock to make any windage adjustments for alignment to the barrel to ensure your scope sits true. I initially overtighten the ring screws at this point which I believe helps the rings settle true against the solid bar stock and square with the accompanying ring.
Note that rings not aligned or concentric with each other are also a big contributor to scope pinching. If you can't put

Step 3: File the sharp edge.

Step 6: Blow dry after neutralising with water.

Step 7a: Timber dowel; Step 7b: Steel bar stock; Step 7c: Heavy wall steel pipe as an alternative to solid bar stock.

Step 8: Tighten the screws with Torx tool provided.

The modified ring, left, and unmodified.

your hands on some bar stock, a length of heavy wall steel pipe in 1" or 30mm will do the job and is available from a hardware or steel supplier.

Step 8

Once satisfied with the ring alignment to bases, you can mount your riflescope to the rings but do not tighten. Check and adjust for the correct cant of reticle and eye relief. Once scope position is satisfied, tighten the ring screws to the manufacturer's torque specifications using a torque wrench. If you don't have a torque wrench the supplied tool that generally comes with the rings is sufficient. Nip up the screws but don't overtighten. The riflescope is now ready for use.

Conclusion

There are more advanced procedures available for fine-tuning riflescopes to mounts but usually left to a competent gunsmith. If you follow these basic steps in pinch reduction it may just help preserve the appearance and value of your favourite scope.

Steiner HX binoculars offer optimum viewpoint

Mark van den Boogaart

On opening the mail I was surprised when checking out the new Steiner HX 10x42 binoculars as they were a definite departure from what I'd experienced previously. If you've had anything to do with Steiner optics you'll know their products have a strong military connection, even their dedicated civilian gear often having a military look and feel.

There are four models in the new HX bracket - 8x42mm, 10x42mm, 10x56mm and 15x56mm variants - and of note is the fact the 15x56mm option has won a number of awards for quality and performance, so the series already has some runs on the board.

Out of the box along with your new HX binoculars you receive eyecup protectors, a product manual, cleaning cloth, binocular strap and protective carry case with its own carry strap. To shield the objective lens, Steiner use two individual pressure fit covers attached to the binoculars.

The neoprene binocular strap is comfortable but what's so good about it is how it attaches. Even my expensive Leica binoculars use the old school approach to fitting the strap to the binoculars but Steiner gives you the smart ClicLoc System which does away with a buckle and loop fitment for the neck strap and uses a push in, click out connector. It's simple yet very effective.

Checking out the HX series specifications, the roof prism binoculars are built around the Steiner Makrolon housing. This is a Steiner propriety design, a polycarbonate frame wrapped in NBR long-life rubber armouring and in simple terms what that means is you have a set of binoculars with an 11G impact rating. To seal the unit Steiner use a dry nitrogen injection process to prevent fogging in both hot and cold weather.

If the Makrolon housing is all about making sure you have a robust internal frame, the external design and layout of the Steiner HX series are about ensuring the binoculars are more comfortable for the user. From a performance standard Steiner binoculars are German-made optics, meaning they're pretty good from the get-go. However, by incorporating lens coating technology which helps improve light transmission and combining this with a Nano protective coating, you achieve excellent light transmission and clarity from lenses designed to minimise the adverse effects of dust, dirt and grubby fingerprints.

Bringing it all together the focus is controlled by a Fast Close Focus system. Essentially the HX is focused via a precise central wheel which helps you focus and refocus on the fly. It's sensitive and does help you peer in and focus on a specific point or animal. Once out of the box and after an initial test run the specs are good, the features excellent and the overall package well designed and comfortable to use, so it was time to take them hunting.

Luckily I was heading out on a weekend hunting trip so the HX 10x42s had some work to do. The Saturday hunt was all about open spaces, glassing game

The Steiner HX 10x42mm binoculars have the look and feel of dedicated hunting optics.

at longer distances. After a long dry spell the hunting property had recently experienced significant rain, water was everywhere so the goats were up high and bedded down on a green and open hill face, meaning I primarily used the binoculars to plan my approach from early morning until last light. The good news is clarity and definition throughout the day was good and, more importantly, performance didn't seem to drop off as it turned darker.

On Sunday we focused on pigs which meant hunting at closer range under heavy cover. With long grass and water about, the pigs were often well concealed and bedded down under dappled light, so I used the HX binoculars to firstly spot then assess and decide which pig to take. Why so concerned with choosing pigs? In simple terms, shot placement, I wanted clean shots and used the HX binoculars to select the best target, plan my shot and drop bacon.

While working two different types of hunting scenarios, I found the Steiner Fast Close Focus system good for helping me adjust and fine-tune the image, so rather than looking at a mob of goats or pigs I could rely on the pinpoint focus you want when hunting.

Over the weekend the binoculars travelled with me on foot, in and out of vehicles and through heavy, fresh regrowth. Now I know you shouldn't knock your binoculars around but while they did turn dusty, dirty and endured heavy treatment the HX binoculars handled it all with ease and their robust shape and high-end build quality meant I didn't have to nurse them along.

Using the HX binoculars to make a clean shot on a large sow.

Yet it wasn't all plain sailing as I did encounter a couple of problems, the first being the neck strap. I decided to use the supplied strap and unfortunately it didn't really work well in a hunting situation, though to be fair I've never found a neck strap which does. The second was the pressure fit front lens protectors. Now I like the idea but all too often one would be closed while the other was open, which was annoying, so to solve both problems I recommend using the HX binoculars with a dedicated binocular chest rig.

Overall I found the HX 10x42s well suited to hunting and easily adaptable to different situations, which I think is the standout feature. They're most certainly made to be used and because of that are covered by the Steiner Heritage Warranty, meaning they're covered for the life of the product.

The Steiner HX 10x42s are high-quality, tough, feature-packed German-made binoculars which deliver great optical outcomes for the hunter. If you're considering jumping into the deep end of slick European optics and are maybe a little scared off by the price tag, check out the Steiner HX series as you inherit lots of German-made quality for your Aussie dollar. Distributed by Beretta Australia, the Steiner HX 10x42mm as reviewed have an Australia RRP of $1199.