

— THE **SHOOTING** ISSUE —

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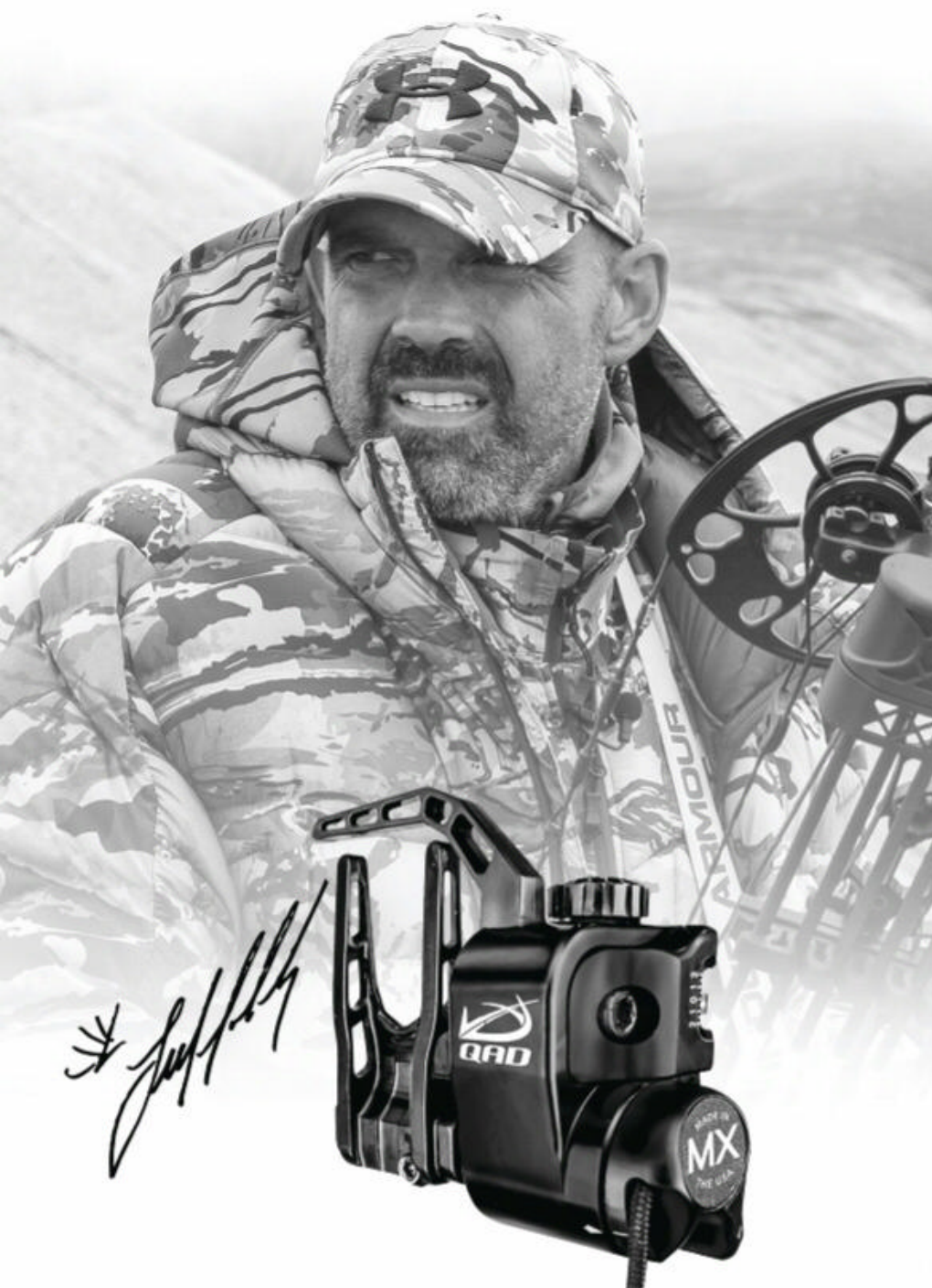
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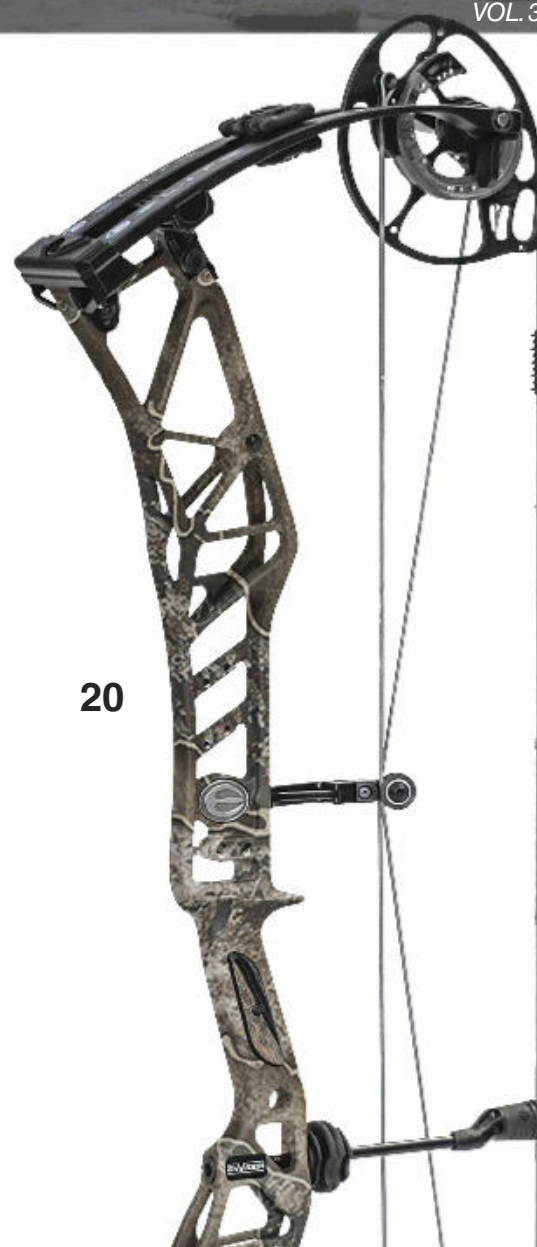
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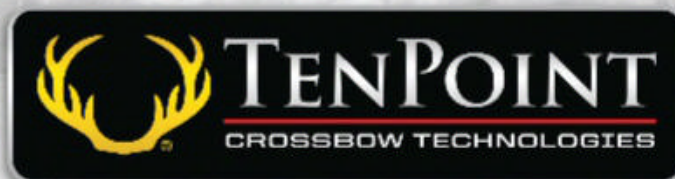
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By **CHRISTIAN BERG**

FIRST SHOT

IT'S TIME TO RETIRE THE PIE PLATES

I'VE SHOT a lot of targets during my 25 years as an archer. I've shot bag targets, layered foam targets, 3-D targets, rotten tree stumps, hay bales and even clods of dirt. I've also shot dozens of live deer, antelope, elk, bears, wild turkeys and a variety of other game. But one thing I have *never* shot is a pie plate.

If you've never heard the old adage about "hitting a pie plate at 20 yards," you're either brand new to archery or you've been living under a rock. Although I can't speak from personal experience, apparently there was a time — long before my time in this sport — when grouping arrows within the confines of a 9-inch-wide piece of tin from grandma's kitchen was an impressive display of marksmanship.

As I reviewed content for this *Shooting Issue*, I couldn't help but reflect on the many times I've heard the "pie plate" line and thought, *Who are all these people shooting pie plates, and how come I've never seen anyone actually do it?*

The more I thought about it, the more ridiculous it seemed. And it wasn't long before I decided to launch a one-man crusade to rid our sport of all this pie plate talk once and for all. With today's high-tech bows, arrows and accessories, there is absolutely no reason for *anyone* to be satisfied with consistently hitting a pie plate at 20 yards. With all due respect, if that's the best you can do with a compound bow, you need to do better!

Think about it; the 10-ring in the center of a standard target face measures just 4 centimeters wide, and the best target archers will hit it from 20 yards almost every time. In fact, on the vast majority of those shots, they will



No serious archer should embrace a "pie-plate mentality" on accuracy. If this is the best group you can shoot from 20 yards, keep working!

hit the "X-ring" inside the 10-ring, an even smaller circle the size of a penny!

Even average bowhunters don't content themselves with missing their mark by 7 or 8 inches. I typically aim for the apple-sized heart area in the 3-D deer target in my yard, and at 20 yards I expect to hit it. Even at 40 or 50 yards, if I have an arrow stray outside the target's marked heart/lung area, I know I've blown the shot. And each year, I am among thousands of bowhunters who attend 3-D shoots such as the Total Archery Challenge, where we test our shooting skills with realistic bowhunting scenarios that include shots out to 100 yards or even longer.

This magazine is packed with know-how that will help increase your accuracy, such as Bill Winke's best shooting advice (*10 Tips for Better Shooting*, p. 14), overcoming target panic with a hinge-style release aid (*Get A Handle On It*, p. 34), boosting your bow's performance (*4 Simple Bow-Tuning Tricks*, p. 40) or taking advantage of the new, Long Range Precision arrows (*Custom Built — Right Off the Shelf*, p. 30) that world-champion archer Levi Morgan developed in partnership with Gold Tip, TAC Vanes and Swhacker Broadheads.

Read it and put it into practice. But, please, don't use a pie plate as your target! **B**

PETERSEN'S BOWHUNTING

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www.bowhuntingmag.com

BOWHUNTING, (ISSN # 1049-9768) is published 8 times a year, including two double issues; March (Gear Guide), Apr/May, June, July, Aug, Sep, Oct, Nov/Dec, by OUTDOOR SPORTSMAN GROUP®, 1040 6th Ave., 17th Floor, New York, NY 10018. Periodical postage paid at New York, NY and at additional mailing offices. **POSTMASTER:** Send address change (form 3579) to Bowhunting, P.O. Box 37539, Boone, IA 50037-0539. Return undeliverable Canadian addresses to: 500 Rt. 46 East, Clifton, NJ 07011. Canada Post Publications Mail Agreement No. 41405030.

SUBSCRIPTIONS INQUIRIES: Should you wish to change your address, order new subscriptions, or report a problem with your current subscription, you can do so by writing Bowhunting, P.O. Box 37539, Boone, IA 50037-0539, or e-mail us at bnrcustserv@cdsfulfillment.com, or call TOLL FREE (800) 800-4269. **BE AWARE THAT PETERSEN'S BOWHUNTING ONLY ACCEPTS SUBSCRIPTION REQUESTS FROM AUTHORIZED AGENTS! WE MAY NOT HONOR REQUESTS FROM UNAUTHORIZED AGENTS, AND YOU THEREFORE MAY LOSE YOUR MONEY IF YOU BUY FROM AN UNAUTHORIZED AGENT.** If you are offered a subscription to Petersen's Bowhunting, please call 1-800-800-4269 to determine if the agent is authorized. For more information on subscription scams, please visit www.ftc.gov.

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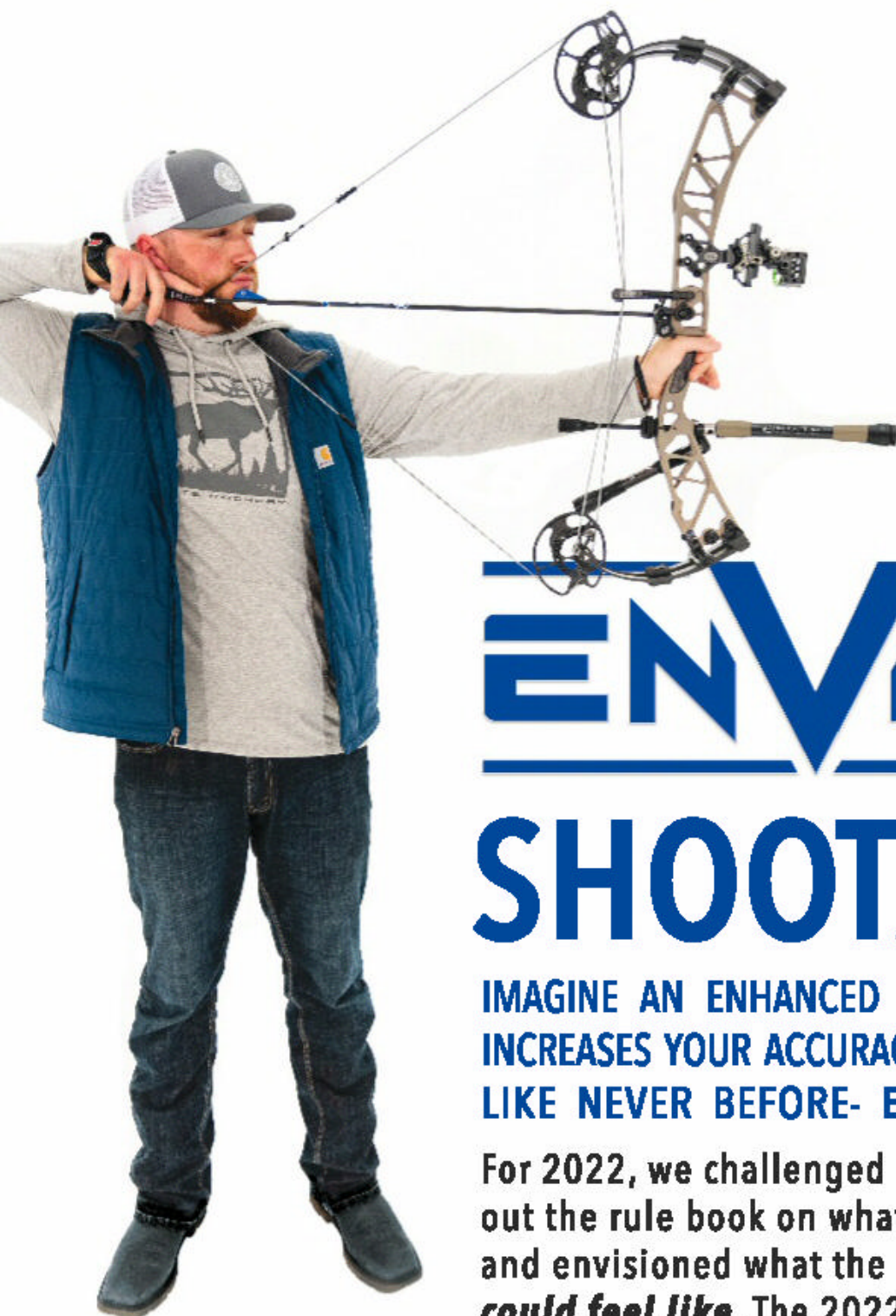
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CONTRIBUTIONS: Manuscripts, photographs and artwork must be submitted to the Editorial Office with a SASE. The Publisher assumes no responsibility for loss or damage to unsolicited material. Please send to: Bowhunting • 6385 Flank Drive, Suite 800 • Harrisburg, PA 17112-2784 (717) 695-8085 Fax: (717) 545-2527

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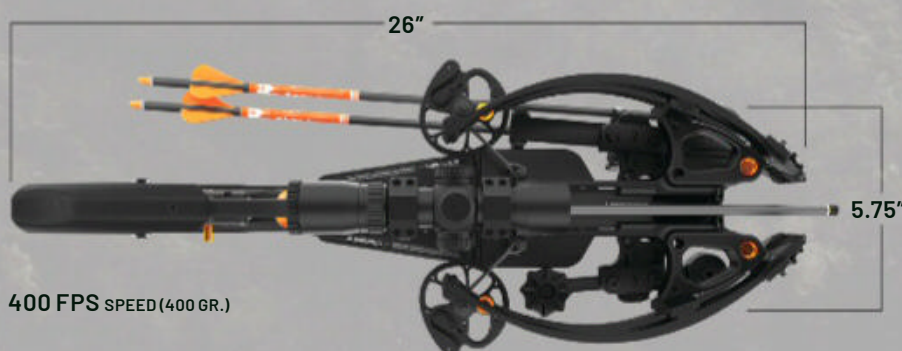
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By **CODY ROBBINS**

LIVE 2 HUNT



THE INCOMPARABLE THRILL OF BEAR HUNTING



June is prime time to pursue big boars!

I LOVE HUNTING any chance I get. I don't even care if it's my wife sending me to the grocery store for some crazy vegetable I've never heard of; I'm up for the challenge.

Even after 20 minutes in the produce aisle, wandering aimlessly with a blank stare on my face, I still feel like Superman when I finally lock eyes on my prey.

Yep, when it comes to hunting, I love it all! Still, there are certain times of year that stand out above the rest, offering incredible adventures that truly bring me joy. Somewhere near the top of my list is bear hunting in June.

Let me ask, have you ever been sitting on the forest floor, all alone, surrounded by bears? And there are so many of them they don't even acknowledge your existence? To them, you're nothing. They're too focused on interacting with each other, respecting the "pecking order" and not being wiped off the map by another bear. For me, being in a setting like that is an experience like no other. There are many awesome kinds of hunting, but nothing

else makes me feel more *alive* than being in the thick of things with bears.

Now, imagine that cool evening in June, with your bow in hand. It's the peak of the black bear rut, and there are bruins all around you, popping their jaws and flexing at one another. All of a sudden, they scatter like stampeding cattle. Branches are breaking, bears are climbing trees, bark is flying. You nearly get run over! Then, everything goes quiet — so quiet you could hear a mouse break wind a mile away.

Amidst the silence, a pretty little sow comes walking out, and a minute later, you catch movement behind her in the shadows. Very slowly, the king of the forest appears. He's larger than life, and you're about to get your chance. Your heart was already pounding out of your chest, even before you spotted this 400-pound behemoth. Now, you feel as though you may pass out at any moment.

Let's back up a minute and pretend that giant boar never showed up. Instead, you're back in the fracas with bears all around you. You're smack dab in the middle of them as the sun sets and the forest goes dark. Now, it's time to climb out of your blind or tree-stand and walk out of the bush. Nervously, you reach in your pack, flip on your headlamp and shine it around. Glowing eyes stare back at you from

For author Cody Robbins, nothing else can match the intense excitement of a close encounter with a mature black bear. In fact, he enjoys bear hunting so much that he and his wife recently purchased their own bear outfitting territory in their home province of Saskatchewan, Canada.

every direction! This type of scenario will brace your nerves as suddenly as a bone-chilling ice bath. Your senses become super-charged, and from that moment on, you'll be craving the adrenaline-filled days of June like I do.

Now, such scenarios might lead you to believe bears are intimidating. Well, they are, but honestly, the part that makes bears so intimidating is the fact that we humans are out of our element when hunting them. I'm not saying the bears aren't scary, but they are not the ferocious creatures many people believe them to be. For the most part, they're actually quite docile. There are always exceptions, of course, and there is the odd bear that will digest you without warning. So, you must respect them and their space. All I'm saying is, don't let fear stop you from enjoying some time in bear country.

I have no idea how many times I have experienced such exciting moments bear hunting, but I do know the effect is always the same. It's a rush like nothing else in hunting.

My wife Kelsy and I are passionate about bear hunting. In fact, we love it so much we recently purchased an outfitting territory in our home province of Saskatchewan, Canada. If you've ever watched our show on Outdoor Channel, you also know we are extremely passionate about taking others hunting. So, this new venture will give us a chance to do both those things at once.

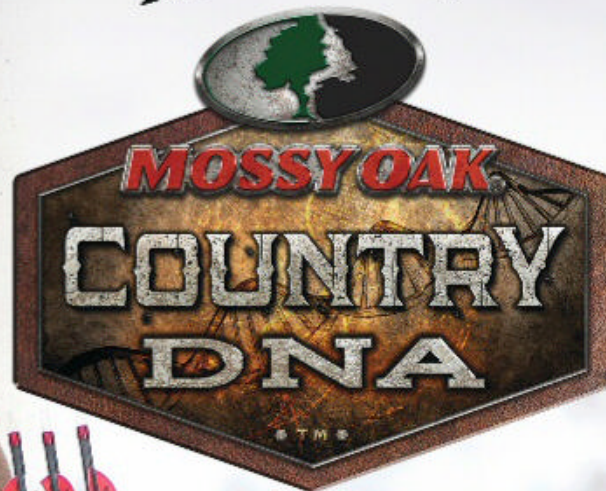
This spring will be L2H Outfitting Company's first bear season, and we are very excited to share those exhilarating bear hunts with others who are just as passionate about bowhunting as we are. I can't wait to get started!

For more information about booking a Saskatchewan bear hunt with L2H Outfitting Company, email Cody Robbins at codyrobbins@hotmail.com **E**

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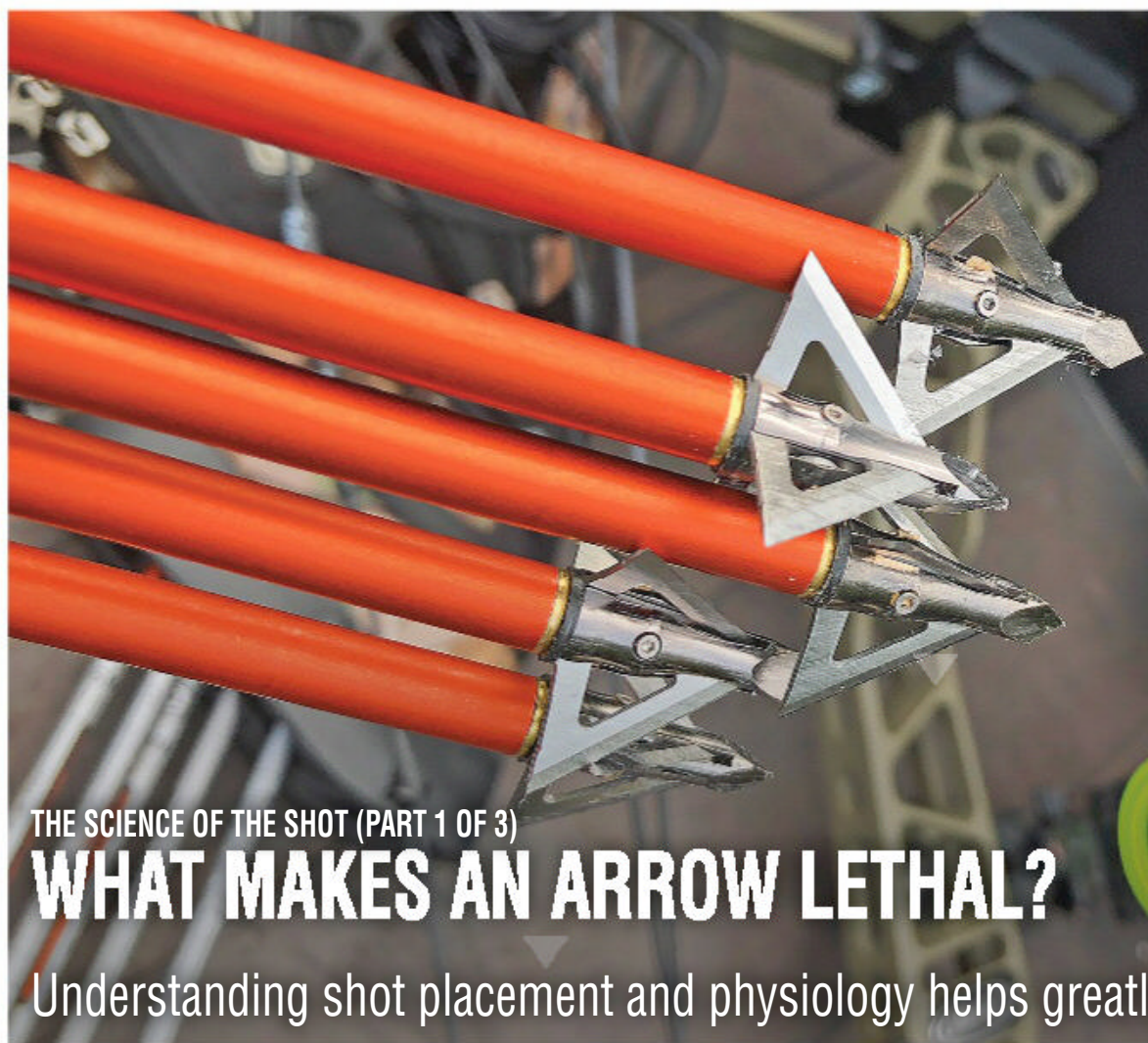


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By **JASON SNAVELY**

WHITETAILS



*There is a lot that goes into building a lethal bowhunting arrow, but ultimately **nothing is more important than shot placement** when shooting at game in the field. The tiny bubbles visible in this blood at the site of impact on an Ohio whitetail are a telltale sign of a lung hit.*

THE SCIENCE OF THE SHOT (PART 1 OF 3)

WHAT MAKES AN ARROW LETHAL?

Understanding shot placement and physiology helps greatly when recovering game.

SITTING DOWN to write this column for “The Shooting Issue,” my mind immediately focused on the science and physiology of a successful bow kill.

Throughout this series, I’ll discuss shot placement and the potential physiological outcomes of various “hit locations.” It’s my hope these columns will help you avoid heartache and the waste of a precious wildlife resource we all value so greatly.

No one I know understands the lethality of arrow-inflicted organ injuries better than Starkville, Miss., native and retired surgeon Dr. Joe Bumgardner. Bumgardner practiced abdominal and chest surgeries for 30 years and is an avid, lifelong bowhunter. He has also assisted Mississippi State University by lending his medical knowledge

to a number of deer research projects. Perhaps even better, Bumgardner enjoys applying his experience from the ER and OR at the skinning shed, where he has inquisitively studied the cause of death for countless bow-shot whitetails. The skillset Bumgardner offers in educating fellow bowhunters is truly one of a kind, and I was fortunate to have the opportunity to pick his brain for this column.

Bumgardner is quick to credit two of his colleagues, and trained pathologists, for allowing him to submit tissues from harvested animals for processing in order to examine the damage done to each respective organ after a broadhead-tipped arrow had passed through. He was able to correlate how mammals reacted to various archery injuries and ultimately define how that damage determined the overall demise of the animal. He sought to relate his human understanding of injury to that of hooved mammals such as whitetails, elk, wild pigs and antelope.

In doing so, Bumgardner explains the primary classifications of death that result in punched tags.

Causes of Death

Shock and organ failure are at the top of the list when it comes to causes of death for bow-killed whitetails. The body maintains a very strict state of homeostasis between the circulatory (blood flow) system and the ventilation (breathing) system. An arrow sent downrange can strike the vitals of a whitetail and affect one or both of these systems. A heart shot is an example of a wound that affects the **circulatory** system, while the double-lung shot is the classic example of a fatal wound to the **ventilation** system. A combo shot — hitting both lungs and the heart — will of course result in death.

If you make a marginal shot on an animal — perhaps in the carotid artery or jugular vein in the neck — bleeding occurs but there’s nothing wrong with the animal’s ventilation system. As

CARSTEN BERTS PHOTOS

they bleed out. There's a mismatch between the ventilation, which is still 100 percent, and the circulation, which is failing. This mismatch results in shock.

Hemorrhagic Shock

Bumgardner notes the most common cause of death with archery equipment is hemorrhagic shock (blood loss), on an acute basis. "Acute hemorrhagic shock refers to the 3- to 30-minute timeline until the animal loses enough blood to cause shock and ultimately the demise of the animal," he said.

Bumgardner went on to explain how much hemorrhaging is required to cause shock. "When you hit a vital organ," he explained, "the animal must lose approximately one-third of its normal circulatory volume to experience shock. Hemorrhagic shock occurs when there is enough blood loss that the circulatory system can no longer supply sufficient oxygen to meet the demand of the vital organs."

According to Bumgardner, a mature doe has about 1 ounce of blood per pound body weight. A 100-pound doe has approximately 3,200 CCs of blood volume. If that doe loses 1,000 CCs, or roughly *one liquid quart* of blood, it will become immobilized. Keep in mind not all this blood will

be on the trail, as some or even most may be maintained internally based on the location of the entry and/or exit wounds. A deer that has lost this much blood will exhibit *cerebral ischemia*, or blood loss to the brain, and will begin to wobble or run into brush or trees. Likewise, if a 200-pound buck, with 6,400 CCs of blood, loses about *two liquid quarts*, it will experience the same demise.

If you hit a deer in the "vital zone," the heart and lung region, and your arrow passes through both lungs, you've got both lungs collapsed (bilateral lung collapse). "When both of those lungs collapse, it is a 100 percent lethal hit," Bumgardner said.

Spinal Shock

Another form of shock, caused when a bowhunter hits an animal in the spinal cord, is referred to as spinal or cerebral shock. There are two different outcomes when an animal is shot with an arrow in this region. The first occurs when an arrow hits the animal in the spinal cord. In this case, the arrow penetrates through the vertebra and transects the spinal cord, resulting in an injury that is irreversible. A bowhunter should follow up with a second shot in the vital zone.

However, if we hit close to the spinal cord and vertebra with an arrow, *without transecting* the spinal cord, your shot can result in temporary dysfunction. If you've ever shot an animal that dropped immediately only to get back up and run off, you've experienced temporary spinal cord dysfunction. In this case, you did not transect the spinal cord but instead the energy from your arrow merely transferred to the spinal cord, causing the animal to fall to the ground and remain temporarily paralyzed. The transferred energy causes temporary neurologic spinal cord dysfunction. As a result, whenever you make a spinal shot, **always** follow it up with a second, more lethal shot to ensure your animal does not get away.

In parts two and three of this series, I'll detail what occurs when the dreaded gut, or paunch, shot is made and how to make the best of that difficult situation. I'll also address the single-lung clot, shot placement, animal reactions to the shot and the biology and physics behind determining the minimum kinetic energy required to pass through a whitetail. **B**



A deer that loses enough blood will experience cerebral ischemia, or blood loss to the brain, and will begin to wobble or run into brush or trees. This bloody mark on the side of a large tree trunk was made by a disoriented Kansas buck shot by Editor Christian Berg last fall. Needless to say, the buck expired only seconds after crashing into this tree!



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BOWHUNTING WISDOM

By **BILL WINKE**

If you hunt from a treestand, it's important to bend at the waist on those downward-angle shots instead of dropping your bow arm, the latter of which usually results in missing high.



10 TIPS FOR BETTER SHOOTING

Pay attention to the details to ensure success when it matters most.

IF YOU READ this column regularly, you know my primary focus is on sharing the most important things that I have learned in 45 years of bowhunting. A lot of these lessons came through failure, so my hope is that I can save you from those patches of thin ice.

This month, I am offering my list of the Top 10 things I have learned about shooting a bow over the years. In no particular order, they are:

Practice Treestand Technique

When bowhunters miss from a treestand, they usually miss high. There are two reasons for this, with the first being the deer itself dropped.

Since I started to video my hunts, the number of deer I see that attempt to drop to load their legs after hearing the shot is much higher than I had thought. Almost all of them drop at least a little; some drop a lot. This accounts for many of the high misses.

The second reason is that the bowhunter lowers his or her bow arm instead of bending at the waist to create the downward shot angle. This also tends to produce high hits because it changes the relationship between the bow arm and the upper body, and it also affects the angle between the bow arm, the eye and the peep sight.

Relax Your Bow Arm & Hand

Relaxation starts with your feet and legs and leads to your bow arm and bow hand. Everything should be relaxed, from the ground up. Bend your bow arm just enough to unlock the elbow and let your fingers hang naturally in a relaxed grip. The hand should be "dead" if you want to shoot your best. It is just a cradle with no power to independently move the bow; you move the bow by turning your hips very slightly and bending up or down at the waist.

Take a Deep Breath

Take a deep breath when drawing the bow and then let it out halfway as you acquire the target with your pin. Don't breathe in or out as you are actually squeezing off the shot. It makes a noticeable difference in your relaxation level when you add the simple step of taking a deep breath while drawing the bow.

Follow Through

Follow-through is both mental and

physical, and it serves to hold everything together long enough for the arrow to escape the bow. On the physical side, your grip hand must stay relaxed until the arrow hits the target. Many bowhunters snap their hand closed at the same moment they release the string, throwing the arrow off-target.

Your bow arm must remain steady. Resist the common tendency to drop it when you release the string. Try to keep your bow arm up and aiming until the arrow hits the target.

On the mental side, continue aiming until the small spot you are trying to hit disappears at the end of your arrow.

Try the Two-Finger Release

There's no question that the mechanical release is the most accurate way to shoot an arrow. However, if you want to use fingers, then imitate the consistency of a mechanical release as closely as possible. Use only two fingers to hold the bowstring at full draw. After reaching letoff, drop your top finger off the string and then execute your anchor and release with the other two.

Many of the best finger shooters

carry 70 percent of the holding weight with their middle finger (just under the arrow) and 30 percent with the remaining finger.

Make a Surprise Release

Target panic is the attempt — and the inability — to hold the pin steady on the spot you want to hit. The afflicted will issue a “Now!” command in their heads when the pin hesitates or crosses the spot. Trying to time the shot eventually creates a mental gridlock resulting in very inconsistent and distressing shooting.

The cure is simple: learn to create a surprise release. Discipline yourself to squeeze the trigger or, better yet, switch over to a specially designed back-tension release for off-season training. With no articulating trigger, back-tension releases eliminate the negative effects of anticipating the shot. You can then switch back to your normal release a couple weeks before bow season.

Float Your Aim

Many bowhunters wrongly believe that the pin has to settle rock-steady on the spot they want to hit in order to achieve great accuracy. This is where target panic gets the spark that quickly turns into a flame. If you are releasing the string correctly, with a surprise method, you won't be able to time the shot — nor should you.

Just let the pin float around the spot. Your subconscious mind doesn't need much help here. Focus on the spot you want to hit and let the pin just hang around. When the surprise release goes, you will be amazed by how close the arrow hits to the aim point. It is hard to explain, but the body seems to have a centering instinct that keeps the pin working toward your focal point.

Focus On the Spot

You have likely heard the old saying that if you aim small you will miss small, and that's definitely true in archery. Learn to pick a small spot and maintain a sharp focus on it while the pin floats around it. When your point comes into focus, you know you are in the zone and it is time to start squeezing the trigger.

This starts with your practice sessions. Twenty shots with maximum concentration are much better than 100 mediocre ones. Shoot every arrow

PRACTICE IN-SEASON!

Most bowhunters make the mistake of shutting down their regular practice when the season starts. However, you need to keep up your strength and maintain your form throughout the season so it will still be sharp when you need it.

Carry a portable target in your vehicle and take a few shots whenever possible between hunts. Remember, shooting skill will always be the final test that separates you from a full freezer. Right now, it's only June, so you have plenty of time to fix any problems you might have before the season arrives.

as if it is the only one you are going to shoot that day, and do it with maximum focus.

Watch Your Aim Time

Studies show that seven seconds is the longest the average person can stay focused on one thing, so make every attempt to perform your shots within seven seconds from the time you pick your spot. If you start your draw right after picking a spot, you have roughly 4-5 seconds at full draw to squeeze off the shot.

If something breaks your concentration — like if you have to wait for the animal to offer the shot or for the wind to lay down — you need to start your routine over. Wait to lock in on the spot you want to hit until it is time to shoot.

Avoid Mid-flight Obstacles

I have lost three great animals because I hit branches above my line of sight. Your arrow does not follow your line of sight, so you have to be able to visualize your trajectory. When you get this figured out, you can often lob a shot over an obstacle or zip it under.

With your bow at full draw, aim at the intended target with the correct sight pin for the range of the shot. Quickly guess the distance to each obstacle along the way. If the pin that corresponds with that distance is clear of the obstacle, you will miss it and your arrow will fly cleanly to the target. **B**



Working on your aiming technique, focus and release technique are all steps that can all help you improve your accuracy and shooting.



By **RANDY ULMER**

BETTER BOWHUNTING

Keeping your bow's components well lubed helps eliminate potential noises that might alarm a deer as you prepare for the shot.

PART 2

STRING JUMPING

Take these steps to reduce the chances of missing that deer.

MAKING A GREAT SHOT at the end of a long hunt should be an extremely rewarding experience. However, if the deer is gone when the arrow arrives, you will miss and it's anything but.

Amongst all the negative experiences a bowhunter can go through, there are few that are more painful than having a deer of a lifetime jump the string. The reason it's so hard is that you may have done everything exactly right, yet you failed. Nothing under your control could have changed the outcome.

"String jumping" is not a good descriptive term for this phenomenon — it is a misnomer. However, the phrase has been part of bowhunting's lexicon for a very long time, so I will continue to use it here. The term originated before the advent of the video camera and slow-motion replay. By studying slow-motion video we know that a deer in the standing position cannot jump up or spring forward without preloading its legs by crouching or dropping down first. Deer crouch down and then jump forward or crouch down and spin in an attempt to escape danger.

It is my belief that when a deer drops down it isn't intentionally ducking the arrow. Rather, I believe it is merely reacting to perceived danger and just getting the heck out of Dodge. This reaction to a loud noise gets deer

moving quickly and instinctively, without thought. It just seems like they are dodging the arrow because they are gone by the time it gets there.

Deer will occasionally jump straight up when an arrow hits them, but again, as slow-motion video has proven, they crouch down first in order to preload their legs for the jump. This particular reaction is probably related to the trauma associated with the arrow hitting them.

There is a longstanding debate over what causes a deer to jump the string. Some argue that it is triggered by the animal seeing the arrow in flight or by the movement of the bow and/or archer at the time of the shot. This may have been true when we were shooting very slow bows and the arrow seemed to hang in the air like a popup fly ball, but I do not think this is often

ALLISON MACKENZIE PHOTO

the case nowadays. My theory on this is supported by the string jumping we see when shooting from ground blinds and treestands. In these situations, the likelihood of the deer seeing the hunter move or the arrow in flight is pretty slim.

Causes of String Jumping

Obviously, the exact cause of string jumping may vary from situation to situation, and it may even be triggered by a combination of things. Unless the deer sees movement at the time of the shot, string jumping is most often caused by the sound of the bow, and to a lesser extent by the sound the arrow makes sailing through the air.

For the purpose of this column, we will assume that string jumping is triggered by deer hearing the sound of the bow or the arrow and then reacting quickly in order to escape danger. Fortunately, there are many things you can do to decrease the likelihood

that a quick-moving critter will jump the string and dodge the arrow. I'll mention the top five here and we will explore all of them in upcoming columns:

- 1) *Quieting the bow and arrow*
- 2) *Shooting a faster arrow*
- 3) *Getting closer before the shot*
- 4) *Shooting from a longer distance*
(So the sound of the shot is minimized)
- 5) *Aiming 'off' (Aiming where we think the vitals will be when the arrow arrives)*

How to Quiet Your Bow

In order to reduce string jumping, your bow needs to be deadly silent. This means it has to be completely quiet when you are crawling through the rocks and brush, when it is being drawn and most importantly, when it is shot (The first two scenarios are important to prevent deer from being on high alert after hearing you on your stalk or preparing for the shot).

It's relatively easy to modify a bow so that it is quiet as you are drawing it. You need to lube the cams and wax the cable slide. If your bow creaks or pops when you draw it, the noise is most likely caused by the limbs rubbing against the limb pockets.

The best remedy for this problem is to take the bow apart and apply wax around the base of the limbs and on the inside of the limb pockets.

If I'm hunting whitetails from a treestand where absolutely no noise is acceptable when drawing the bow, I put moleskin on my arrow rest launcher arm so the arrow glides back quietly.

I apply moleskin to any area around the sight window that my arrow might accidentally hit. I also put it anywhere my bow might tap a rock when I'm stalking.

We'll resume this topic in my next column, so stay tuned! **B**

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By **BRAD FENSON**

CROSSBOWS

Bracing yourself against a tree, post or rock while also supporting your crossbow by placing your elbow or forearm on your knee helps provide a stable shooting platform when bowhunting from a seated position.



SHOOT FOR SUCCESS

It pays to practice from different positions.

ARCHERY IS A GAME of consistency and concentration — if you ignore the small details, chances are your arrow will miss the mark downrange. Well, the best way to ensure the little things become second nature is through practice.

It doesn't matter whether you are a vertical or horizontal bow enthusiast; practice makes perfect. This rule holds throughout the hunting world. For example, the best wingshooters

often shoot clay targets when bird season isn't open. Long-range shooters become proficient at ringing the gong at extreme ranges by paying attention to the environment and knowing their equipment. There is a misnomer that crossbow enthusiasts do not need to practice, and anyone can pick up a bow and head out hunting, but nothing could be further from the truth.

Shooting any bow regularly helps you use the equipment like it's an extension of your body. A crossbow should shoulder smoothly, and when you bring your eye to the scope, it should be a clear sight picture, with little or no adjustment.

Take things a step further and practice shooting through limbs and obstructions, so you intuitively learn the

arc of your bolt in flight. Will the bolt clear an overhead branch at 30 yards, or will it foul your shot? You are far better off figuring out the tough lessons while practicing than on a hunt where you could miss a big buck, or worse, wound it.

Wingshooters often shoot sporting clays to practice realistic targets that mimic real birds. Similarly, setting up targets in the back forty allows you to practice shooting different angles, distances and through possible obstructions.

Rehearse like you are on an actual hunt and it can teach you essential lessons before you add antlers and a heartbeat to the equation. To this end, it's important to practice the four shooting positions to know you can master them before hunting season.

Standing

Crossbows are often heavy and can be a challenge to hold still for any length of time. While vertical bowhunters can drop their elbow to give their muscles a break, a crossbow will continue to fatigue your muscles the longer you hold it. Hence, whenever possible, use a rest and practice shooting off it — shooting sticks, whether monopod, bipod or tripod, are adjustable and easy to tote along on a hunt.

Many variables can challenge a shooter standing straight. Any wind will catch you and the bow, making it hard to hold the crosshairs on target. Practice offhand shooting and follow it up with shooting from a support. Hold the reticle steady on target and control your breathing. It may sound like a strange exercise, but it will make you a better shooter. Moreover, the more you work on muscle strength, the steadier you will be whenever you pick up a crossbow.

When standing, foot position is vital for stability and support. Hold the crossbow stock on your shoulder and point your foot at where you intend to aim; place your feet shoulder-width apart, with one foot slightly ahead of the other. If you're right-handed, for ex-

ample, your left foot would be slightly ahead and pointed towards your target. In addition, you should bend your front knee slightly to stabilize yourself.

It can be challenging to find a rest for a crossbow, as the moving limbs need to clear the support. Another option is to try supporting your arms with your sling by wrapping your arm through the sling before grasping the forestock to create tension and stability. In most cases, you'll need to adjust the length of the sling to get maximum benefit.

Sitting

The sitting position offers a stable platform with your butt and both feet firmly planted on the ground. To maximize the advantage, place your forearm over your knees and use it as a rest for your forestock. You can also place your elbow on one knee to create stability for the arm holding up the bow and extend the height if needed.

The more stable you are, the steadier you can hold the bow and the more accurately you can stay on target. Try supporting your back or shoulder by sitting against a post, tree or rock. An additional rest will provide an extra point of stability to hold still for a longer time.

There is a misnomer that crossbow enthusiasts do not need to practice, and anyone can pick up a bow and head out hunting, but nothing could be further from the truth.

Prone

There are a couple of things to pay attention to in the prone position, including limb clearance, keeping the crossbow level and proper hand placement for safety.

Snipers and long-range shooters prefer the prone position to maximize stability and support. With this technique, it's essential to lay down so that your leg and your trigger hand line up; basically, your crossbow and leg should form a line to the target. Lying on the ground means you need to pay attention to limb and string clearance.

Most hunters carry a backpack and it can provide a solid rest, clearance off the ground and keep your bolt above any grass or debris that might knock it off track.

Kneeling

Kneeling is a natural position for shooting when you are looking to stabilize your crossbow. The best technique is to keep one leg tucked underneath you on the ground. You can then bring the other knee up and use it as a brace for your elbow like you would in the sitting position. For a right-handed shooter, your left knee would be up. A stable knee used for support also provides elevation to keep a clear view of the target and avoid obstacles in the path of your bolt. Getting closer to the ground reduces environmental factors such as wind and uses your body for support to help hold the bow steady.

Practice makes perfect. Use the advantages of a crossbow by practicing for stability. Not having to draw your bow is only beneficial if you have the proper support to stay steady and hold your reticle on target when game arrives. Hunting on foot, whether chasing deer, small game, wild hogs or other game, is a great way to hone your skills and find new ways to succeed. **B**



Whenever possible, use shooting sticks to help steady your aim when standing, but you should also practice proper offhand shooting technique.



By **JON E. SILKS**

BOW TEST

ELITE ENVISION

Accuracy, comfort and balance combine for a first-rate shooting experience!

IF YOU ARE UNSURE of Elite Archery's goal for its customers, let me use the company's own word to sum it up: shootability. This has been at the forefront of its design efforts for quite some time, and I am a fan of the focus.

Elite continually tweaks, improves and adjusts its designs to offer the shooter the highest levels of comfort, balance and forgiveness, all wrapped into the best overall shooting experience, something that comes from combining the company's mastery of shootability with raw performance.

Elite's 2022 flagship bow, the EnVision, is a total package that combines a new riser configuration, great balance, customizable cams, significantly shorter and wider-stance limbs and much more. So, let's dig in!

Versatile Cam System

Elite built significant versatility into its ASYM Tri Track Cam System and associated accessories. Riding on quarter-inch axles, the dual-cam system is advertised to hit 334 fps while sporting the rotating Versa Mod that provides 15 primary (engraved) and 15 secondary (halfway between the

Elite's new EnVision features an all-new, longer riser. Coupled with the short and wide split limbs, it creates a 31-inch axle-to-axle bow with the feel and stability of a longer rig.

THE SPECS

Manufacturer: Elite Archery, 877-503-5483; elitearchery.com

Model: EnVision

Riser: Aluminum, dual cages

Grip: Machined, narrow, side plates

Limbs: Gordon Composites, past-parallel, split

Draw Weights: 40, 50, 60, 65, 70 and 75 pounds peak

Draw Lengths: 23.5-30.5 inches, in quarter-inch increments; rotating module

Cam System: Dual, ASYM Tri Track

Letoff: 75-90 percent (advertised); 75.12 percent (as tested)

String: Winner's Choice, BCY 452X, 57.75 inches

Cables (x2): Winner's Choice, BCY 452X, 35 inches

Brace Height: 6.875 inches

Axle-to-Axle Length: 31 inches

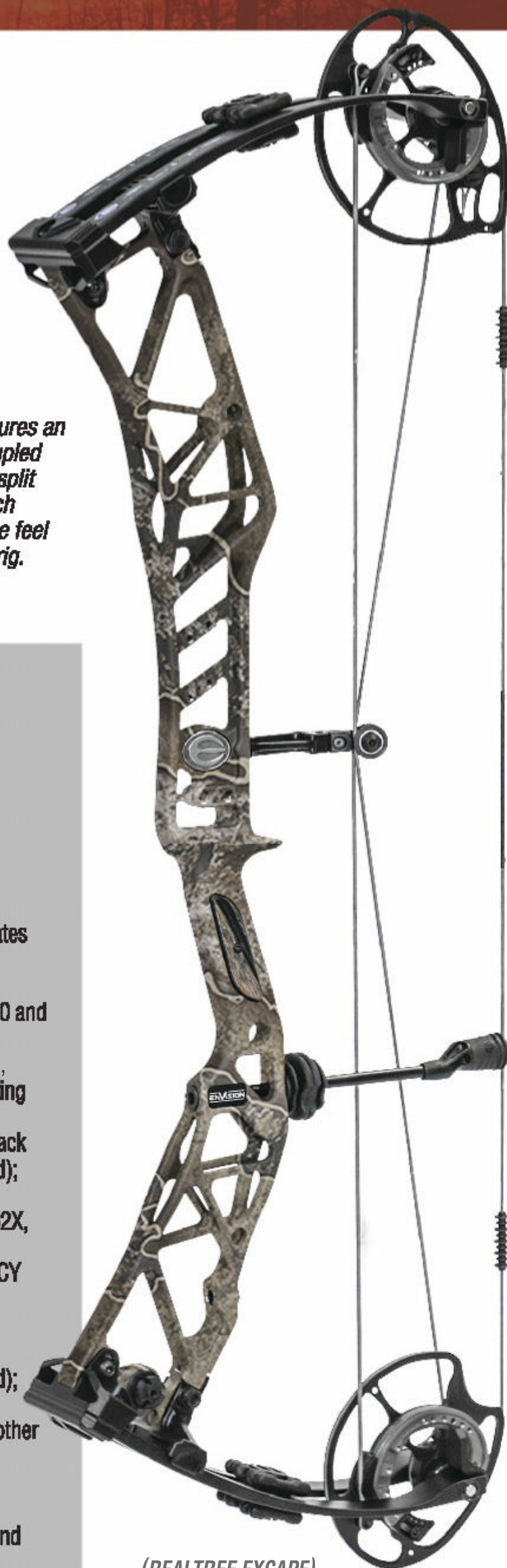
Weight: 4.45 pounds (advertised); 4.5 pounds (as tested)

Finish: Realtree Escape and 14 other hunting and target bow colors

Advertised IBO Speed: 334 fps

MSRP: \$1,099

Comments: Next-level balance and aiming precision.



(REALTREE ESCAPE)

engraved marks) draw-length settings covering 23.5-30.5 inches, in quarter-inch increments. This essentially eliminates the need to twist cables to dial in a draw length.

A Performance Mod that increases speed by 4-5 fps, and a Low Letoff Mod that offers letoffs from 60-75 percent, are also available. The Versa and Performance Mods have adjustable letoffs from 75-90 percent. A generous valley sits in front of a back wall that can be customized by selecting either the cable or limb stops. Additionally, Elite designed the system to balance the cable loads on either side of the string, reducing cam lean and lateral nock travel.

Ready, S.E.T., Go

Elite's limbs and pockets have been completely redesigned for 2022 to work with the new overall bow configuration. EnVision split limbs, machined from Gordon materials, are both short and wide, while the pockets also sport a wider stance to support the limbs and system configuration. Elite improved on its Simplified Exact Tuning (S.E.T.) Technology, making it lighter and giving it extended range. With the simple turn of a micro-adjust screw — no bow press is needed — S.E.T. moves the back pocket piece on an arc to shift pressure on the limbs, matching the flight of the arrow to a shooter's form and execution. VibeX Limb Blocks set between the split limbs are designed and positioned to reduce dynamic vibration and noise at the shot.

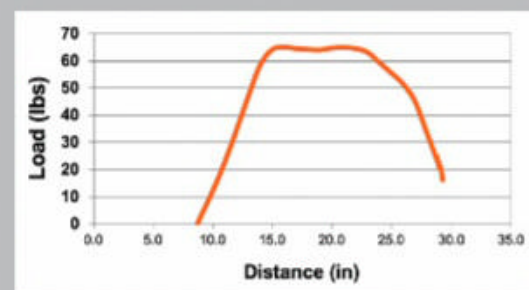
Riser and Grip

The core of the new EnVision design lies with its straighter and stiffer riser. Elite's engineering team put considerable effort into perfecting its

SPEED & ENERGY

	375-GRAIN ARROW	425-GRAIN ARROW
ARROW SPEED	291 fps	275 fps
KINETIC ENERGY	70.5 ft./lbs.	71.4 ft./lbs.
DYNAMIC EFFICIENCY	83.2%	84.2%
SHOT NOISE	89.1 dBA	88.4 dBA

DRAW-FORCE CURVE



EDITOR'S NOTE:

All of our Bow Tests are conducted using the same standardized procedures and professionally calibrated testing equipment. Bows are tested with a draw length of 29 inches and a draw weight of 65 pounds, unless otherwise noted.

geometry, with an eye on enhancing balance and feel by placing the weight of the bow directly over the grip. Ninety percent of the axle-to-axle length is riser. Two riser cages, one above the sight window and one below the grip, stiffen and strengthen the overall platform by resisting flex and twist.

Elite grips have long been considered among the best in the business as they successfully combine shape, angle, size and materials for a highly functional and comfortable final product. Tapering at the top/throat promotes consistent hand placement and a neutral wrist position, while the flat back is designed to offer control. The laminated wood side plates add comfort and aesthetics.

Linear tension adjustment in the LTR cable-management system offers cable clearance and ease of tuning, while the rollers reduce friction and increase efficiency. In addition to the past-parallel position of the limbs at full draw, Elite specifically engineered its VibeX Limb Blocks, SIMS String Suppressor and VTR Riser Dampeners to reduce dynamic vibration.

Impressions

Elite's tweaks to the geometry and, in turn, balance and feel of the bow are effective. The EnVision balances very well and, more importantly, it aims like a champ. This bow works with you in the aiming process, not against you, as it effortlessly locks onto the bull's-eye. A small jump in the handle and lasting, low-level vibration were noted at the shot; however, a quality stabilizer significantly cut the vibration short.

The EnVision is one of the quietest bows we've ever tested; so quiet, in fact, that I couldn't hear it being fired inside our sound chamber. The grip was comfortable as expected, and its small, flat back offered consistent placement. The draw proved consistent and smooth, followed by a super-solid back wall when using the limb stops; S.E.T. Technology was effective in paper tuning the bow.

It's worth noting that Elite offers a limited lifetime warranty on its bows, as well as a Hunt Guarantee. The Hunt Guarantee basically means if your bow is damaged or breaks while you are away on a hunt, the very next day the company will ship you a loaner bow — set to your draw length and weight and complete with sight, rest and peep — so you can finish the hunt. **B**

WE ALL DREAM OF THE SCENE: a big 8- or 10-pointer comes walking in — unaware — offering a good broadside or quartering-away shot, a virtual slam dunk! Reality, however, dictates that things don't always go this easily or seamlessly.

Knowing how to set up the "perfect" shot requires we first understand how the deer we are hunting move through the woods. And while there are no absolutes in the deer world — they never "always" do something — we can set up based on the things they usually do.

When it comes to whitetails, does usually use trails when they travel. Yes, you will see them at times just cutting through the woods, but before they have gone very far, they will settle onto a trail. This is especially true as they get closer to their feeding areas.

Antlered deer, unfortunately, are a bit harder to pin down. So, let's talk a bit about typical buck movement.

Early and Late Season: Early and late in the season, when their lives revolve around feeding and bedding areas, bucks will often use trails. Maybe they won't do so as devotedly as the does, but they will use them often enough that hunting trails is the best way to tag them during those times.

Late October: There is a window in late October, in most parts of the whitetail's range, when bucks will travel more in daylight and still use trails within their usual ranges more predictably. These are still bed-to-food patterns for the most part, but bucks will also range a bit more as they check out doe family groups.

Late October has become one of my favorite times to hunt. The weather is usually

PREPPING FOR THE PERFECT

TAKE STEPS TO ENSURE YOU DON'T MISS YOUR

awesome, the woods are aglow with autumn colors and the bucks are reasonably killable. They are still living where you think they should be, and it's a great time to be a bowhunter.

Peak Rut: During the high-intensity days of the peak rut, all bets are off. Trails mean nothing as bucks cruise swiftly through the timber thinking only of where they want to be next. Or, they come past chasing a doe. At best, you can assume general travel corridors, but you are oversimplifying things if you think they will follow trails.

What Is the Perfect Shot?

I have been caught unprepared too many times for the shots that come my way to ever think I have this part of bowhunting mastered. In fact, every season brings new reasons for humility.

The simple act of setting up your stand or blind to create shot opportunities is one of the most important things you can do when it comes to archery hunting. It does lit-

TSHOT

CHANCE WHEN THAT DREAM BUCK PASSES THE STAND.

By **BILL WINKE**

PHOTO: MARK RAYCROFT

PREPPING FOR THE 'PERFECT' SHOT

It's good to spend months checking and moving trail cameras, practicing with your bow, setting up stands, scheming and planning only to finally have your buck come by and get away.

You have been drilled since you first drew a bow to focus on creating broadside shots — and rightfully so. They are great and we love them; we would all take a lifetime of 15-yard broadside shots and never complain.

Unfortunately, the real world doesn't dish out those opportunities as quickly as we want to consume them. Sometimes, the buck turns just before stepping into the shooting lane, or he goes on the wrong side of the tree. There are as many reasons why the perfect shot doesn't happen as there are bucks in the woods. I sometimes think I have found every way a buck can get away, and then a new season introduces a few more.

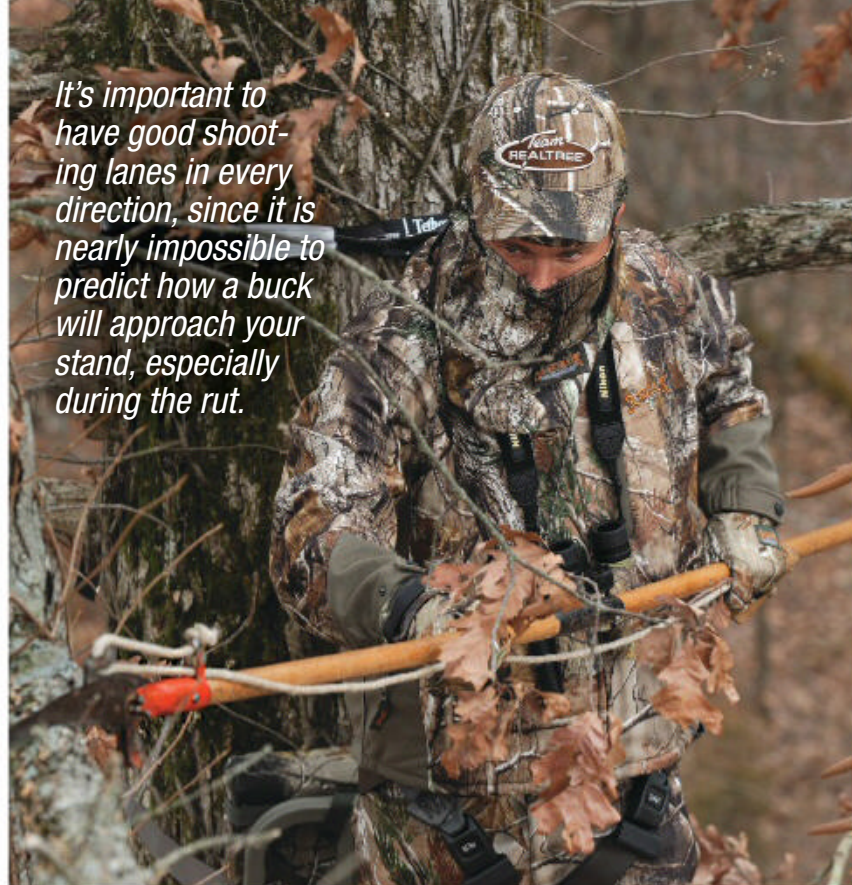
Take the First Good Opportunity

As bowhunters, we usually have to deal with surprises at every turn. So, with that in mind, it is unrealistic to wait for a perfectly broadside 15- or 20-yard shot. In reality, what you need to be ready for is the first shot you know you can make, even if it isn't the one you have defined as perfect.

We have now crossed into the land of experience and judgment. How do you know you can make a shot? This decision should be based on your proven skill on the range — how far you can shoot accurately — and your understanding of whitetail anatomy. You must know, and not guess, what angles will take an arrow into the vitals without interference from bones or heavy muscle.



It's important to have good shooting lanes in every direction, since it is nearly impossible to predict how a buck will approach your stand, especially during the rut.



You gain this knowledge from studying anatomy charts online and from the deer you gut. Pay strict attention to where everything lies inside the deer and how the angle of the deer's body affects where you have to aim to hit both lungs.

Finally, knowing what shots are makeable requires a very healthy dose of reality in the form of understanding deer reaction times. The deer still has to be in the same place when the arrow arrives for the shot to be considered ethical. If the animal is likely to move, you need to know how to address that movement ethically or hold your fire.

I have struggled over the years with bucks and does that moved while the arrow was in the air. It's called string jumping, and I believe it's the No. 1 reason we make bad shots at whitetails.

Dealing With String Jumpers

After years of filming all my shots at whitetails, I have come up with some definite and sobering conclusions.

A mock scrape near your stand may serve to turn an approaching buck and position him to give you a good shot. However, once the rut really breaks out, all bets are off since bucks rarely stop to freshen scrapes as they move quickly through the woods searching for does.

If circumstances force you to set up too close to a deer trail, try blocking the trail with obstacles such as timber, brush or even a piece of fencing, to funnel deer away from your stand slightly and create a better shot opportunity.





It's hard to cover all shot opportunities while you are sitting, so set up your stands with the idea that you will be on your feet most of the time. When you're hunting, take a seat for only short periods of time so you're always ready for action.

BALANCE SHOOTING LANES & COVER

You never want a deer to come within easy bow range and then get away because you don't have a shot in that direction. Hence, when you select the tree for your stand, you need to keep that in mind.

It is great to have branches around you at stand height to break up your outline, but don't box yourself in to the point where you can only shoot in one direction, even if that is the direction from which you expect the deer to approach. Remember, whitetails don't always do what they're supposed to do, and they don't always use trails.

The ideal scenario is to place your stand so that the branches are at hip height. You will still be high enough above them so that they don't get in the way of your bow, but they are close enough to your center of mass to break up your outline.

You should also pay strict attention to whether you need to be standing or sitting to get good shots. Sitting down can sometimes dramatically reduce your ability to make a good shot. So, set up your stands so that you have quality shot opportunities when standing. Then, stay on your feet as much as possible while hunting. You'll be glad you did when the buck you have been dreaming about surprises you by approaching from the wrong direction!

First, it is hard to tell which deer will react to the sound of the shot and drop to load their legs before the arrow gets there and which ones won't.

Most of those that appear alert will react to the sound by dropping, but even some of those that aren't alert will also drop. It is a very frustrating problem, and after studying the footage of many bowshots frame by frame, I now aim low on just about every deer when the distance exceeds 25 yards.

On 30-yard shots, I aim roughly at the heart or just above the brisket line. On 35-yard shots, I aim just below the brisket line and on 40-yard shots, I aim roughly three inches below the brisket. Even if I am shooting really well in the backyard, I am still very hesitant to shoot past 40 yards on a deer; there is just too much chance for substantial unpredictable movement.

If the deer is obviously relaxed, or the wind is blowing enough to cover the sound of the shot, you can reduce the

amount you aim low at each of these distances. So, as I mentioned, there is a lot of experience and judgment that goes into knowing when you are looking at a good, ethical shot.

Eliminate the Single-Lung Hit

There is no telling when the next buck will come straight at your stand, leaving you in a panic trying to decide how to get the shot. Compounding this problem is the fact that the worst hit you can make in bowhunting is to catch just one lung. The shot is almost always fatal, but the animal can be very hard to recover as it may travel a long distance before dying, leaving little in the way of a blood trail along the way. As an ethical bowhunter, you should do everything in your power to prevent the dreaded single-lung hit.

Close shots from treestands — under 10 yards — are the most common cause for a single-lung hit (string jumping is a close second). This type of shot may look very easy since the deer is right there — big as a Buick station wagon and as tempting as a hot fudge sundae. Unfortunately, however, it's a "no-go." The angle is bad, so don't take this shot.

Instead, it's much better to let the deer pass and move away before looking for the aimpoint. Once it gets 10-15 yards past the stand, you can angle the arrow through the liver and into at least one lung and possibly even catch the heart. This is a quickly fatal hit and a much more ethical shot than the close-range broadside shot.

That said, waiting long enough for the deer to leave can be very risky to your overall hopes of bagging it. When you have a deer under your stand for any length of time, it tends to find stuff it doesn't like. Whitetails may see your tree steps, smell where you set your jacket down on the ground, catch you moving out of the corner of their eye or even hear the very slight grinding of boot on stand or rustling of outerwear as you twist to follow their movement.

PREPPING FOR THE 'PERFECT' SHOT

If you are still going to turn this opportunity into venison, you need shooting lanes on all sides of the tree so you can get the shot once the deer starts to move away, since you don't know which direction he is going to go. Maybe you assumed all the deer would pass on one side — the side with the trail on it — and that is where you opened up shooting lanes. Then along comes a buck and proves you should be that kid who always has to sit in the corner wearing a dunce hat.

Dang it; now what? Panic and a missed opportunity!

Whenever possible, it is much better to set up in a way that keeps the deer from ever getting that close to you. However, if you have bowhunted for any amount of time, you know this is really tough since deer do unpredictable things.

Set 'Em Up for the Shot

What if you've been forced by terrain, such as a nearby creek, bluff, ditch or field edge, to set up closer to a trail than you would like? Or, maybe there just isn't a tree right where you want it — and you have to take what's there — putting you right next to a trail.

When you are placing the stand or setting up the blind, this decision may seem harmless enough. You might even consider it and then shrug it off without really thinking about what that shot is going to look like and what your options may be. Instead, you decide in passing that you will just worry about it when the time comes, like when the buck is right there.

Well, if you are going to set up very close to a trail, then you have to try to reposition the deer to produce a better shot angle. The easiest way to accomplish that is to use a diversion to get the animal to change its course just enough to open up a shot before it gets right to the tree.

One option is to create a mock scrape a few yards to the other side of the trail. During October and early November, most passing bucks will turn to check it out, opening up their vitals for a shot. But as the rut advances, they will completely ignore scrapes as they move single-mindedly from Point A to Point B.

A better idea is to block the trail altogether and force deer to turn. You can easily do this by piling brush and vegetation on the trail. You need to make the diversion at least 15 yards from your tree so you have a good shot angle as the deer turn to go around the brush.

Maybe you can come up with something even more creative. I am pretty sure it is legal in most states to build a short section of fence that would also clearly turn deer away from the too-close trail to open up a broadside shot. The bottom line is that you should do what is necessary to eliminate any chance that the deer you want to shoot ends up right under your stand.

With whitetails being as unpredictable as they are, setting up the perfect shot may be a pipe dream, but you will definitely be rewarded for doing everything in your power to reduce the chances of an unexpected string jumper or a single-lung hit. It's imperative that you avoid both of these troublesome shots at all costs. Good luck, and happy hunting! **B**

By taking steps to ensure you are set up well for any and all shots, you greatly increase the odds that you'll be able to tie your tag to that trophy buck you're after.





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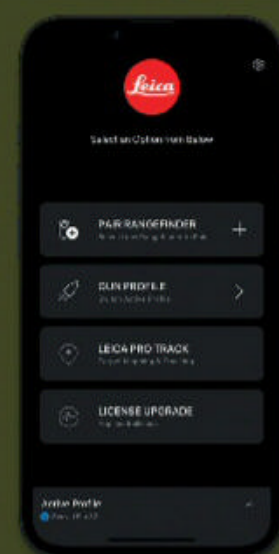
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ARROWS 411

Modern Arrow Options Are Seemingly Endless. Here's What You Need To Know.

BOWHUNTING USED TO BE SIMPLE. When I first started slinging arrows downrange, there were Easton's all-aluminum XX75 shafts. There was no other arrow to consider, really. I later graduated to XX78 Superslam 2114s, but still, the choice was easy. Carbon arrows weren't an option, and there weren't multiple insert, vane and nock choices. I had never heard the abbreviation FOC. I had no laser rangefinder, and the thought of drawing my bow and settling my pin on a target beyond 60 yards never crossed my mind.

My, how times have changed!

Today's arrow world is complicated, and you'll likely need some help navigating the terrain. While there are still aluminum arrows, they are no longer the ammo of choice for the vast majority of bowhunters who have long since made the switch to carbon. However, there is a very popular

aluminum/carbon hybrid featuring an aluminum sleeve over the top of a carbon core resulting in a heavy, quiet arrow that penetrates deeply and pulls effortlessly from foam targets. Oh, and that arrow — Easton's Full Metal Jacket — is offered in multiple spine sizes and diameters of 4, 5 and 6 mm. Some of these shafts come with standard inserts,

while others are packaged with HIT (Hidden Insert Technology) inserts that are pushed inside the shaft with a special tool. Some FMJ models also accept new-for-2022 aluminum and titanium "half-out" inserts introduced by Easton. The options are literally enough to make your head spin, and that's just a single product line from a single manufacturer.

Let's stick to the basics and keep this as simple as possible. Here's what you need to know:

Need for Speed

Shooting a fast arrow isn't a bad thing, as long as you don't put speed in front of accuracy. Many bowhunters — in their quest for added speed — shoot lightweight arrow shafts that are "under-spined," meaning they are not stiff or strong enough for the amount of draw weight they are pulling. This is not good. Remember, when bow manufacturers advertise their rigs with certain speed ratings, those are typically generated at maximum draw lengths and draw weights, in tandem with arrows that barely meet the minimum gpi (grains per inch) requirement for the setup. In other words, bow makers have a vested interest in making their offerings *seem* fast on paper, but that doesn't mean you should expect, or even desire, to match those speed claims with your hunting arrows.

Shooting shafts that are under-spined for your bow's draw weight will result in terrible downrange accuracy, because the arrows will flex wildly at launch and take quite some time to stabilize in flight, resulting

Your hunting arrows perform a critical task — delivering your broadheads to the vitals of game animals. Choose wisely!

By **JACE BAUSERMAN**

PHOTO COURTESY OF LEVI MORGAN

HUNTING ARROWS 411

in inconsistent results. Worse, shooting arrows that aren't designed to withstand the force your bow imparts can result in some serious damage to your bow and personal injury to you.

That said, there are some worthwhile advantages to shooting lightweight arrows. When fletched with offset or helical vanes, lightweight shafts can be stabilized rather quickly, which will result in great downrange accuracy, provided the chosen shafts can handle the bow's energy. A faster

arrow has a flatter trajectory than a slower one, helping you maximize the range you can squeeze from your bow sight and allowing you a greater margin of error when it comes to your vertical aim at longer distances. This can be particularly handy when hunting species such as pronghorn antelope or mule deer out west, where the average shot is considerably longer than it is in the whitetail woods. For example, shooting a lightweight arrow versus a heavy arrow on a 63-yard shot at a pronghorn could be the difference between making a clean kill or dropping out of the vital zone if your sight pin is just a tad low when the shot breaks.

More Power

Most bowhunters will tell you they prefer a heavy arrow over a light one. Why? Penetration, mostly. Bowhunters love pass-throughs on big game, and a heavy shaft tipped with a razor-sharp broadhead is the ticket. Why? Because heavier arrows soak up more energy from your bow and hold onto it more efficiently as they travel down range. As an added bonus, by soaking up more of your bow's energy, heavier arrows also result in reduced shot noise and vibration.

Last season, for whitetails and elk, I shot 481.5-grain Easton 4MM FMJs out of my 70-pound Hoyt. My arrow speed was 284 fps (way below the bow's advertised speed) and hit with 86.3 foot-pounds of kinetic energy. Not only did those arrows blow through a quartering-away bull elk and a pair of thick-bodied whitetail bucks, but due to their weight and small diameter, they bucked the wind and flew very quietly thanks to the low-profile vanes I used to fletch them.

Of course, heavy arrows do have some drawbacks. The biggest is speed, as the heavier the arrow, the slower it will



Speed is a good thing, but never compromise safety or accuracy to boost speed.

CUSTOM BUILT-

IT'S SAFE TO SAY champion archer and renowned bowhunter Levi Morgan knows a thing or two about accuracy — his livelihood revolves around it. Over the years, Morgan has become increasingly obsessed with arrow flight and recently collaborated with several manufacturers to develop a unique, all-in-one arrow system that offers bowhunters the opportunity to buy true, custom-built arrows that are paired with matched broadheads and ready to hunt right out of the box.

Dubbed the LRP — short for Long Range Precision — this collaboration is the result of more than a year of product development and testing among TAC Vanes (of which Morgan is a co-owner), Gold Tip arrows and Sw Hacker broadheads. The result is a deadly bowhunting combination Morgan says flies every bit as well as his self-built competition arrows.

The LRP starts with a perfectly squared and spine-aligned Gold Tip Kinetic Pierce Platinum micro-diameter shaft (available in 250, 300 or 340 spine sizes) with a TAC Vanes custom arrow wrap and your choice of three or four TAC Driver vanes. Three-vane **LRP arrows** feature the 2.75-inch Driver vanes, while the **four-vane arrows** feature 2.25-inch Driver vanes.

"Nothing cuts the wind or flies better," Morgan said of the micro-diameter Kinetic Pierce shafts. "I also want that arrow



PHOTO COURTESY OF LEVI MORGAN

Renowned professional archer Levi Morgan knows the value of shooting accurate arrows. This once-in-a-lifetime Dall sheep was taken with a single arrow from more than 100 yards away.





When the author drew his once-in-a-lifetime Colorado bighorn sheep tag, he wanted a micro-diameter arrow that was uber-accurate, didn't compromise strength for speed and hit like a ton of bricks. He found the answer in Easton's Axis 4MM Long Range.

travel. Second is trajectory, as the heavier the arrow, the more quickly it will drop as shot distance increases. The key here is matching your arrow to the intended application. If I'm hunting whitetails, elk or moose, heavy arrows such as the Easton FMJ, Gold Tip Kinetic Kaos or Carbon Express D-Stroyer PileDriver are my "go-to" choices. However, last season I had the chance to hunt bighorn sheep in Colorado and opted for Easton's Long Range Axis 4MM. Why? I wanted a little extra speed, flatter trajectory and su-

preme accuracy from an arrow that had a finished weight just a tick over 400 grains.

Custom Builds

Bowhunters love to customize their setups, and one of the easiest ways to do that is by experimenting with various arrow components. From the shafts themselves to various inserts, weight systems, wraps, vanes, nocks and more, there are literally thousands of different arrow configurations available. Here's a basic understanding of some essential arrow terminology that will help you in your quest to customize your own arrow setup.

FOC: FOC is an acronym that refers to the Front of Center balance point of an arrow. In other words, how far forward from the center of the arrow shaft is its center of mass. FOC is calculated as a percentage, and the higher the percentage, the further forward of center the balance point is. Having more weight toward the front of an arrow shaft helps the arrow stabilize more quickly in flight, improving downrange accuracy. Although some bowhunters like to experiment with extreme FOC, the generally accepted rule of thumb is that arrows with FOC between 11 and 15 percent perform the best. There are a number of online FOC calculators available to help you determine the FOC of your hunting arrows or evaluate how potential changes to your hunting arrow setup will change your FOC.

Spine: Arrow spine refers to the stiffness of the shaft. Arrows with a "heavier" spine are stiffer than arrows with "weaker" spine. Although the spine rating numbers vary among arrow manufacturers, each one publishes a spine selection chart to help you find the right shaft based on your bow's draw length, draw weight and (sometimes) cam type.

RIGHT OFF THE SHELF!

wearing four, low-profile TAC vanes. In most cases, I don't believe deer hear the bow going off. Instead, they react to the sound of the [approaching] arrow. Shooting four, low-profile vanes rather than three taller ones makes arrows quiet and accurate without adding unnecessary weight to the back end of your shaft."

Touted by TAC as the world's most accurate "stock" arrow, the LRP is further enhanced by the patent-pending Levi Morgan LRP Signature Series Broadhead from Swacker. This one-of-a-kind modular broadhead system uses glue-in, steel inserts with female threads on the back end that accept Gold Tip's F.A.C.T. weight system, allowing shooters to add and remove arrow weight as they desire to boost FOC and increase penetration.

The front ends of the inserts include male threads to accept the new LRP mechanical broadhead that features Blade Align technology, an innovation that ensures identical thread orientation on every insert and broadhead. What this means for shooters is that they can index their broadheads exactly how they want them in relation to arrow spine and/or vanes during the build process and then know every other LRP broadhead they screw on in the future will line up exactly the same way.

The LRP broadhead also showcases Swacker's Blade Lock

technology, a pair of .032-inch-thick blades, bone-crushing carbide chisel tip and a reinforced, ribbed ferrule. Finally, the LRP broadhead features a collar between the insert and broadhead that comes down over the top of the arrow shaft, making for a seamless transition from shaft to broadhead and also dramatically improving strength. In fact, Morgan claims the new system is twice as strong as competing broadheads using standard, $\frac{8}{32}$ threads that screw down into the arrow insert.

Add it all up, and you have a system that gives the everyday bowhunter the opportunity to shoot truly world-class, custom-built hunting arrows without going through all the time and effort do it yourself, said Randy Groff, TAC's director of operations. "We're not talking about hitting a pie plate at 20 yards," Groff said. "We're talking about hitting a pie plate at 100."

As an added bonus, shooters can simply remove the LRP broadheads and screw on practice heads designed to fly exactly the same, making pre-season and in-season practice more convenient while building bowhunting confidence at the same time.

LRP arrows will be available **starting this summer**. Customers can purchase them directly **from TAC Vanes or through** local pro shop dealers. For more **information, visit tacvanes.com** or call 866-644-8600.

The LRP arrow is a custom-built Gold Tip Kinetic Pierce Platinum shaft fletched with TAC vanes and tipped with Swacker's new Levi Morgan LRP Signature Series modular broadhead system up front.

HUNTING ARROWS 411

Although you generally want to stick with shafts that fall within the manufacturers' recommendations, keep in mind that many setups fall on the borderline between two spine sizes, and it often requires some experimentation to determine which option flies best from your particular setup.

Vane Orientation: Vanes are glued onto arrow shafts with either a straight, offset (angled) or helical (twisted) orientation. The amount of offset or helical is expressed in degrees, and the greater the offset or helical applied, the greater the drag. Increased drag causes the arrow to spin more quickly, resulting in more stable flight. However, added drag also saps energy and causes the arrow to lose speed more quickly. Vane orientation is one of the easiest ways to experiment with your arrow setups and find the orientation that produces the best results for you.

Vane Count: The number of vanes attached to the back end of the arrow shaft. Traditionally, this has been three, but in more recent years, the use of four or more vanes has become quite popular. Similar to vane orientation, the addition of vanes will increase drag by adding more surface area to contact air in flight, potentially enhancing stabilization and accuracy.

Insert: A component glued into the front end of the shaft to accept fieldpoints and broadheads. Heavier inserts, typically made from brass or stainless steel, offer an easy



One of the best ways to build the perfect arrow is to tinker with different shafts, inserts, nocks and vanes. Test them on the range until you find just the right combination to meet your needs.

way to boost an arrow's FOC. Standard inserts sit flush with the front of the arrow. Easton's aforementioned HIT inserts are completely enclosed inside the arrow, while a growing number of "half-out" inserts are partially inside the arrow with a tapered and exposed section that allows

NEW ARROWS AND MORE

The **Easton Sonic 6.0** (\$89.99 per 6, fletched | eastonarchery.com) is a brand new arrow made from scratch using the company's seamless Acu-Carbon process to ensure weight and spine perfection. Sonic 6.0 shafts feature a lighter overall grains-per-inch weight than most other carbon options, giving shooters the option to build hunting arrows exactly how they want them — either as is for maximum speed or with some added insert and/or point weight for boosted FOC and deeper penetration. The Sonic 6.0 comes factory fletched with Easton's accuracy-enhancing 2-inch Bully Vane in a helical configuration.



The **Carbon Express Maxima Sable RZ** (\$164.99 per 12, bare shafts, and \$89.99 per 6, fletched | feradyne.com/carbon-express) is a lightweight hunting arrow featuring TriSpine Technology with 360-degree spine consistency. Designed to help you maximize speed and shoot with a flatter arrow trajectory, the Sable RZ is an all-carbon, .244-inch inner diameter shaft that also offers an ideal strength-to-weight ratio and deep penetration.



The **Gold Tip Force F.O.C.** (\$99.99-\$184.99 | goldtip.com) is an arrow designed to produce high kinetic energy and penetrate like crazy. These carbon shafts feature a high FOC design for great flight stability, and they also come with both aluminum and brass inserts so shooters can decide if they want to add even more weight up front. Available in spine sizes of 250, 300, 340 and 400, Force F.O.C. shafts have an inside diameter of .246-inch and a straightness rating of $\pm .001$ -inch.



The **Dead Ringer Sinister** (Price Unavailable | deadringerhunting.com) is a do-it-all carbon hunting arrow that makes it easy on shooters with a single 350 spine size designed to fly well from any common bowhunting setup. The Sinister features a $\pm .003$ -inch straightness rating and is also available in 20- and 22-inch crossbow bolt versions.



The **Victory VAP-SS** (\$119.99-\$169.99 | victoryarchery.com) is a micro-diameter shaft designed for precision and penetration. The VAP-SS sports woven stainless-steel mesh infused with layers of Mitsubishi carbon fiber and finished with a proprietary, 90-degree carbon weave. This carbon/steel hybrid shaft is then finished in Victory's Ice Nano Ceramic Coating for improved penetration and easy target removal.



for standard fieldpoints and broadheads to be used with small-diameter shafts.

Diameter: The actual width of the arrow. All else being equal, a skinnier (micro-diameter) arrow will drift less in the wind and penetrate more deeply into a target than a wider arrow due to its decreased surface area. It is important to note that a narrow arrow diameter does not necessarily mean a weaker spine, as small-diameter arrows will have thicker (stiffer) walls than wider arrows of the same weight.

Nock: A component on the rear end of the arrow that attaches to the string. Although arrows typically come with nocks installed, there are many custom options available for those who want to add or reduce weight, change color, add illumination or simply find a nock throat that is properly sized for a good fit on their bowstring.

Arrow Wrap: A sticker (thousands of designs available), usually self-adhesive vinyl that wraps around the nock-end of the arrow. Wraps not only give your arrows a custom look, they make it easier to re-fletch arrows by simply removing old vanes and glue in a single step.

In addition to understanding your options, there are a few items you'll need to start customizing your own arrows. An arrow saw is handy but not necessary, as you can have your shafts cut down to size at the local pro shop for just a few bucks. You will need a fletching jig to install vanes or feathers onto your arrows. A tried-and-true Bitzenburger jig is always a fine option, and you can pur-

chase various jig arms for various vane configurations and even switch between three-vane and four-vane setups. Of course, Bohning and other manufacturers offer a host of other jig options, many of which have the added convenience of applying all the vanes at once rather than one at a time, something that significantly reduces the amount of time it takes to fletch a dozen arrows.

Another must-have item is vanes or feather fletching. There are literally hundreds of options in various shapes, sizes and colors, and it's fun to purchase several styles and experiment with them on your arrows until you settle on a configuration that delivers the accuracy you're after. Finally, you'll need glue for your fletching and arrow inserts, an arrow prep tool for preparing the inside of the shafts for the inserts and cotton swabs and rubbing alcohol for cleaning the arrows before vane and insert installation.

Building your own arrows is a ton of fun. You decide on the arrow length, vane type, vane orientation, wrap or no wrap, and insert option. Those looking to up FOC for long-range accuracy and penetration can do so by using a heavier insert (brass, stainless steel, titanium, etc.) or experimenting with heavier broadheads. Standard nocks can also be removed, and lighted nocks from top-end manufacturers such as Lumenok and Nockturnal can be added. If you test and tinker, much like those who load custom ammunition for their firearms, you'll eventually find the right build that delivers the speed, accuracy and penetration you desire. **B**

The **Bohning Cauldron** fletching jig (\$110 | bohning.com) is a three-vane fletcher that lets you build arrows quickly and easily. The Cauldron features simple-to-switch inserts for different vane orientations — straight, 1-degree left offset, 1-degree right offset, 3-degree left helical and 3-degree right helical — that can be swapped without tools. This jig accepts all arrow diameters, and you can fletch arrows with the nock in place to ensure perfect broadhead indexing if desired.

The **TAC Vane Driver 2.25** vane (\$15.99 per 36 | tacvanes.com) provides the perfect combination of stealthy quiet flight and optimum stability for both target arrows and broadhead-tipped hunting arrows. These 2.25-inch-long and .465-inch tall, mid-profile vanes also offer great stiffness for reduced drag and better downrange speed. Excellent memory helps them hold their shape for consistent shooting from shot to shot and arrow to arrow. Available in your choice of 13 colors.



The **Lumenok HD Orange** (\$31.49 per 3 | lumenok.com) lighted nock is 30 percent brighter than competing options to ensure excellent in-flight tracking and easier arrow recovery. The brightest Lumenok ever produced, the HD Orange is available in numerous sizes to fit various arrow diameters. The Lumenok HD Orange X nock weighs 24 grains, while all other sizes weigh 26 grains.



The **Nockturnal Shift Nock** (\$32.99 per 2 | feradyne.com/nockturnal) is a lighted nock available in red, green and red/green strobing colors. It also features an external switch that makes it easy to turn this string-activated nock off after the shot. This waterproof, polycarbonate nock weighs 25 grains and promises 20 hours of lithium-powered battery life. Bare nocks fit X nock arrow shafts, and each two-pack also comes with bushings to fit H, S and GT nock sizes.



Elite Spin Wing Archery Vanes (\$17 | romarchery.com) sport a unique, rear-sloping hook designed to trap additional air at launch. This creates added drag that stabilizes arrows more quickly after launch and boosts downrange accuracy. The Elite, according to Spin Wing, rotates up to twice as fast as the original Spin Wing Vanes.



A man in outdoor gear is aiming a bow in a wooded area. He is wearing a green hoodie, tan cargo pants, a camouflage baseball cap, and a tactical vest with various pouches. He is holding a bow with an orange arrow. The background shows bare trees and a grassy field.

GET A HANDLE ON IT!

**FIGHT TARGET PANIC
WITH A HINGE RELEASE**

BY CLINT CASPER



The stage was set; I had perfect weather, including a cold front out of the north. My stand was prepped and in place, with a shooting lane to the big scrape nearby. The wind direction was perfect for my entry route, and I had things planned perfectly so no deer could see me as I slipped into my spot. All I needed now was a little luck that resulted in “the perfect 10” showing himself before dark.

That evening, as the sun started to set and the wind calmed, I heard the unmistakable sound of leaves crunching due west of my stand. I knew right away “my buck” was on the move, leaving his bed and approaching my

location. Sure enough, it wasn’t long before I could see his antler tips coming through the timber. He was headed for the scrape a mere 22 yards away from my perch — my plan was working perfectly!

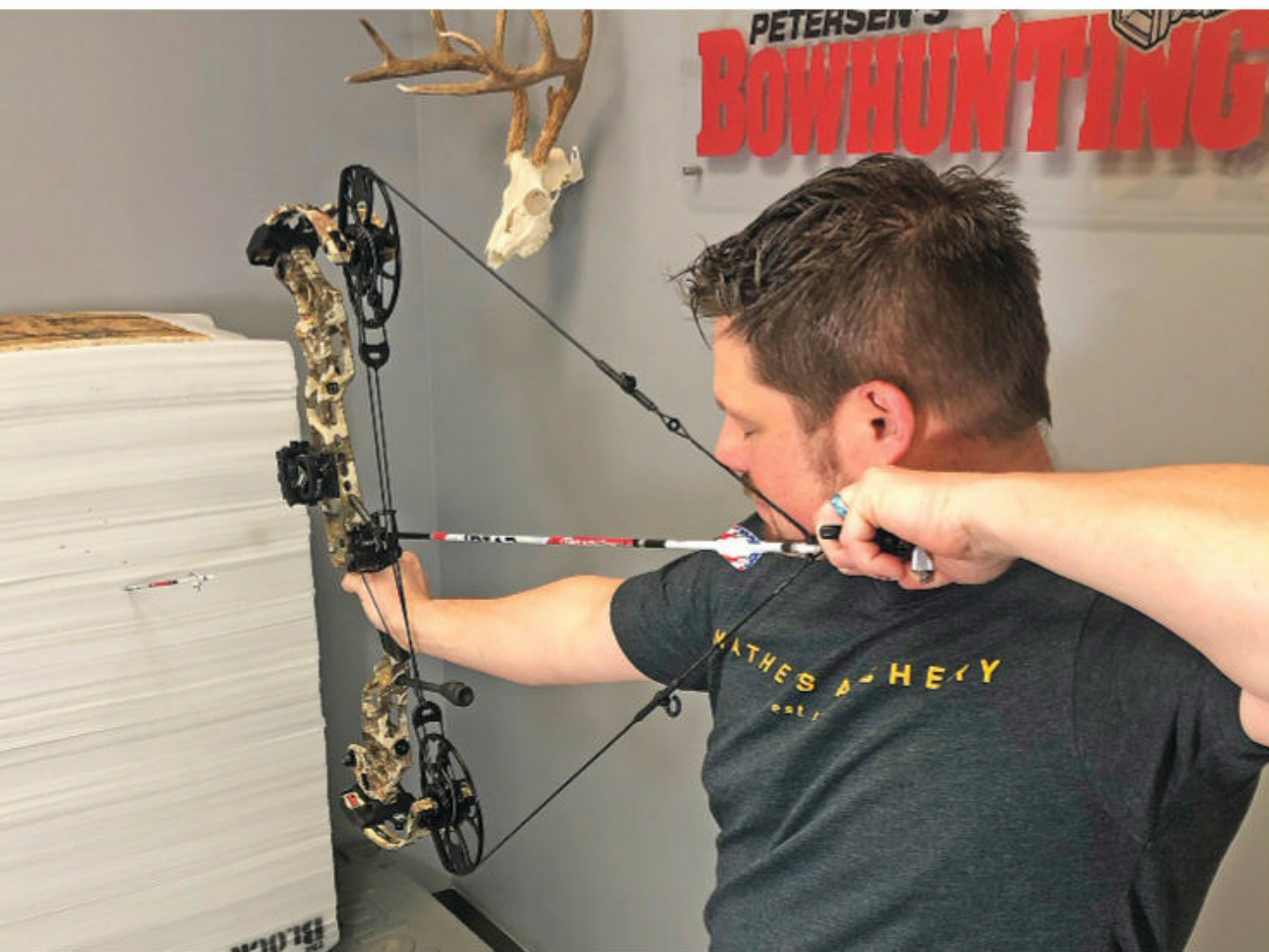
As the buck reached the scrape and began to work it, I came to full draw and swung my pin onto his chest. Once my pin had hair behind it, I quickly punched the release and sent an arrow right over the buck’s back! Knowing exactly what I had done made for a very long walk back home and really got me thinking about the state of my shooting. I knew it was time for a change, and looking back,

I realize that failure was a pivot point that forever changed my mind about release aids and shot execution.

Read the Signs

Truthfully, the warning signs about my trigger punching had been there for a while; I simply refused to see them. In order to be consistently accurate with a bow, archers must repeat a series of events subconsciously while releasing the arrow. Many top shooters will describe it as simply doing their job — aiming — while allowing the bow to do its job — shooting the arrow. Of course, this is easier said than done.





The process of retraining your body and mind to execute each shot with a “surprise release” doesn’t happen overnight. Blank bale shooting — simply firing into an unmarked target face with no concern about the arrow’s point of impact — is considered the best way to learn the mental and physical “feel” of the surprise release.

What a proper shot sequence really boils down to is a “surprise release” and what that method of loosing the bowstring does to cancel “human error.” Human error can be myriad things, from bad form to shot anticipation that leads to flinching to rushing the shot or even the inability to place the sight pin on the desired point of impact. Taken collectively, all these are symptoms of the dreaded “target panic” malady that steals the joy from shooting and makes it virtually impossible to consistently hit where you are aiming.

As described in the hunt at the start of this article, I unfortunately was stricken with target panic, and without serious treatment, my prognosis wasn’t good. I needed to retrain my body and mind to shoot properly, and I knew the best way to do that was to get rid of my index-finger release aid and switch to a handheld, hinge-style release. It wouldn’t be an easy process, but it was necessary if I wanted to become a consistently successful bowhunter.

Making the Switch

With a hinge-style release, the goal is to come to full draw and then engage your back muscles to “push and

pull” the bow apart. The increasing “expansion” of your bow and release arms during this process will gradually rotate the release aid until it fires. When used correctly, a hinge release removes the anticipation of the shot, freeing the archer to relax and let the

sight pin float on target until the shot breaks. This is the oft-discussed “surprise release,” and it’s amazing to see how accurately your arrows fly, even when the exact moment of the shot’s firing catches you off-guard.

In switching to a hinge release, my goal was to replicate a surprise release on every shot and train my mind to focus on aiming while trusting my form and my bow to do their jobs without interference. As humans, we have a natural desire to control things, and this is certainly true when shooting a bow. Things such as forcing the pin to the center of the target, or trying to hold the pin perfectly still (which is impossible) are common mistakes archers make by consciously trying to do things that aren’t necessary to achieve the desired result.

I began my retraining process by taking my sight off my bow and focusing solely on getting used to the hinge release while reprogramming my form and shot sequence. The goal was to draw my bow back a few feet from the target, settle in at anchor, close my eyes and slowly work the release until it fired. This would allow me to feel what a surprise release was and force me to replicate it on every shot. My plan was to do this for two months straight, until I felt very comfortable with my new release and form. Then, I would put my sight back on and start working on pin float.



Switching to a handheld release can really help you mentally slow the shot process and execute without anxiety. The end result is a dramatic increase in confidence.

PHOTO COURTESY OF NOCK ON ARCHERY

TOP HANDHELD RELEASE OPTIONS

There are many quality options for bowhunters looking to make the switch from a wrist-strap, index-finger release to a handheld model. These generally fall into one of three categories: hinge-style releases, resistance-activated releases and thumb-trigger releases.

HINGE RELEASES:

As discussed at length in the main feature, hinge-style releases are designed to help you shoot using back tension by using a continuous “push-pull” resistance between your bow arm and release arm. This causes the release head to pivot until the shot is fired. Hinge releases are an excellent training aid to teach yourself to execute each shot with a true “surprise release” and are also favored by many top target shooters and bowhunters because of the consistent accuracy they provide.



The B3 Archery Ranger (\$164.99 | b3archery.com) offers a hinge release in tandem with a familiar wrist strap, making it a great choice for competition, training and bowhunting. Featuring a wide-track, aluminum, three-finger handle that delivers consistency and comfort, the Ranger comes with B3's patented flex connector that can be adjusted with a single screw to customize the fit for any archer. You can even remove the release from the wrist strap and shoot it as a handheld release, if you prefer. The release head features an auto hook return for easy loading and a micro-adjustable moon system for precise sensitivity adjustments.



The T.R.U. Ball Sweet Spot II (\$169.99 | truball.com) was designed with new hinge release shooters in mind and incorporates features making it safe and easy to learn the benefits of this type of release. Billed as the finest back-tension training aid on the market, the Sweet Spot II has a patented activator you can push to safely draw your bow without fear of accidentally releasing the string. Once you are settled at full draw and ready to begin executing the shot using back tension, simply release the activator and pull through.



The Tru-Fire Sear-X (\$209.99 | feradyne.com/trufire) has earned high praise from shooters for its extreme comfort and ease of use. Made with a heavy, brass handle and fully machined precision components, the Sear-X can be set up in either a three- or four-finger configuration. There are also three positions for the thumb knob. Finally, the Sear-X features a four-sided sear release mechanism with micro-adjustable hot/cold settings so you can make the shot as light or heavy as you like.

RESISTANCE RELEASES:

A resistance-activated release works in much the same way as a hinge release. However, rather than a head that pivots to release the bowstring, a resistance release features a locking string hook with tension that can be adjusted based on the shooter's preference. Simply set the tension at a desired amount above the holding weight of your bow and the shot will fire when you build sufficient tension against the release hook while at full draw. Like hinge releases, resistance releases reinforce good shooting habits and are designed to help archers execute each shot with a classic “surprise release.”



The Nock On Custom Archery Mini Silverback Plus (\$234.99 | nockonarchery.com) is a tension-activated release designed specifically to help those with smaller hands and fingers achieve the perfect shooting technique. The Silverback Plus is fired by building increasing tension against the back wall of the bow until the release hook gives way, resulting in the perfect surprise shot on every arrow. Better yet, the Mini Silverback Plus is shaped to match Nock On's Mini Nock 2 thumb-trigger release so archers can switch seamlessly between the two while training, competing and bowhunting.



The Stan PerfeX Resistance (\$269.95 | ishoot-astan.com) is extremely precise, featuring a wide range of adjustability from zero to 28 pounds of pressure required for activation but still triggering within ± 125 -pound from shot to shot. The PerfeX Resistance is also available in long and short (increases your draw length by .25 inch) neck versions with handle sizes from S-XL to fit any archer. Other highlights include the ability to configure the PerfeX as a three- or four-finger setup and your choice of five post lengths and two barrel sizes for the thumb-activated safety. Stan also offers the PerfeX in a thumb-trigger version so users can switch between the two while maintaining the exact same point of impact with their arrows.

THUMB-TRIGGER RELEASES:

Although thumb-trigger releases appear very similar cosmetically to hinge and resistance releases, they differ significantly in that they are fired via a trigger mechanism activated by the thumb. Thumb-trigger releases are favored by many bowhunters who like to train with hinge and/or resistance releases to reinforce good shooting habits but prefer to head afield with a release they can manually fire.



The Apex Gear Surge (\$90.99 | apex-gear.com) is a four-finger, thumb-trigger release featuring a thin head and single-caliper jaw to reduce nocking loop torque. The Surge also features trigger travel and tension adjustments, multi-position thumb barrel, built-in lanyard and quiet trigger mechanism. The entire unit is enclosed in a CNC-machined aluminum housing.

TOP HANDHELD RELEASE OPTIONS



The Cobra Archery Harvester (\$209 | cobraarchery.com) is a high-quality, versatile thumb-trigger release that can be set up in your choice of three- or four-finger configurations. Featuring machined aluminum and stainless steel construction, the Harvester has a crisp, roller-sear mechanism with independently adjustable tension and travel. Meanwhile, the thumb button offers adjustments for length, angle and rotation. Other highlights include great ergonomics, an included wrist lanyard and lifetime warranty.



The Scott Archery Sigma (\$259.99 | scottarchery.com) features a highly ergonomic design very similar to a hinge release. Designed to maximize comfort and confidence while placing your fingers in an optimal position, the Sigma's thumb trigger offers tension and travel adjustments along with a newly designed trigger mechanism for unmatched reliability. The thumb button can be adjusted for length, angle and rotation.



The Spot-Hogg Friday Night Delight (\$139.99 | spot-hogg.com) was designed with bowhunters in mind. This thumb-activated release features an open jaw to aid in fast, easy attachment of the release to the nocking loop during the moment of truth. The smooth, three-finger handle design offers great comfort, while the short release neck helps maximize your draw length for added speed from your setup. Finally, the micro-adjustable trigger can be customized to be as light or heavy as you prefer.



The Trophy Ridge Precise Pro (\$109.99 | beararchery.com) is a T-handle release with a four-finger design to help you handle higher draw weights. The thumb-activated trigger mechanism features a smooth-operating sear with tension and travel that can be adjusted to your preference. The dual-caliper release head pivots to eliminate string torque while aiming, and the included wrist sling keeps the release at the ready.

-Editor Christian Berg

This process, commonly referred to as "blank baling" because you shoot into blank targets with no aiming points, went extremely well. I quickly fell in love with the process of a surprise release and triggering the shot with my back muscles. This push-and-pull method seemed to make my shooting stance very solid, and my accuracy skyrocketed. Within a few months, my shooting confidence went from an all-time low to an all-time high.

For the first time, I also found I had the mental fortitude to let down if things didn't feel right. In the past, whenever I had doubts at full draw, I'd always just bang the trigger and hope for the best. But now, if things didn't feel right, I'd let down and start over. This new shooting style and release really helped me focus on perfect form and helped me feel as though I was in total control of every shot without actually trying to control the arrow.

It's no secret that many of the top professional target and 3-D archers absolutely love hinge releases; after all, they are proven to be extremely accurate! Despite that, relatively few bowhunters carry a hinge afield, or even train with one during the off-season. Many bowhunters resist moving away from the familiar, wrist-strap releases or claim a hinge is an inconvenience because it doesn't lock onto the nocking loop. Others complain that a hinge release cannot be fired immediately when needed. While those last two digs are true, I'd actually argue they are advantages rather than disadvantages in a bowhunting release. Let me explain.

Stick to the Plan

A lot of bowhunters have the mindset that they need to make their release fire "now" — maybe it's when an animal stops walking for a split second, or maybe it's when the animal steps into a shooting lane. Regardless, the ability to activate a release on command is NOT a good thing in my opinion. In fact, it leads to many bad habits and bad bowhunting outcomes! When our minds tell us to consciously do something "now," we feel a sense of urgency to act as if there is no turning back. When this happens in the bowhunting woods, it leads to rushed shots, misses and wounded animals.

One of the many reasons I use a hinge release for hunting is because it has given me full mental control of my shot. If the animal does not stop or seem calm, I don't shoot and let down.



Most people learn more from failure than success, and for author Clint Casper, it was a missed opportunity at a big white-tail buck that convinced him to scrap his wrist-strap, index-finger release aid in favor of a handheld hinge release. Casper is currently hunting with T.R.U. Ball's HBC Flex.

Although it was a missed buck that prompted him to make a change in his release aid, Casper now enjoys consistent bowhunting successes with his hinge release, including on this great Ohio 8-pointer he took last season.



I do not allow myself to force the release to activate (which is extremely hard with a hinge) and make a “drive-by” shot as I rush the pin past the center of the body.

Another reason I love hinge releases is because they take away the anxiety and anticipation shooting can

create. Instead of being worried about when, or how, the shot will go off, I just worry about aiming and my form. That’s it! I do my part and the bow does its part. Together, this creates an extremely accurate tandem!

In bowhunting, things happen fast. Shooting a hinge release has forced

me to slow my shot process and keeps me cool and collected when a big buck or bull steps out. Shooting it has made me a better bowhunter, and the days of hoping I hit my mark are long gone. Instead, I now know that if I get back to full draw, that animal is really in trouble! **B**

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4 SIMPLE BOW-TUNING TRICKS

BOOST YOUR ACCURACY WITH THESE FAST FIXES

By Christian Berg

There's no deeper rabbit hole in archery than bow tuning. If you don't believe me, visit a dozen pro shops and ask for their best bow-tuning advice. You'll likely get a dozen different answers, and the crazy thing is, they are probably all right!

Truth be told, the quest for a perfectly tuned bow is never-ending. Think about it; the performance of each bow is determined not just by the bow itself but by the bow's interaction with multiple accessories, including the bowstring and cables, arrows, arrow rest, bow sight, peep sight, stabilizers and more. Change any *one* setting on the bow or an accessory and you've changed the bow's tune. Did your string stretch? Well, your bow's tune changed. Did your peep sight slide up in your string? Your tune changed. Did you bump your arrow rest just a smidge? Your tune changed. Did you get different arrows? Your tune changed. And on and on it goes.

Now, add in the human factor with a shooter who is susceptible to form variations from shot to shot, and it's no wonder a bow that is "perfectly tuned" one day may seem anything but the next.

Fortunately, today's bows are more consistent and tunable than ever, and you don't need to be a techno wizard to shoot well. In fact, heeding even a handful of tried-and-true tuning tips will put you well along the path to success. Here are four worthy of consideration as you prepare for fall hunts:

1. SHOOT STIFFER ARROWS

Whether driving a sports car or shooting a bow, there is a very real temptation to take speed to extremes. After all, both car and bow manufacturers use bold claims to market their products, and if you plunk down your hard-earned money for something capable of going really, really fast, well, by golly, you want to feel the thrill!

Unfortunately, driving a car at breakneck speed can have disastrous consequences, as can shooting lightweight arrows in an effort to maximize the speed of your hunting bow. Every arrow shaft has a "spine" rating that refers to the stiffness of the arrow. The stiffer the arrow, the heavier the spine, and the more flexible the arrow, the weaker the spine.

Lightweight arrows tend to have a relatively weak spine, meaning the arrows flex more easily. When a weak-spined arrow is shot from a compound bow with a high draw weight and high-energy cam system, that arrow will flex wildly, resulting in erratic flight and poor accuracy. In extreme cases where arrows are severely "underspined" for the bow, it can lead to arrow failure, bow damage and even personal injury for the shooter.

Bow-tuning guru Travis "T-Bone" Turner, who along with Michael Waddell and Nick Mundt forms



PHOTOS COURTESY OF TRAVIS TURNER

Noted bowhunter Travis "T-Bone" Turner is a big fan of shooting heavy, stiff-spined arrows because they are easy to tune, fly great in the wind and penetrate deeply into big game such as this handsome whitetail buck.

the famous Bone Collector trio, avoids those pitfalls by shooting heavier, stiffer spined arrows from his hunting bows and recommends others do the same.

"Speed sells, and a lot of people go down that road of trying to get faster and faster by choosing too weak of an arrow, spine-wise, and that makes it hard to tune," Turner said. "I'd rather my arrows be way too stiff than not stiff enough."

In addition to flying more accurately and consistently, Turner noted stiffer-spined arrows have added weight (mass) that allows them to soak up more energy from your bow, resulting in a quieter shot with less vibration. Equally as important, Turner noted, that added mass will help the arrow track truer through the wind and maintain more energy in flight for increased penetration into the intended target.

A well-tuned bow is an accurate bow, capable of producing Robin Hoods such as this one shot by author and Editor Christian Berg.



4 SIMPLE BOW-TUNING TRICKS

"I'll gladly give up 20 fps in speed for a quieter arrow that flies better through the wind and gives me more penetration," Turner said. "At the end of the day, accuracy and forgiveness are key. A slow hit is better than a fast miss, and if your groups tighten up even half an inch, that's a *lot* in the scheme of things."

2. TUNE YOUR CAMS

The design and build quality on today's hunting bows are amazing, so it's rare to find a rig with a truly jacked-up cam system. Still, your bow needs to be tuned for *you*, and taking the time to address any issues with cam timing and/or cam lean is definitely worthwhile if you want to maximize accuracy.

Most of today's top hunting bows feature dual or hybrid cam systems designed so the top and bottom cams reach full draw at *exactly* the same time. (Note: Even single-cam systems are designed to travel a set distance that matches your draw length, so don't think this topic is unimportant if you shoot a single-cam rig.)

If the cams on your bow are not in sync, one cam will reach full draw sooner than the other. This will cause imperfections in your vertical nock track and also make it very difficult to anchor consistently at full draw because one draw stop will hit the limb or cable before the other. Creeping just a little bit on one shot and pulling just a bit harder into the back wall on the next will result in variations in your arrow's point of impact — not good.

"The two cams are meant to work together, and cam synchronization is critical for good, consistent shot groupings," said Brian Glenn, co-owner of Archery at the Glenn in Allentown, Pa. "Fortunately, it's not that hard to do. You just have to tinker with it until you get it just right."

Whenever setting up a new bow or tuning a used one, Glenn checks the cam timing on a draw board. If it is off, he corrects the issue by adding and/or removing twists from the cables until the cams move in harmony. Even then, Glenn said,



Brian Glenn, co-owner of Archery at the Glenn in Allentown, Pa., says proper cam timing is critical for consistent shooting.



It is easy to check cam timing using a draw board and make adjustments if necessary. In this case, the Mathews V3X being checked displayed perfect cam synchronization, with both top and bottom draw stops contacting the cables simultaneously.

additional fine adjustments are sometimes required because the shooter's hand pressure on the bow grip, wrist position and even hand torque can cause slight variations in cam timing. The key, Glenn said, is having someone else watch the cams while you shoot and make sure the perfect result you saw on the draw board is duplicated while you shoot. Like so many other aspects of bow-tuning, it seems perfect cam timing is shooter-dependent.

A final note regarding cam timing is that once proper timing is set, you *must* check the position of the nock set or D-loop to ensure it is aligned with your arrow rest, since adding or removing cable twists to adjust cam timing will move your nock point slightly up or down the bowstring, depending on how you are adjusting the timing.

Once you're confident your cams are perfectly timed, you'll want to inspect them for cam lean. The goal, of course, is for the cams to remain perfectly centered throughout the draw cycle and shot, as any sideways lean means side-to-side string movement upon release and erratic nock travel that will reduce accuracy.

As with cam timing, it is rare for today's cam systems to exhibit severe cam lean, though even moderate lean can cause issues. The good news is fixing cam lean is often a simple matter. For example, in many cases a leaning cam can be brought into proper alignment by adding or removing a couple twists from the split yoke of your cable. And on Bowtech's innovative DeadLock cam system, you can move the cams left or right along their axles with the turn of a screw. Other manufacturers, however, require the use of axle-mounted shims to adjust cam position, and in these instances, Glenn highly recommends seeking assistance from your local pro shop to avoid further problems, or possible damage to your bow during the installation process.

3. PAPER TUNE YOUR REST

If you've ever noticed your arrows fishtailing as they come out of your bow and speed toward the target — and honestly, we all have — that means the arrow isn't coming straight off the bowstring and your vanes are working overtime to stabilize its flight. Not only does this erratic launching action degrade accuracy, it wastes energy better directed at your target.

Paper tuning is a great way to improve arrow flight, and assuming your cams are already tuned as described in preceding tip, you can typically accomplish the mission simply by looking at the tear marks your arrows make in the paper and adjusting the vertical and/or horizontal position of your arrow rest accordingly.

In order to paper tune, you'll need some kind of frame to hold the paper while you shoot. Your local pro shop likely has a paper-tuning frame you can use for a few bucks. You can also rig one up yourself using a spare cardboard box or purchase an inexpensive kit such as the Paper Tune-It (\$14.95 | 30-06outdoors.com).

Once you have your paper in the frame, simply place it in front of a target and shoot through it from three to five feet away. Make sure there is enough room between the paper and the target for the arrow to pass completely through, and also make sure you are shooting straight into the paper rather than at an angle.

After shooting, examine the hole made by your arrow shaft and vanes and move your arrow rest accordingly. If your vanes are tailing to the left, move your arrow rest to the right. If your vanes are tailing right, move your rest left. If your vanes are tailing high, raise your rest. And if your vanes are tailing low, lower your rest.

In cases where you have multiple issues to correct, such as your arrow tailing low and left or

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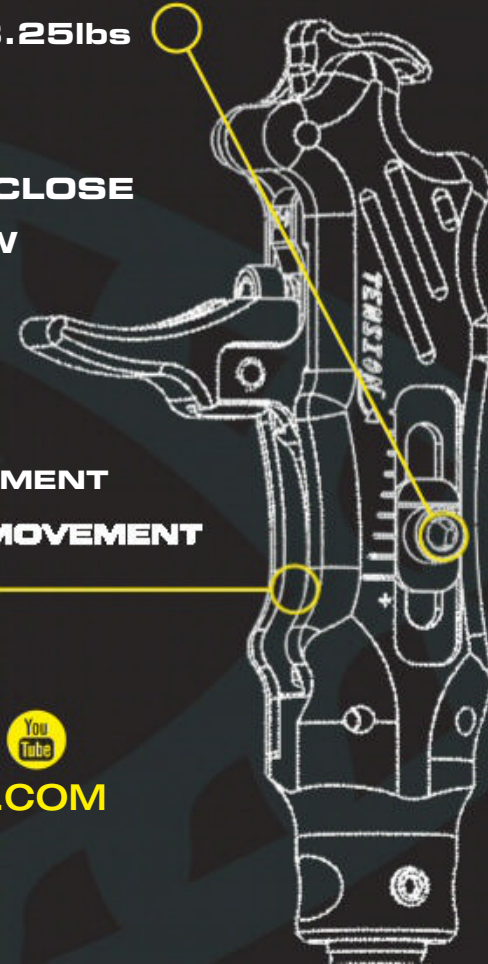
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4 SIMPLE BOW-TUNING TRICKS



Paper tuning is an easy way for any bowhunter to improve arrow flight by bringing the arrow rest into proper alignment with the bowstring. It can also help identify problems with arrow spine and hand torque.

high and right, first fix the vertical tear by raising or lowering your rest and then fix the horizontal tear by adjusting the rest's left/right position.

As you are working through the process, Turner said, you shouldn't worry about moving your rest too much. After all, you can always move back in the other direction. "I'll move it hard one way, because I want to see results," he said. "If the paper is responsive to me moving the rest, I know I am going to find a good place eventually."

At the end of the process, you should be able to shoot through the paper and see a perfect "bullet hole," or the circular outline of your shaft in the middle, with each vane making a small slit as it passes straight through the paper.

One last note from Turner; sometimes, you make adjustments to your arrow rest while paper tuning but just can't seem to solve the problem. If that's the case, he said it's almost certain you are either shooting arrows with too weak a spine for your bow (more likely) or imparting severe hand torque on the grip as you shoot. So, try switching to a heavier arrow as described in our first tip, and have someone watch your bow hand closely as you shoot to ensure you aren't giving the riser a death grip.

4. LEVEL YOUR BOW SIGHT

Most bowhunters know leveling the second and third axes on their sights is important for maximum accuracy. However, I am convinced most of them don't bother to do it. That's too bad, because it's not all that hard, and having your sight properly calibrated is critical if you want to make an accurate shot when shooting at long ranges and/or steep angles — both pretty important in bowhunting situations.

Before calibrating your sight, a quick explanation of the first, second and third axes is in order. I think one way to help you understand quickly is correlating them to the aeronautical terms pitch, roll and yaw.

The first axis on your sight is equivalent to pitch, such as when an airplane lifts its nose up or points it down. On your sight, this would equate to spinning your pin housing top over bottom or bottom over top — rotating either toward you or away from you if you are standing behind the bow.

The second axis on your sight is equivalent to roll, such as when an airplane dips one wing and causes the other to rise. On your sight, this would equate to your sight pins rotating clockwise

(right) or counterclockwise (left) when standing behind the bow. If your second axis is not properly aligned, your aim will be off in the direction the pins are rotated, and the margin of error will increase as shot distance increases.

The third axis on your sight is equivalent to yaw, such as when an airplane turns to the left or right even though the wings may remain level and the nose doesn't move. For this axis, imagine a vertical line through the center of the airplane and the plane spinning left or right on that axis. On your sight, this equates to your pins either pivoting in closer to the riser or pivoting outward further away from the riser. If your third axis is not calibrated correctly, your sight's bubble level will "lie to you" (not be accurate) when shooting steeply uphill or downhill, causing you to tilt your bow even though you think it is level. As a result, you will miss in the direction your limbs are tilted.

Most compound bow sights do not offer first-axis adjustment. Rather, manufacturers build them to mount level when attached to your bow.

Calibrating your sight's second and third axes requires you to orient your sight's bubble level using additional horizontal and vertical levels as a point of reference. There are a variety of ways to accomplish this task while the sight is mounted to your bow. However, it is far easier to do by taking the sight off the bow and leveling it with the aid of a specialized tool such as the October Mountain Products Axis Sight Leveler. Such tools make it easy to make second- and third-axis adjustments in mere minutes, allowing you to then re-attach your sight to your bow and shoot with complete confidence, regardless of shot distance or angle, so long as you check your sight's bubble level to confirm your bow is level prior to releasing the arrow.

For more information about sight leveling with the Axis Sight Leveler, refer to my *Field Tested* product review on p. 60. **B**



Although most bowhunters don't take the time to calibrate the second- and third-axis settings on their sights, doing so is actually a very simple process when using a tool such as the Axis Sight Leveler from October Mountain Products.

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BOWFISHING

Road Trip!

By Will Brantley

There's a rumor around the fish market about a group of good ol' boys from Pennsylvania who took a bowfishing vacation to Kentucky and shot so many carp they sold them, at 9 cents a pound, and made enough money to cover the entire trip.

Consider that. Let's assume there were three buddies in that crew, traveling on a budget. They slept in the truck, eating nothing but Vienna sausages and crackers for five days. Fishing licenses, incidentals and fuel would still push the cost of that trip to a thousand dollars, at least. You'd need to sell five and a half *tons* of carp to cover that. The average silver carp weighs 15 pounds, give or take, so my math puts that at 7,400 fish.

My arms would get tired.

Of course, anyone who can shoot carp for five straight days and then sleep in the truck without a shower is a tough son of a gun indeed. My guess is those Pennsylvania boys splurged for a motel room, and maybe a barbecue dinner, too. And if they did, paying the tab on the trip took even more carp shooting than I'd originally figured.

What a fish story! But considering I heard it straight from the manager of Aquatic Protein LLC, in Eddyville, Ky. — the very market that bought those carp — I know at least the gist of it is true. Besides, I've done enough bowfishing around here to know killing carp by the thousands really isn't unusual.

A Fish a Minute

There are several species of invasive Asian carp, but two of them — the silver and bighead — are the most noxious. Depending on which biologist you speak with, these fish

rank right up there with feral hogs as the most destructive invasive critter in North America. Filter-feeding plankton eaters, the fish gobble up the bottom of the food chain and in the process, starve out native shad and other baitfish that depend on the same microorganisms. Meanwhile, their growth and reproductive rates are astounding. Females of both species can lay 1 million eggs per spawn. The bighead variety can top 100 pounds. Silvers, as mentioned above, average just 15 or so pounds, but you'll skewer a 30-pounder or two during any good day of bowfishing for them. Silvers are also the jumping species responsible for occasional dental rearrangements of unsuspecting boaters.

At the risk of playing on words, bowfishing opportunity is one silver lining of having these fish around. They are so numerous that shot opportunities can seem almost infinite under the right conditions. Connecting with a massive bighead in open water is a handful, too; far different than shooting a 5-pound common carp on a mudflat. If you enjoy bowfishing at all, a road trip to the Lower Mississippi River drainage and the Asian carp epicenter should be on your radar. But there are a few things to know first.

Where to Go

Asian carp are now found throughout the Mississippi River drainage, but a few hotspots stand out. According to the U.S. Geological Service, the highest densities of both silvers and bigheads are found around a few major tributary confluences. There are a bunch of carp in the lower Illinois and Missouri rivers, but arguably the highest densities are near the confluence of the Ohio and Mississippi in Kentucky, Illinois and Missouri, and in the Cumberland

WANT TO SHOOT 1,000 BIG FISH IN A WEEKEND?

*Here's Your Primer for an
Invasive Carp Adventure!*



*This shot represents a nice
haul of carp — from just
30 minutes of shooting!*



*In some areas, concentrations of invasive
Asian carp are so high it is not unusual for
a group of bowfishing buddies to shoot
thousands of fish in a weekend!*

PHOTO COURTESY OF CAJUN BOWFISHING

BOWFISHING ROAD TRIP!



Although many bowfishermen prefer to go out at night, excellent carp shooting action can be found during the day. Good polarized sunglasses make it much easier to spot fish in murky water.

Tennessee river tailwaters below Barkley and Kentucky dams in Kentucky. Having lived in that area most of my life, and bowfished below both dams extensively, I can tell you there will be plenty of carp left when you get here.

These are big-river fish. Though you can at times get some shooting from the bank, you really need a boat to get into the reliable action. For running a place such as the lower Ohio or Mississippi, you need something seaworthy, with enough reliable outboard power to get you out of a jam. I run a 16-foot, 48-inch-wide War Eagle with a 40-horse outboard, and it's just enough on a calm day. Most serious bowfishermen in this area run bigger boats with 75-horse outboards, both for security and the additional floor space and cargo capacity. Fish weighed by the ton can capsize a little boat pretty quickly.

Many bowfishermen prefer to shoot at night, and for that, raised shooting platforms with halogen lights powered by portable generators are standard equipment. Be advised, though, that invasive carp (particularly bigheads) are noise sensitive. Some shooters have better luck by shutting off the generators and using bow-mounted or hand-held, battery-powered spotlights.

You can probably shoot more fish at night, but personally, I'm not a night owl — and I've always found more than enough fish to shoot during the day, as long as I'm wearing good polarized sunglasses. Here again, a raised shooting deck helps, particularly on days with a little cloud cover or surface chop, and even more so with multiple shooters in the boat.

Finding Fish

You can shoot carp in these waterways 12 months out of the year, but the action is at its best in late spring through summer, partially because the river levels and flows are steady and predictable that time of year, but also because

the fish reliably feed up on the surface when it's warm. I'd make the trip in late June or July if I were coming. Watch the weather to pick a few days of still winds and bright sunshine, particularly if you're shooting in the daylight.

Roaming schools of silver carp might number in the hundreds or thousands, and on calm days you can spot them by the wakes they push just under the surface, and their white, softball-sized mouths seining phytoplankton from the water. Look for them where hard barriers create breaks in current. Dam faces, navigation locks, wing dikes and riprap shorelines and cuts are always good starting points. Motor upstream and then drift down, using only your trolling motor to keep the boat straight. If you stay quiet, fish are pretty tolerant of boats until you're just within bow range. During the day, position yourself against the sun to keep from casting shadows. When you make contact with a school, kill all you can and then drift well beyond them downstream. Then fire up your outboard and run upstream for another drift. Most schools will give you three or four flurries of good shooting before sinking out of sight and moving on.

If main rivers aren't producing many fish sightings, try pulling into nearby tributaries or, if the water is high, into the backwaters of flooded crop fields. You generally won't find large fish there, but schools of juvenile silvers pour into the shallows in the summer, and it can make for some action-packed (and challenging) shooting. If you're feeling especially sporty, these are the areas where you can trim up the outboard, put a buddy at the stern and plow a wake to make the fish jump. Aerial shooting is fun, if not real effective.

Targeting large bigheads is more of a big-game hunt. These fish frequently mingle with schools of feeding silvers, but they're spooky enough that you'll rarely see them if you're shooting at the silver carp. Once the itch has been scratched — maybe after fish No. 50 of the day — slowly drift past schools of silvers, keeping still and quiet and



Backwaters and feeder creeks can offer good shooting for juvenile carp in the late summer.

Go-to BOWFISHING GEAR



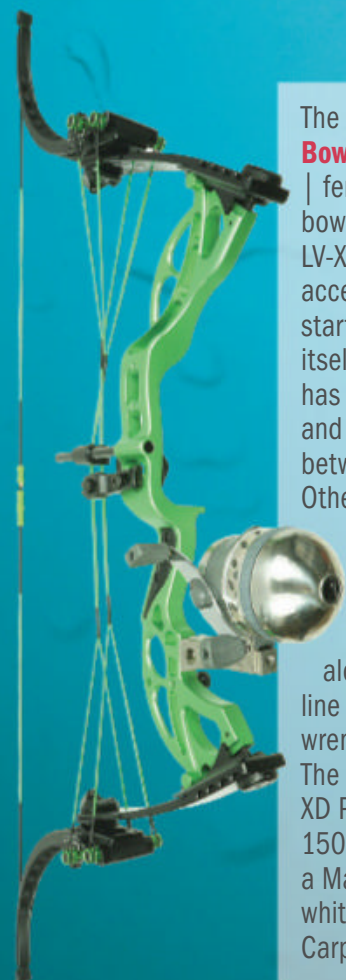
The **AMS Bowfishing Retriever TNT** (\$149.99 | amsbowfishing.com) is an upgraded version of the company's best-selling Retriever Pro, featuring a larger, internal brass gear, stronger line and a stronger, high-torque handle. The made-in-the-USA Retriever TNT also features an improved gear ratio, allowing you to retrieve an amazing 27 inches of line with every crank of the handle. That means you get your arrow back to the boat faster, so you can shoot faster and put more fish in the boat! Like all Retriever reels, there are no buttons to push; simply draw and shoot. The 35 yards of included Spectra line is rated at 350 pounds but is very thin to allow for long, accurate shots.



The new **Cajun Bowfishing Sucker Punch Pro RTF** (\$449.99 | beararchery.com) is a ready-to-fish kit that comes with everything you need to hit the water. The Sucker Punch Pro is a 31-inch axle-to-axle bow with an all-new limb and riser design to make it lighter and more maneuverable than the original Sucker Punch. The bow weighs just 3 pounds and is designed to be finger shot with its 20-50-pound draw weight, 65 percent letoff and deep-channel string grooves on the cams. Draw length is adjustable from 17-29.5 inches. Finish options include Cajun Red, Patriot and new Cajun Glow camo that glows in the dark. The kit also includes a Cajun Winch Pro reel, Brush Fire arrow rest, Blister Buster finger pads, red fiberglass arrow with Piranha point and riser-mounted Picatinny rail/line puller.



The **Fin-Finder Splashlight Bowfishing Light** (\$81.99 | fin-finder.com) offers a quiet and convenient option to light up your night on the water. Featuring a remote pressure switch that can be mounted on your bow grip and a threaded end cap that attaches directly to your stabilizer mount, the Splashlight has a powerful, 600-lumen beam to help you locate and shoot fish. An included end cap switch also allows you to use the Splashlight as a handheld flashlight when needed. Also comes with rechargeable battery, charging dock and AC and DC charging cables.



The **Muzzy Bowfishing LV-X Bowfishing Kit** (\$629.99 | feradyne.com/muzzy-bowfishing) includes the LV-X Lever Bow and all the accessories you need to start shooting fish. The bow itself weighs 4 pounds, has an 8-inch brace height and letoff can be switched between 0 or 60 percent. Other highlights include an adjustable draw length from 26-29 inches and adjustable draw weight from 25-50 pounds, along with an integrated line puller and adjustment wrench built into the riser. The kit also includes Muzzy's XD Pro Push-Button Reel with 150 feet of 150-pound line, a Mantis II arrow rest and a white fiberglass arrow with Carp Point.



The **Innerloc Gripper Point** (\$22.04 | innerloc.com) is built on the solid foundation of the company's proven Grapple Point. The Gripper Point keeps all of the Grapple's functionality while adding a revolutionary, longer barb featuring a beveled wing that twists off the side and wraps around the point's body. This adds substantial gripping power to the point, resulting in unbelievable holding power. Made with heat-tempered stainless steel, Gripper Points also have anti-vibration tips and are available for $\frac{5}{16}$ - and $\frac{2}{64}$ -inch bowfishing arrows.

The **TruGlo Carpedo Bowfishing Arrow** (\$22.99 | truglo.com) is bad medicine for invasive Asian carp. The fluorescent green fiberglass arrow has TruGlo's 575-grain, hardened stainless steel Carpedo point on the business end to punch through scale and flesh and hold tightly during the ensuing fight via the built-in, toothed mechanical barb. Meanwhile, the rear of the arrow has an installed nock and safety slide.

-EDITOR CHRISTIAN BERG

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BOWFISHING ROAD TRIP!



The author grips an average-sized bighead carp.

watching for the dark shape that's three or four times the size of all the rest. Bigheads are frequently seen alone, or in small pods of up to a dozen fish. Outside schools of silvers, I run into them most frequently as they hold in heavy current immediately downstream of breaks, such as giant logs and anchored barges.

Gearing Up

Compared to common carp or gar, the bodies of silver and bighead carp are easy to penetrate with bowfishing equipment. They have tiny scales, thin skin and light bones that give them something of a hollow composition. From gills to tail, they're like shooting cantaloupe.

Still, you're in for a day of frustrating pull-offs if you bring a lightweight recurve, for a few reasons. For one, the soft flesh that's so easy to penetrate can become problematic during a long fight with a large bighead. Bowfishing arrows that don't punch two holes through the fish often tear loose. Plus, soft as their bodies are, these fish have thick, heavy skulls that I've seen even compound bows fail to penetrate.

Besides that, shots at open-water carp run on the deep side. It's not uncommon for an arrow to have to cut through a couple feet of water before hitting a fish. For all those reasons, I like to use a bow with plenty of *oomph* and some compounded power. My go-to options are an RPM Nitro, which is an Oneida-style recurve/compound hybrid, or a Muzzy Vice. Both are rugged, with stainless components designed for use around the water. I put rubber finger savers on the strings, and given the choice, I set nocking points

to shoot straight off the shelf. If I need a rest, the Cajun Bowfishing Biscuit is my favorite (though you can get the same effect by slathering the bristles of a standard Whisker Biscuit with super glue).

I've shot plenty of carp with retired hunting bows, too. Look for something with a longer axle-to-axle length if you're going to shoot with fingers (and note, there's absolutely nothing wrong with using a release aid when bowfishing). Though lighter draw weights will work, 50 pounds assures I have the punch needed.

There are also many different styles of bowfishing points. They'll all work, but for general utility and good flight, low-profile fixed points such as the classic Muzzy Gar Point work best for me, especially on those deep shots. They'll reliably penetrate and hold a big gar or grass carp, too, both of which you're likely to encounter in the same waters. I shoot them on regular fiberglass bowfishing arrows, always rigged with safety slides. Use whatever style of bowfishing reel you like best. That's an AMS Retriever for me, but some of the push-button reels with small-diameter line can help provide better arrow flight for longer shots.

Sell the Spoils

There was a time not so long ago when the biggest worry following a good day of carp killing was disposing of the bodies. It didn't take long for locals to object to piles of festering fish around area boat ramps — a practice now associated with a hefty fine. Cutting the swim bladders and sinking the fish was an option, but a messy, time-consuming one.

Now, just like those ol' boys from Pennsylvania did, there's a commercial market for bow-shot carp. Buyers such as Aquatic Protein in Eddyville will take fish off your hands (either for donation or the going rate; 9 cents per pound last summer). From there, the fish are trucked to processing facilities where they're turned into meal that is eventually used in things such as fertilizer and pet food. I've taken fish in myself, and getting paid was as easy as filling out a W-9 form.

Shoot enough fish, and you might even cover the note for your entire trip! **E**



The author's wife, Michelle Brantley, hoists a nice grass carp, another invasive species frequently encountered on a big-river trip in this part of the country.



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THE GREATEST

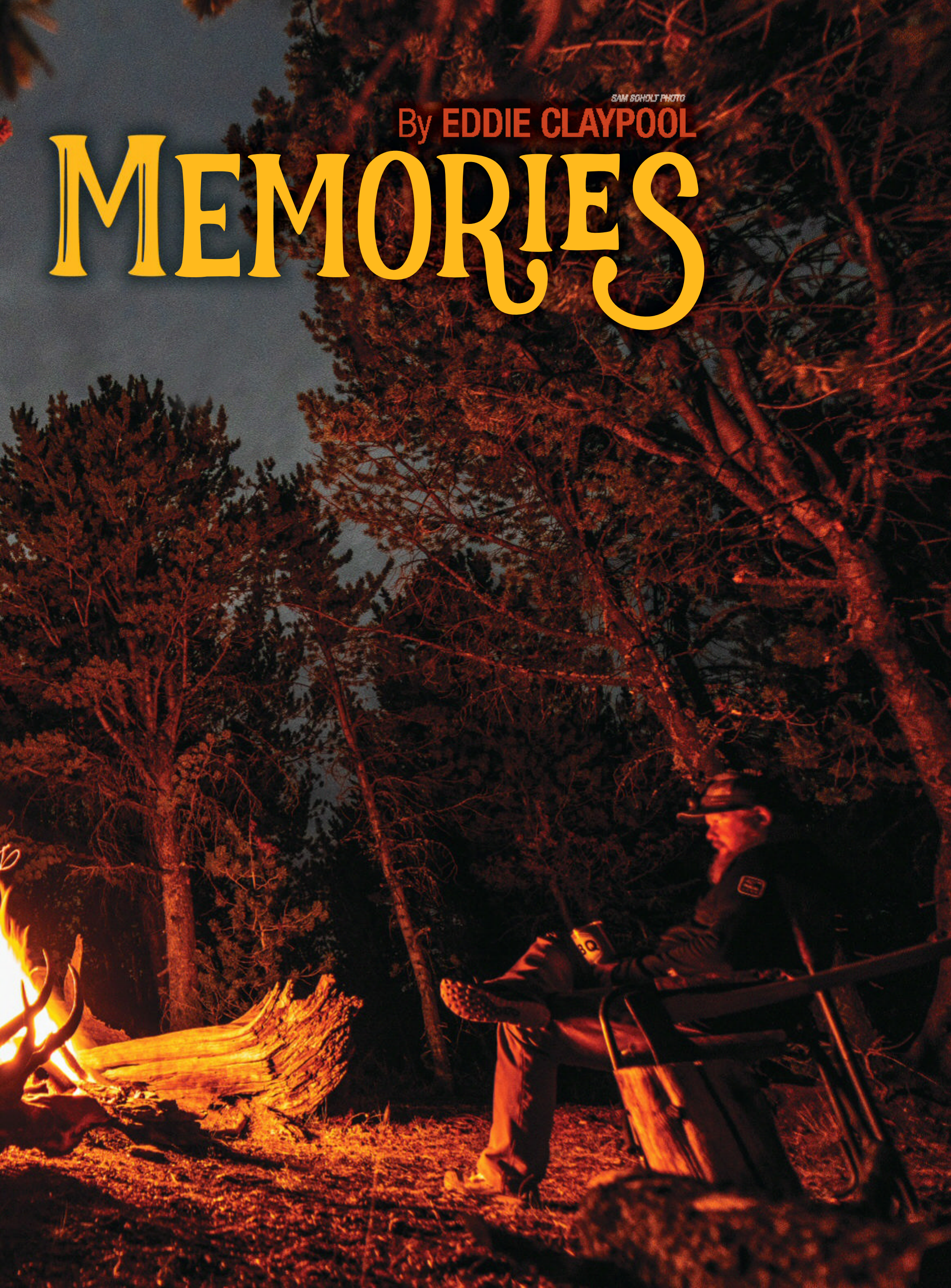
DO YOU LIKE SHARING your outdoor time with friends, or are you more of a loner? Do you like to mentor others, or do you enjoy being in the presence of sage, old veterans? Does having someone else with you when you're afield detract from your focus and enjoyment, or does it enhance it?

In my formative years, I spent most of my time afield with friends. For years, all my hunts involved other people, and I was blessed to have some great hunting partners. As I grew in passion and experience, however, my goals became much more serious. I slowly became more wary about involving others in my outdoor endeavors. And, as I look back on those days, I can now see clearly why very few of my hunting buddies hung around for long — I was a fairly meticulous sort of fellow!

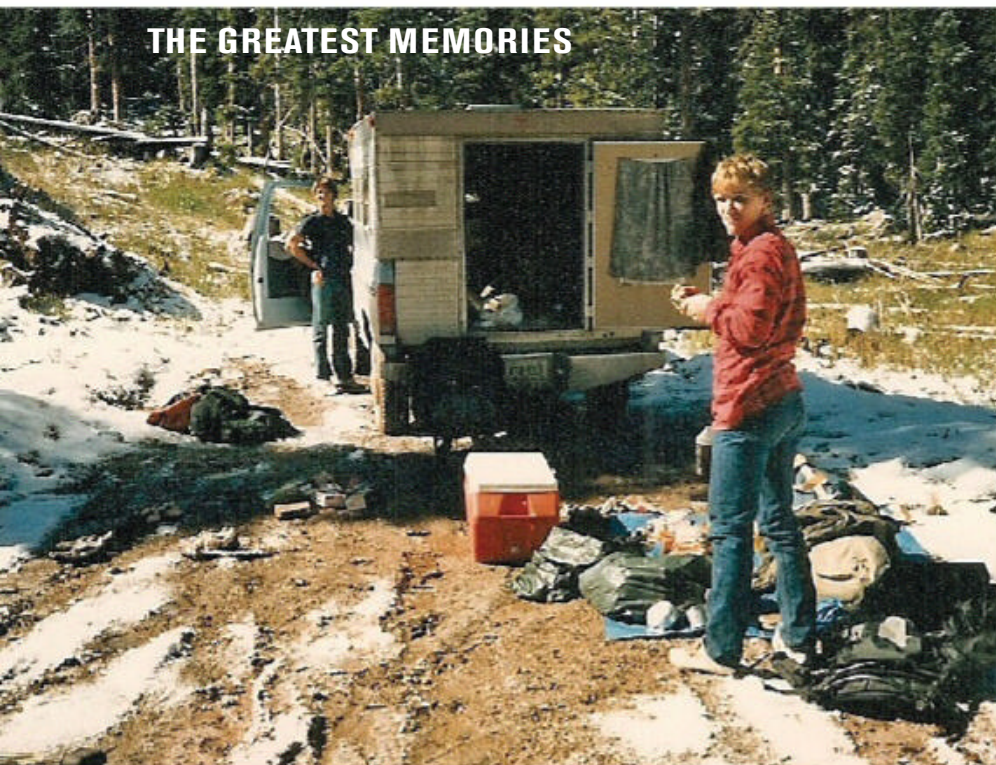
SAM SCHOLT PHOTO

By EDDIE CLAYPOOL

MEMORIES



THE GREATEST MEMORIES



Over the years, Field Editor Eddie Claypool has been fortunate to have several hunting partners who have become exceptional friends. In the 1980s, he spent time out west with the Green Family from Oklahoma. In the top left photo, Larry Green lays out hunting gear prior to heading into the Colorado backcountry as Eddie looks on, while on the right, brother Keith Green surveys the San Juan National Forest. In the bottom left image, Keith roasts liver from an elk taken by his dad, Doyle, on one of their hunts. Larry, Keith and Eddie often tagged-out when elk hunting, as evidenced by the photo on the bottom right.

In addition, my leave-it-all-on-the-field approach soon wore down even the toughest participants. I didn't grasp what was going on back then, but I can see it clearly now — I was a hard, unsympathetic, driven soul. As one of my hunting partners, you either fit into my plans or got left behind. Nevertheless, even through all those hardcore, crazy years, I was blessed to share some great times with some great friends.

In The Beginning

The first time I bowhunted elk — in 1980 — Mike Bates was with me. We'd only been friends for a few years, and this new undertaking would certainly either extend our friendship or terminate it. We spent three hardcore weeks backpacking in the alpine wilderness of Southwestern Colorado enduring nonstop hardships. Full of vigor, lacking on brains, we lived large and learned. No elk fell to our arrows, yet both of us knew we'd found a new life goal. And now, more than 40 years later, we're still friends and still share days afield together. That's quite an accomplishment!

The Wonder Years

When I first met the Greens — Doyle, Keith and Larry — I was about six years into my Colorado elk-hunting forays. I'd been harvesting good bulls for quite a few years by then, and it seemed that this attracted the attention of one of my

home state's local game wardens, Keith Green. When Keith and I first crossed paths in 1985, his questions about my elk-hunting accomplishments intrigued me. Why would this guy be interested in little ol' me? Turns out, Keith had been to Colorado elk hunting on his own and hadn't been successful. So, he was looking for some help. At the time, I wasn't interested in taking on any partners, so I decided I'd just put the Greens in some of my "secondary" elk country, figuring they would not be long for the endeavor. Boy, was I ever wrong on that one!

As a few more years passed, the Greens became constant fixtures around my Colorado elk-hunting efforts and with time, I slowly began to include them in my inner circle. They were hardcore, knowledgeable outdoorsmen, assets that came in handy many times when it came time to extract elk from the backcountry. The problem was they were soon killing elk every year themselves, often causing me more work than they were worth — ha!

When we finally joined forces, a hunting partnership that would last for years was forged. Eventually, we combined resources and embarked on joint ownership of a mule, trailer and some tack gear. For a few years, we were "death walking" on Colorado backcountry bulls.

We became “100 percenters,” filling all tags available on branch-antlered bulls, every season; we were at the peak of our mental and physical prowess and were a well-oiled machine.

During these years, there was no place too far or difficult to navigate — we were going where few men had gone before. Finally, as the '80s came to an end, my wanderlust spirit started to get the best of me, causing me to branch out toward new horizons. The Greens stayed behind and continued wreaking havoc on Colorado bulls as I headed for New Mexico.

Venturing South

The first year I went to New Mexico for elk, I included my brother-in-law Mark in the trip. He'd initially hunted with me the previous season in Colorado, and the Greens and I had helped Mark get his first archery bull. My brother-in-law had proven to be a good outdoorsman and a hard worker, and he and I had formed a close bond. This being the case, Mark was a natural fit for me to include in my exploratory trip to New Mexico. So, off we went!

By the time Mark and I returned from New Mexico, we both knew we had found a world-class resource. The Gila National Forest was a land of enchantment — full of big bulls, moderate terrain and mild climate — and few people. It was all we could ask for and more!

Soon after returning from our first trip south, the Greens began to grill me about our outing. Tight lipped at first, I soon cracked and began to reveal our findings. In no time flat, the Greens wanted a piece of *that* pie.

For the next half-dozen years, the Greens, Mark and I

partook of the secret bounty called the Gila. Word was just starting to get out into the hunting community about the elk that existed there and the commercialization of the resource was, as of yet, minimal. For years, our little crew of 'Okies' skimmed the cream off the top of a great elk resource. Many big bulls bit the dust and large antlers became standard fare. It wasn't uncommon for our group to cross paths with several bulls in the 400-inch range every trip, and 350-plus-inch bulls were standard fare.

Our crew worked together to cover a lot of the wilderness country of the Gila, enjoying much time afield. Slowly but surely word was getting out, however, and it wasn't long before the New Mexico Game and Fish Department stepped in and began to change the game. Tags became hard to draw and expensive, and hunting seasons were chopped up and made shorter.

As this era of our elk hunting lives began to unravel before our eyes, I saw the handwriting on the wall and decided to once again branch out into new horizons. The Greens hung on in the Gila for a few more years, only occasionally drawing tags. Mark was pretty much burned out on my approach to elk hunting by this point, and he soon fell out of my life as a bowhunting partner and brother-in-law (his sister divorced me around this time).

Mark and I remain friends to this day, even though our hunting partnership has long since ended. I also remain close friends with the Greens today, even though our elk-hunting forays have become nearly nonexistent. Everyone involved in these glory years treasures and respects each other immensely, and we all cherish the great times we spent together.



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THE GREATEST MEMORIES

Exploring New Roads

By the time I walked away from the Gila in 2001, the place was but a shell of its former self. Now conditioned to large-antlered bulls, going back to Colorado wasn't an option. So, where next? Deciding on Montana, I set out to establish a new era of my bowhunting-for-elk career.

Going at it solo, I soon learned the vastness of the Big Sky State. Intimidated by the overall amount and variety of elk country available, I wandered around all over the place for a couple of years. Slowly but surely, however, a couple of dependable destinations began to take shape. And, after a few years of hunting solo, loneliness began to tug at my heartstrings.

Enter Peggie!

Now, with a new mate, everything was exciting and new again. Having a helpmate, friend and new outdoor partner revolutionized my entire outlook.

About this same time, a young man named Travis Keith entered my life. Travis and I had hunted turkeys and whitetails together for a few seasons and a friendship had bloomed. Soon, I found myself wondering if he might be ready to tackle the rigors of a western hunt, so I popped the question. I was greeted with a firm "Yes!"

Deciding I'd test Travis on a Colorado elk hunt first, I invited him and his brother Shawn to meet me back in my old stomping grounds in September 2003. The outing went well, and I could sense Travis had the potential to make a good mountain hunting partner. Nevertheless, I hesitated on asking my new friend to join me in Montana; it would be a few more years before that would transpire.

When I finally established myself in the high country of Montana and was ready to share the resource, I then asked Travis to share an outing there with me. Loading up my truck with gear and mules, we headed afield for a two-week trip in mid-September of '09. Hitting the backcountry hard and fast, we had two bulls on the ground in short or-



Shortly after the turn of the century, Claypool started sharing his western hunts with good friend Travis Keith (left). A 2009 Montana archery excursion resulted in both bowhunters taking quality bulls.



The author poses with a big Iowa buck taken on an outing where he was joined by Teri and Dean Broecker (center and right) of Michigan. Sharing hunts and camp with friends makes the memories even more special!

der. Loading up heavy, we then headed back to Oklahoma with two sets of antlers and a bunch of meat, only 10 days after having left home. What a whirlwind of a hunt; everything had gone well. I now knew Travis was a dependable hunting buddy, and he is still a great friend and hunting partner today. It's quite a blessing.

The Golden Years

Nowadays, with my hardcore bowhunting life behind me, I cherish good buddies more than ever. I've made a few great hunting partners in the whitetail realm, and a few others while pursuing bears and pronghorns. One couple, Mark and Ann Regan of Idaho, were gracious enough to take Peg, Lulu and me under their wings a few years ago, helping us learn the ropes on spring bear hunting. This chance meeting blossomed into a great friendship, the likes of which none of us could have ever imagined. Now, we consider the Regans family and would go to bat for them anytime, anywhere. They're just really good people, and Peg and I plan on spending much more time with them in the future, God willing!

A few years ago, I acquired a great friend in Dean Broecker. Dean is a true "brother" in the world of whitetail hunting, as we understand each other on a close, intimate level. I'm hoping that he and his wife, Teri, will be able to share some camps with Peg and me in the future and we can make some new memories.

Friendships and hunting buddies like these are what make the world go around. They are hard to find, harder to keep and much greater than any antlered trophy you'll ever acquire. Treasure such bonds, and never compromise them. That way, when you're older, maybe you'll still have a friend or two around — not an easy accomplishment for grumpy old coots like me! **B**

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By **JON E. SILKS**

CROSSBOW TEST



Ravin Crossbows' new R500, released in late 2021, was the first-ever crossbow to launch bolts 500 fps.

RAVIN R500

This innovative crossbow offers exceptional accuracy and blistering speed.

SOME YEARS AGO, Ravin Crossbows burst onto the scene with innovative technologies such as HeliCoil Technology, a floating trigger box, Frictionless Flight System and more.

The company, however, had no intention of being a flash in the pan! Fast forward to 2021, and Ravin was the first crossbow manufacturer to top the once unthinkable 500 fps speed mark when it announced its R500.

Built to handle high-output performance, the R500 sports a stout machined riser, heavy limbs and a

rock-solid rail. The new HexCoil Technology takes Ravin's HeliCoil cam design to the next level, as the cams rotate 360 degrees before launching a bolt through the Frictionless Flight System for increased accuracy. Plus, the VersaDrive cocking system effortlessly cocks and de-cocks the bow, with no buttons to push or hold, and it works in conjunction with the Trac Trigger Firing System that places the trigger into a mobile sled that moves up and down the rail guide.

Coiled for the Strike!

Ravin's new HexCoil Technology utilizes a coiling cable platform similar to the original HeliCoil did. However, since the R500 uses crossover cables above and below the flight path, it coils them away from the cam centerline equally. This keeps the load on the cables identical top and bottom so they do not pull the cam one way or another (cam lean).

In the original Ravin models, the cams would draw toward the rail but stop short. With the new system, the cams continue inward through a cut-out in the rail, coming to less than

THE SPECS

Manufacturer: Ravin Crossbows, 715-718-3574; ravincrossbows.com

Model: R500

Safety Features: Anti Dry Fire, auto trigger safety, safety wings

Cam System: HexCoil

Axle-to-Axle Width: 7.6 inches (at rest); 3.6 inches (cocked)

String: 32.25 inches

Cables (x4): 9.44 inches

Limbs: Split, machined Avient Fiberglass

Draw Weight: 17 pounds, via Versa Drive cocking system

Power Stroke: 15 inches

Grip: RTP Pistol Grip

Forearm: RTP Flared Foregrip

Finish: Black

Advertised Speed: 500 fps with 400-grain bolt*

MSRP: Starting at \$3,049.99

Comments: A unique rig with phenomenal speed and hassle-free cocking/de-cocking.

*Bow must be shot with Ravin-approved bolts only.

SPEED & ENERGY

	BOLT SPEED	KINETIC ENERGY
420-GRAIN BOLT	492.6 fps	226.4 ft./lbs.
500-GRAIN BOLT	460.5 fps	235.5 ft./lbs.
403-GRAIN MFR. BOLT	500 fps	223.8 ft./lbs.

one inch from each other. This not only makes the R500 that much more compact, it also allows the cams to rotate a full 360 degrees and increase the power stroke to 15 inches. All this combines to deliver a 400-grain bolt downrange at a blistering 500 fps.

The crossover cable positioning above and below the flight path, coupled with HexCoil Technology, creates an ideal environment for Ravin's Frictionless Flight System (FFS). Rather than the typical system where a bolt rides the rail causing friction, the FFS suspends the bolt between the nock and built-in arrow rest, which greatly reduces friction. The results are increased string life, reduced noise and enhanced downrange accuracy.

Easy Draw & Mobile Trigger

The new VersaDrive system introduced by Ravin is extremely straightforward in its operation — you simply insert the crank handle and turn it clockwise or counterclockwise to cock or de-cock the bow. A dual screw drive rotates on a gear turned by the crank and moves the patented Trac Trigger Firing System up and down the enclosed rail guide. It takes a maximum of 17 pounds of force to fully seat the trigger sled at the docking station, and you can let go of the crank at any point in the process and it will not freewheel. The mobile Trac Trigger Firing System meets the string in the exact middle every time for perfect nock travel. As it is pushed onto the string, an audible double click indicates connection and Anti Dry Fire (ADF) and physical trigger safety are auto-engaged. An R500

BOWHUNTING Test Measurements:

Maximum Width: 12.25 inches (at rest); 8.125 inches (cocked)

Overall Length: 28.75 inches

Mass Weight: 8.69 pounds (crossbow only); 10.29 pounds (with accessories)

Average Trigger Pull: .94 pound

Length of Pull: 14.75 inches

Average Shot Noise: 112.3 dBA with 420-grain bolt; 110.3 dBA with 500-grain bolt

Maximum Shot Deviation at 35 Yards: .75 inch

specific bolt, which takes some force to seat onto the string with an audible click, is required to disengage the ADF.

Shooter Connection & Control

The shooter is primarily connected to the crossbow at four points: buttstock, cheek piece, grip and foregrip. All four have either a rubber overmold or inlay to enhance comfort, while the pistol grip — complete with contoured finger grooves — and flared foregrip provide control. Both the butt plate and cheek piece feature compression lock adjustments (approximately 5/8-inch on the buttstock and 1/2-inch on the cheek piece) that offer a customized fit.

What's in the Box?

The Ravin R500 crossbow package comes with the crossbow, a 100-yard

illuminated 550 FPS scope, 3-bolt quiver and mounting bracket, six Ravin ±.003-inch R500 bolts, six fieldpoints and removable crank handle.

At the Range

First off, the R500 lived up to its name by shooting exactly 500 fps for us with Ravin's bolt, which weighed in at 403 grains. So, is it a speed demon? Check!

The trigger pull proved super light — perhaps too light — coming in at less than a pound, according to our measurements.

The silent, dual-screw VersaDrive is as mechanically simple as you can get. Insert the magnetized crank handle and rotate it the way you want the trigger sled to move; there aren't any buttons to push or hold, and there are no concerns if you let go of the handle. The 17-pound cocking force is the hardest part about it, and you do need to make sure your fingers don't slip into the space between the docking station and incoming trigger sled or you will feel the pinch when you get to full draw.

The trigger safety lever and distinctly positive engagement of the specialized nock leave no doubt about whether the rig is ready to fire. Shot noise was just north of 110 dBA with a 500-grain bolt, which is somewhat high but not unexpected considering the incredible speed this bow generates. The length and width of the R500 make it one of the most compact crossbows on the planet — a feature that will be welcome in almost any hunting situation. **B**

**OCTOBER MOUNTAIN PRODUCTS
AXIS SIGHT LEVELER:**

SIGHT LEVELING MADE SIMPLE

SIGHT LEVELING IS one of the most misunderstood technical topics in archery.

While most bowhunters know that properly leveling the second and third axes on their sights is critical for accuracy in the field, few can explain why — and fewer still actually know how to accomplish the task.

The good news is that leveling your sight isn't as mysterious as you think. In fact, October Mountain Products has developed a new product that makes it easy for anyone to do the job in mere minutes. In testing, I was amazed at how October Mountain's Axis Sight Leveler simplified the sight-leveling process. This handy tool is an inexpensive investment in accuracy for any bowhunter who shoots at game from elevated stands, at steep uphill or downhill angles or from uneven terrain — which, when you think about it, is pretty much all of us!



\$40.99 / October Mountain Products,
717-492-8020; octobermountainproducts.com

Before I dive into the Axis Sight Leveler, I want to direct you to my bow-tuning article on p. 40 for a more thorough explanation of your sight's axes and why they are so crucial to bowhunting accuracy. For the purposes of this review, suffice it to say that if your second and third axes aren't properly calibrated, you will not shoot accurately at longer ranges or when taking steep uphill or downhill shots — all common bowhunting scenarios.

For those of you who have leveled bow-mounted sights by hanging a plumb bob and aligning the sight's bubble level at full draw, you know that process can be quite cumbersome. So, perhaps my favorite feature of the Axis Sight Leveler is that it allows you to level your sight before you ever attach it to the bow — or to remove your existing bow sight, level it and replace it while maintaining perfect calibration.

The Axis Sight Leveler is a sturdy unit made from machined aluminum and featuring integrated vertical and horizontal levels. There is also a set of mounting holes that accepts your sight bar or dovetail mounting bracket. Once you attach your sight to the Leveler, you can either

place it into an October Mountain Versa-Cradle bow vice and level it or simply use a C-clamp to mount the Leveler to any flat surface. If using the latter method, the Leveler has three built-in setscrews that allow you to fine-tune its position to bring both levels into perfect alignment.

Once the Axis Sight Leveler is leveled, simply follow your sight manufacturer's instructions to adjust the second axis. This should allow you to make adjustments so that the bubble level on your sight is perfectly aligned with those on the Leveler unit.

After setting the second axis, pivot the Leveler to a 45-degree upward or downward angle using the Versa-Cradle (or by using a shim if using a C-clamp). Next, adjust the horizontal level on the Leveler so it is centered. Then, follow your sight manufacturer's instructions to adjust the third axis. Again, this should allow you to make sure the sight's bubble level is properly aligned with the horizontal level on Leveler.

That's it! You can now mount the sight to your bow and be confident it is perfectly calibrated. For those who have leveled many sights in the past, I am confident you will find the Axis Sight Leveler a far faster, easier and more effective method than "the way you've always done it." And for those who have never leveled a bow sight, the Axis Sight Leveler is just the ticket to help you do so and enjoy the bowhunting benefits that come along with it! **B**

— Editor Christian Berg

COVERT OPTICS THERMX TRF:

FIRST OF ITS KIND

WHEN IT COMES to night-time hunting for predators and hogs, the majority of equipment on the market is geared toward firearms hunters, with few products designed specifically with bowhunters in mind.

Well, if you're an archery hunter who enjoys pursuing wild pigs, coyotes or other predators in low light, you're now in luck, since FeraDyne Outdoors has launched a line of thermal optics gear as part of its new Covert Optics brand.

One of the line's highlights is the ThermX TRF, which FeraDyne bills as the world's first thermal rangefinder. Designed to detect anything with a heat signature out to 1,600 yards, it can be used as a rangefinder and scouting tool when predator hunting, and it even has applications for deer hunting (where legal). For example, if you're in your trees-stand waiting for daylight, you can survey your surroundings to see if there are already deer in the immediate area, allowing you to properly position yourself for a potential shot when the first rays of light peek through. Similarly, you can scan the field as you're leaving in the evening to ensure you aren't spooking deer into the next county as you head back to the truck.

As far as operating the TRF, it's fairly simple, with three buttons atop the unit controlling all menu navigation and functions. To use the rangefinder, you simply power up the unit, hold the rear button down once you acquire your target and the distance is shown at the top of the display screen. If you continue to hold the button in, the TRF will remain in ranging mode until you take your finger off it.



\$2,499.99 / Covert Optics
270-743-1515; feradyne.com/covert-optics

Powered by a Lepton 3.5 micro core sensor with 160x128 sensor resolution and a 9hz frame rate (9 frames-per-second refresh rate), the TRF displays images quickly and offers a wide range of functionality and options. Imagery is viewed via the 1.5-inch color OLED display (160x128 resolution), with the unit offering 8X magnification, as well as a narrow, 7-degree field of view to help with target acquisition. If you need to adjust the display due to temperature or lighting conditions, there are four palette options: White-Hot, Black-Hot, Green and Color. Further adjustments to enhance image visibility can be done by manipulating the unit's brightness control.

As far as archery hunting with the TRF, the unit comes with threaded holes on both sides so it can also be mounted to a compound or crossbow as a thermal sight, where permitted. Zeroing-in is done via the Reticle Menu, which allows you to set and save different "pin" configurations, including the ability to change distances between pins and remove select pins if desired. The unit offers four preset options, including a single-pin setup, vertical bow (multi-pin) and setups specifically for FeraDyne's Axe crossbows.

All the pins are fully adjustable, with the ability to change elevation and wind-

age with the push of a button. To aid in pin positioning, the unit's Visible Laser Pointer (VLP) can be turned on via the menu, and the laser can be exposed by removing a screw on the front of the unit.

The TRF offers several options for pin sizes and colors, allowing you to customize the setup to your liking. If you're using the multi-pin configuration, setting the first pin automatically adjusts the other pins by the same amount, which is helpful in the calibration process. Display orientation can be changed via the menu to show images properly whether the unit is mounted to a compound or a crossbow. It's important to note, however, that if you plan to use the TRF as a sight, you'll need to purchase a mounting plate from FeraDyne (sold separately).

At only 3.4x3.25x1.5 inches and weighing just 7 ounces, the TRF is lightweight and compact, but it's also well built, with waterproof and shockproof construction to withstand heavy use in the field. If you're a hunter who's always looking for the ultimate challenge — such as taking down coyotes or hogs with archery gear at night — or you simply want to check the field before heading to your stand in the dark to avoid spooking deer, check out this thermal optics masterpiece from Covert. **B**

— Associate Editor Mark Demko



By **MARK DEMKO**

NEW GEAR



QUALITY SHOOTING RELEASE

\$199.99

Tru-Fire; feradyne.com/trufire

Tru-Fire's Exert offers the quality, fit and function of a competition-grade shooting aid in a release designed specifically for bowhunters. Highlighting this index-finger release aid is a precision milled, internal, dual-sear system designed to eliminate bow weight stack while offering a crisp, clean feel.

With micro-adjustable tension and travel, as well as more than an inch of adjustment on the body post, the Exert is completely customizable to your liking. The weight of the release is designed to improve follow-through, while the heavy-duty buckle strap keeps it firmly secured to your wrist.

Setting the Exert's trigger is done by pushing a button, and attaching the release to your D-loop is easy thanks to the open-hook design. A major plus is that the release folds back so you can tuck it out of the way, yet it's always at the ready to allow you to react quickly for a shot.



RANGEFINDING BINOS

\$2,899

Leica; leica-sportoptics.com

Geovid Pro 32 binos combine superior optics and precision rangefinding capabilities in a compact design, making them perfect for western hunts. Available in 8x32 and 10x32, they provide exact distances to non-reflective targets up to 2,500 yards away, with features like real-time ballistics calculations and advanced GPS tracking to guide you to your target. The binos offer exceptional clarity and light transmission, are 6 inches long and weigh only 30 ounces.

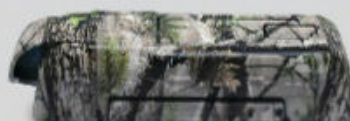


A STABILIZING FORCE

\$308.88-\$319.99

Stokerized; stokerized.com

Building off its SL Stasis and M1 Hunter, Stokerized's M1 Stasis stabilizer system combines the adjustability of the Stasis All Axis Pivot point, the SS1 offset bracket and the M1 small diameter, high-performance carbon tubing. It has a .563-inch outside diameter and is manufactured from the stiffest high-modular carbon, eliminating vibration and canceling dynamic shot movement. Available in 15- and 19-inch models; comes with M1 SS1 Bracket, six 1-ounce weights and two dampeners.



ESCAPE TROUBLE

\$119.99 PER 5

Cut N Go; thecutngo.com

You hope it never happens, but if you accidentally fall out of your treestand and are left hanging in your safety harness, you need a plan to free yourself. Enter the Cut N Go, a fully enclosed cutting implement that attaches directly to your harness and can be activated in the event of an emergency. Pressing the safety tab automatically releases the blade from its compartment, allowing you to free yourself quickly and easily. The Cut N Go is sold in packs of five, and it also comes with a bladeless practice tool.



AN EXCEPTIONAL REST

\$209.99

Vapor Trail; vaportrailarchery.com

Built off the popular Pro-V series, Vapor Trail's new Pro-VX incorporates a carbon fiber, overmolded cage — first introduced on the company's Gen 7 and Gen 7x models — to ensure your arrow is always in place regardless of position or movement. The rest includes all-new micro-adjustability for both windage and elevation, as well as a built-in bubble level for quick, simple setup. It also comes in numerous color options.



ONE TOUGH BROADHEAD

\$69.99 PER 3

*Dead X Bowhunting;
deadxbowhunting.com*

Billed as the world's largest fixed-blade broadhead, the Big Game 3 features a 1.8-inch cutting diameter, with three .062-inch-wide blades designed to wreak havoc on even the toughest game. The broadhead is built with a 100 percent steel ferrule and features Flight Geometry Technology to ensure stability in flight. Its 300-grain weight results in hard-hitting impact and deep penetration, even when up against large game such as bears and moose.



STAY WARM & QUIET

\$200 EACH

NOMAD; nomadoutdoor.com

Berber fleece, sound-limiting fabrics and four-way stretch design make the Cottonwood NXT collection ideal for hunters in search of apparel that's warm, comfortable and quiet. The jacket and pants feature a windproof membrane bonded to Sherpa-lined fabric and high-pile fleece. The jacket comes with two zippered front pockets, rangefinder pocket and safety harness port, while pants have a flexible waistband, removable suspenders and more.



ACCURATE & IMPACTFUL

\$499.99

SYKD; getsykd.com

The Vindicate XVC is designed to be both affordable and hard-hitting. This crossbow's 15-inch power stroke and 185-pound draw weight combine to launch bolts 380 fps, while the adjustable foregrip and tactical buttstock ensure a perfect fit. The Vindicate is 14.5-inches wide when cocked and 17.75 inches uncocked, and it weighs in at 7.95 pounds. A 4x32mm illuminated scope, rope cocking aid, three SYKD Hunt carbon bolts, 5-bolt quiver, limb dampeners and more are included.



BEST OF BOTH WORLDS

\$149.99

*Scott Archery;
scottarchery.com*

The Verge is a hybrid-style release aid that combines the positive mental and shooting-form benefits of a back-tension release with an index-finger design for superior accuracy and comfort. The two-finger trigger allows archers to execute shots using different finger-placement options, while the slim, open-hook design includes a pivoting swivel connection to reduce torque while anchoring. The release is fully adjustable for travel and tension.

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By **EDDIE CLAYPOOL**

THE STALK

Even when your mind's made up, plans can change.

JANUARY 1997 found me searching for big Coues deer bucks in some extremely remote, rough country in the bootheel of New Mexico.

Some years earlier, I'd found this whitetail paradise, only a few short miles from the Mexico border, and had fallen in love with the strange and intriguing flora and fauna of the high desert. This was the land of the Apache; the land where all the Westerns I'd watched as a child had originated. Nearby were landmarks such as Clanton Draw, Cochise Peak, Geronimo Trail and the Cowboy Rim. And it seemed to me this land was still just as wild as it had ever been; adventure was in the air.

Finding a small spit of public land, I'd parked my truck under a large live oak and declared myself camped. The higher, rougher mountains loomed only a short distance way, but accessing them on public land would require a hike of about three miles; no roads approached their base. Skirting some private-land holdings made my route to the mountains circuitous, and anything but easy. But there were mature Coues bucks up there, and I was determined to access their haunts.

With a two-week season at my disposal, and a couple years of experience under my belt, it was my intention to leave camp well before daylight every morning, hunt all day on the rocky, brushy slopes, then make a late-evening exit back to camp. I had adopted this approach after having spent a previous season bivouacked in



the mountains in single-digit nighttime temperatures. This year, I would spend the warm, midday times on the mountain, reserving the cold, dark nights for base camp.

Heading for the hills, I was soon glassing numerous Coues bucks. The rut was coming into full-swing and adolescent bucks were trolling the mountain slopes in search of females. Additionally, far down on the foothills of the mountain, a few random groups of desert mule deer could be seen wafting through the choya cactus thickets. And even though there weren't any big, male muleys present in these groups, I knew from prior experience the big boys would be arriving from their hideouts soon, as their breeding season was also approaching. Not really interested in mule deer, I'd always just considered these big-eared deer a bonus show.

By the end of my first week of hunting, I'd had a few close encounters with nice Coues bucks, but my tag remained unfilled. The action was getting better each day, as more, bigger Coues bucks were appearing in the area, continually. Secondly, the mule deer rutting action was increasing greatly also, and the flanks of the mountain were now crawling with some very solid bucks jockeying for position as harem leaders. I simply remained high up on the mountain, focused on whitetails.

One midday, after having banged my sight bracket on some rocks, I decided to head for base camp to shoot a few arrows into a target. As I headed down the mountain, I stopped to retrieve a drink of water from my fanny pack and distant movement caught my eye. Just ahead, a group of mule deer lounged in the shade of a yucca thicket. A mature buck was in attendance, and as soon as I took a closer look at the big-antlered fellow, my whitetail plans moved to the back burner. This was an extremely nice desert mule deer buck, and I knew I'd be nuts to not try for him.

Hoping my bow sight was up to the task, I began to inch forward. Crawling from yucca to boulder to mesquite, within half an hour I'd closed to about 50 yards. The lounging herd was oblivious to my presence, and the harem master was busily going from doe to doe, doing what rutting bucks do. As I crawled the last few yards, I readied for a shot. Coming to full draw, I estimated the distance at 40 yards, put the pin on ribs and touched off the shot. To my amazement, my arrow flew true.

A few minutes later, as I stood over the fallen monarch, my head was spinning. My hunt was over. There would be no big Coues buck for me this year, but I didn't care. I was more than happy with the trophy at my feet. Smiling, I grabbed my camera. **B**

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