



Twin City's Archery Association Inc.

Crossbow Hunting Manual & Code of Conduct

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Preface

The purpose of this document is to provide sporting crossbow shooters with the basics that are needed to become crossbow hunters. And provide a code of conduct for all members of the sporting crossbow community to abide by.

This document has been written in recognition of the need for the sporting crossbow community's requirement to achieve some type of self regulation.

Acknowledgement is given to the authors of Bowhunter Education for the basic structure of this document.

A number of respected hunters from The Bowhunters Group of Australia have also contributed to the content of this manual.

We would also like to thank John Clark of The World Crossbow Shooting Association for providing information relating to the history of crossbows and technical information in relation to the sporting crossbow.

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Chapter 1 Introduction

History of Crossbows

Throughout history the crossbow hasn't received the same favouritism as the vertical bow because it was commonly used by nobility for hunting leaving it beyond the reach of the commoner. (In England only the nobility were allowed to own a crossbow). Poachers were also believed to use crossbows in their exploits and as a result the crossbow became hated in the archery community. *(This is a myth -poachers never used the crossbow because they could not afford one)* Some heavy crossbows were responsible for horrific injuries during the Middle Age battles and were banned by Pope Innocent III. This is still a mentality that is adopted today within many clubs and associations.

Development of Sporting Crossbows

The modern sporting crossbow has reached new levels of performance that haven't been understood and as such they are not seen as a viable hunting tool but the contemporary sporting crossbows of today's day and age are equal to or in some cases more powerful than some vertical bows on the market. A high end compound bow and a modern sporting crossbow have very similar performances.

Benefits of Crossbow Hunting

The crossbow is easy for individuals to become proficient with in a short time giving the required pinpoint accuracy that is needed to harvest game. The crossbow can enable people to more effectively control pests in areas where rifles cannot be used. The crossbow also enables people who have suffered an injury to enjoy the sport also.

Challenges of crossbow hunting

Crossbow hunting is similar to hunting with a rifle as the bow can be spanned and loaded

at the ready when stalking creek and river beds. But that is where the similarity ends. The bolt still has the same trajectory as that of a vertical bow and skill is still required to judge distances and angles need to be considered. The effective hunting range of the crossbow is comparable with vertical bows.

Crossbow hunting motivations

Crossbow hunting is receiving more and more coverage every day with the introduction of clubs that support the crossbow and to some degree the authorities in Australia forcing the licensing or permit systems that are being introduced. All of these actions bring the crossbow to the public creating an awareness that didn't exist before. These actions have spurred people on and motivated them into becoming involved in a fast growing sport.

Chapter 2 Wildlife Conservation

Wildlife Conservation

The concept of wildlife conservation has been around since ancient times. Restrictions on taking game are mentioned in the Bible, and the first official hunting season may have been established in the 13th century by Kublai Khan.

Today, wildlife conservation has evolved into a science, but its goal remains essentially the same: to ensure the wise use and management of renewable resources. Given the right circumstances, the living organisms that we call renewable resources can replenish themselves indefinitely.

Preservation is another means of protecting or saving a resource by setting land aside as "forever wild." Preservation means no consumptive use of timber, wildlife, or other resources.

Wildlife management

Initially wildlife management was geared toward protection of a species and as a result areas thought not to have any native populations were quite often repopulated.

This caused problems with populations growing beyond expectation as the natural predators were no longer about to control numbers.

These hard lessons taught wildlife managers that there was more to conservation than just protecting wildlife. Nature tends to over produce its resources and good wildlife management produces a surplus that can be harvested by hunters.

The hunter's role in wildlife conservation

Since wildlife is a renewable natural resource with surplus, hunters help control wildlife populations at a healthy balance for the habitat. Regulated hunting has never led to threatened or endangered wildlife populations.

Hunting is an effective wildlife management tool. Hunters play an important role by providing the information from the field that wildlife managers need.

Wildlife Identification

Developing wildlife identification skills is a basic requirement for hunters. Mistakes can lead to illegal harvesting of game or non-game animals. To identify game properly, you must learn to recognize key characteristics of the animal you're hunting. Each state and territory in Australia has different regulations for game animals and feral animals that can be harvested with a crossbow, you should check with the authorities in your state.

Identification pages for feral pests are provided at the rear of this document for your convenience.

Control of feral pests

The crossbow in recent times has been proven to be a most effective tool for the eradication of feral pests in Australia. Just as the vertical bow, the crossbow has excellent short range "hitting power" and the projectile does not carry far.

Chapter 3 Safe Crossbow Hunting

Crossbow Safety

In many states of Australia crossbows are considered as a prohibited weapon and similar rules and regulations that apply to firearms also apply to crossbows. Always check the laws in your state and follow these rules.

- Only point the crossbow in a safe direction.
- Only **load** a bolt when it's safe to shoot.
- Be sure of your target and what is in front of it, immediately behind it, and beyond it.
- Never shoot over a ridge.
- Only shoot when you have a safe range or shooting area, and a safe backstop or background.
- Dry-firing a crossbow (releasing the bowstring without a bolt being loaded) is dangerous. It may cause serious damage to the crossbow and can injure the shooter.
- Shooting a bolt straight up in the air is unsafe.
- Keep your emotions under control and think about safety first.
- Do not drink alcohol or take mood-altering drugs before, during, or after shooting a crossbow.

- Handle bolts carefully. Protect yourself and the bolt points with a **covered arrow quiver**.
- Use a stringer for stringing your crossbow.
- Prior to each use, check your crossbow for cracks, dents, breaks, separating laminates, peeling glass, and defects in mechanical parts.
- Check the strings regularly and replace it if it becomes worn or frayed. Frequent use of bowstring wax greatly extends the life of a bowstring.
- Check bolts for cracks, dents, or bends and discard any that have permanent flaws.
- Immediately repair defects in equipment.
- Store your crossbows in accordance with the regulations in your state.
- Store bolts in quivers and accessories in a sturdy box or padded bag.

Crossbow Hunting Safety

Bowhunting safety rules define proper handling of equipment in transit or in the field. They supplement safety rules learned at home or at the practice range and include the following:

- Obey archery and field safety rules at all times while crossbow hunting.
- Hunt and shoot within your own physical limitations.
- Exercise regularly and stay in good shape, especially before strenuous hunts.
- Let family or friends know exactly where you will be hunting.

- Transport equipment in protective cases to prevent damage.
- For airline travel, use a protective hard-sided case that can be locked.
- Always carry broadheads in a sturdy quiver that fully covers razor-sharp blades.
- Dress properly for the worst weather conditions you expect to encounter.
- Carry basic survival gear every time you go a field, even for short hikes.
- Make every effort to meet agreed-upon deadlines with your hunting companions.
- Clearly identify the specific game animal you intend to shoot before shooting.
- Do not shoot at an animal standing on a ridge top (a “skyline” shot) where you can’t identify a safe background.
- Place bolts in a covered quiver prior to moving around in the field.
- Carefully cross barriers or obstacles with bolts securely in the quiver and crossbow unloaded.

Responsible Hunting Ethics

Many times the word ethics is used to describe “responsible” behavior. While the two terms are related, ethics are moral codes or values that go beyond formal laws and regulations. They are referred to as “unwritten laws”—the rights and wrongs that dictate proper behavior.

Crossbow hunting education teaches you how to be a responsible crossbow hunter by helping to lay the foundation for a personal code of ethics.

Ethics are what you use to make decisions about what to do when nobody is watching, or when there are no formal rules to tell you what is right or wrong. In a nutshell, ethics are what you think is right or wrong.

When you're hunting, you have to make the decisions not your instructors or even your friends or relatives. And just as you practice to become a good shot, ethical behavior must be practiced to be consistent.

Your ethical code doesn't just happen all by itself. Thinking about what you consider right or wrong is important. Consider how you'd feel after acting on a decision—would you feel proud or ashamed? And how would it affect other people?

To make ethics work for you, there are three steps to follow:

1. Notice that there are moral decisions to make for many of your actions, such as: "Should I shoot now and risk merely wounding the game, or should I wait for a better shot?"
2. Think about the consequences of those decisions and how they might affect you and others.
3. Do the right thing. That sounds simple; in real life, however, few answers are black and white. Your personal ethics will help you sort through the grey areas and any moral dilemmas you might encounter.

Respect Your Equipment

It is essential to use appropriate equipment for the game you are hunting. Many problems in the field are easily solved by a knowledgeable and prepared crossbow hunter.

- Select a crossbow that is properly fitted to you and that meets the

requirements of the game you plan to hunt.

- Ensure that the crossbow is in good operating condition. Make a habit of conducting a pre-hunt inspection of your equipment before each trip.
- Purchase bolts matched to the draw weight and draw length of your crossbow. Mismatching equipment can lead to poor accuracy, safety problems, and possible injury to you.
- Make sure that the bolts are straight and that their points are sharp and matched to the game you're pursuing.
- Tune your crossbow to the equipment (such as broadheads) you will be using for hunting.
- Assemble a repair and maintenance kit with spare parts and tools. Your local archery shop or weapons dealer can recommend items for your kit and give instructions on basic crossbow maintenance.

Respect the Landowners

Crossbow hunters hunt on private property. Treat the landowner's property as if it were your own. Maintaining a friendly relationship will ensure that you have a place to hunt from one season to the next.

- Ask permission before entering private property. Trespassing is a criminal offence—you can be arrested, prosecuted, fined, and even jailed. Obtaining permission to hunt on another person's land is both a legal requirement and a courtesy.
- Contact the landowner well in advance of your hunt. Obtain permission for companions who may come with you, and check with the landowner each time you plan to visit.

- Leave gates open or closed as you find them (or as requested by landowner).
- Drive only on existing roads approved for use.
- Don't walk across newly-planted fields or areas with crops ready to harvest.
- Don't litter, build campfires without permission, or drive spikes or nails into trees that may someday be harvested for timber.
- Take your rubbish home.
- Leave livestock undisturbed.
- Don't leave the remains of field dressing in places where it would be easy to view or smell. Bury, hide, or pack them out. Be especially diligent about this if the landowner has pets that might find a gut pile and drag parts of it home.
- Show your appreciation to the landowner by offering to share your game, helping with some chores, buying a small gift, or saying thanks in some other way.

Respect Game Animals and Resources

Respecting game involves following hunting laws, personal ethics, and the principle of **fair chase** in order to harvest wildlife humanely and maintain healthy populations. Responsible crossbow hunters:

- Take the animal with a well-placed shot in a vital area to avoid wounding.
- Ensure well-placed shots by knowing the maximum range for accurate shot placement for each animal hunted and staying within that range.

- Limit shots on big game to no more than 30 metres in cover and 40 metres in the open, which increases the likelihood of a shot in the animal's vital area. Most animals are shot at 10 to 15 metres, which should be your goal.
- Select the appropriate hunting tip or broadhead for the bolt and make sure all broadheads are razor-sharp.
- Use stealth ability to enter and exit a hunting area without disturbing wildlife or the habitat.
- Prior to the hunt, learn the game's habits and habitat. Observing and learning about all wildlife can be an enjoyable educational experience, as well as a way to build confidence needed for the hunt.
- Make every possible effort to recover wounded game.
- Always know where your companions are.

Respect Your Hunting Companions

Crossbow hunting is a great experience to share with friends and companions. There are four key ways to maintain friendships on a hunt.

- **Shared Values:** Crossbow hunting companions must respect wildlife, landowner relations, the rules of the game, and other considerations. If your hunting companions do not share your respect for crossbow hunting, you would be wise to choose other partners.
- **Dependability:** Hunting companions must be able to depend on one another and trust each other's word. Agreements are important on such things as the time to meet for the hunt, the time to stop hunting, and what hunting areas are assigned to each hunter.

- **Courtesy:** Be considerate and thoughtful of others. Avoid wandering around the hunting areas and walking up on your companions.
- **Communication:** Thoroughly discuss all important aspects of the hunt. Maintaining good communication with companions should eliminate most problems.

Respect Non-Hunters

Responsible crossbow hunters refrain from behavior that will turn people against hunting. Offensive actions include:

- Displaying vulgar or obnoxious bumper stickers or clothing slogans.
- Bragging or trying to start arguments with people who don't hunt or who oppose hunting.
- Using foul language in public places while wearing camouflage or other clothing that identifies the individual as a hunter.
- Going into public places wearing camouflage or similar clothing that has been doused with scent-covering odors.
- Wearing bloody clothing or unnecessarily displaying dead animals in public.
- Being disrespectful of landowners, their livestock, or any private property.
- Purchasing or drinking alcoholic beverages, being intoxicated, or being impaired by drugs prior to, during, or after a hunt.

Crossbow Hunting's Public Image

The way crossbow hunters speak and act in public makes an impression on non-hunters. Each hunter represents every hunter. Describing how "I stuck one but couldn't find it" in front of non-hunters is generally repulsive to them. Non-hunters can easily become anti-hunters based on the way crossbow hunters conduct themselves in public.

Crossbow hunters should be good ambassadors for the sport. Speaking knowledgeably will create goodwill. Be prepared with facts about the importance of bowhunting for the meat or as a valid wildlife management tool, the high recovery rate of wounded game, and the great safety record of crossbow hunting. When non-hunters receive the real facts about crossbow hunting, they are less likely to oppose it. Non-hunters' opinions or viewpoints may be changed by your conversation.

Refrain from publishing inappropriate hunting photographs.

Chapter 4 Know Your Crossbow

The Crossbow

A crossbow's general function is to store energy in a limb system and transfer the energy to a bolt when the string is released. While modern crossbows can shoot bolts up to 400 metres at speeds exceeding 300 feet per second (60 m/s), the crossbow is a short-range hunting tool. Depending on the circumstances, the maximum distance is 30 to 40 metres; and at that range, it's common for a bolt to pass completely through an animal. To ensure accuracy, most shots are taken at 10 to 20 metres.

Two Common Crossbow Types

There are two common crossbow types in the sporting arena; the most widely used is the recurve style and the other is the compound.

The recurve type normally has draw weights from 150lb to 225lb while the compound models are normally 120lb to 200lb.

The Bolt

A modern bolt can be described as the delivery system for the point. Points are available in a wide variety of styles and sizes, each of which serves a different function.

The Shaft

- The body of a bolt is called the shaft. Bolt (Arrow) shafts are made from aluminum, carbon, or a combination of aluminum and carbon.

Tubular Aluminum

- One of the most popular shafts used by today's active target archer and crossbow hunter.
- Made from specially formulated alloys and shaped into a wide variety of sizes, colors, and spines (stiffnesses) for virtually every need.
- Resistant to bending, the hollow shafts are lightweight and can be manufactured to close specifications.
- Most are equipped with internal bushings called inserts that can accept screw-in points.
- May be fletched with feathers or plastic vanes, depending on the shooter's personal preference.

Tubular Carbon-Fiber

- Fast and accurate, this design represents the leading edge of modern arrow shaft technology.
- Makes an extremely strong, lightweight bolt with a small diameter that reduces drag and increases arrow speed.

- May be fletched with feathers or plastic vanes, depending on the crossbowman's personal preference.

Matching Bolts to Your Crossbow

Bolts must be matched to your crossbow. Mismatched bolts may not fly correctly or accurately. Good bolt flight can be obtained if 10 to 16 percent of the bolts total weight with point attached is in the forward half of the bolt. Bolts that are too light for your crossbow may cause you to essentially partially "dry fire" your crossbow.

Bolt diameter is critical in a tracked crossbow.

Bolt length also must be matched to your crossbow.

Fletching

Fletching on a bolt shaft stabilises the shaft in flight by causing it to spin as it leaves the crossbow. Spinning keeps the bolt on its flight path and preserves speed, accuracy, and ultimately, impact energy. Generally speaking, the fletching profile needs to be more than the cutting diameter of the broadhead being shot, or bolt flight could be affected. There are several types of fletching. It is recommended that 4- to 5-inch straight fletching be used to compensate for broadhead size and weight. Common fletching materials are either plastic vanes or feathers.

The Nock

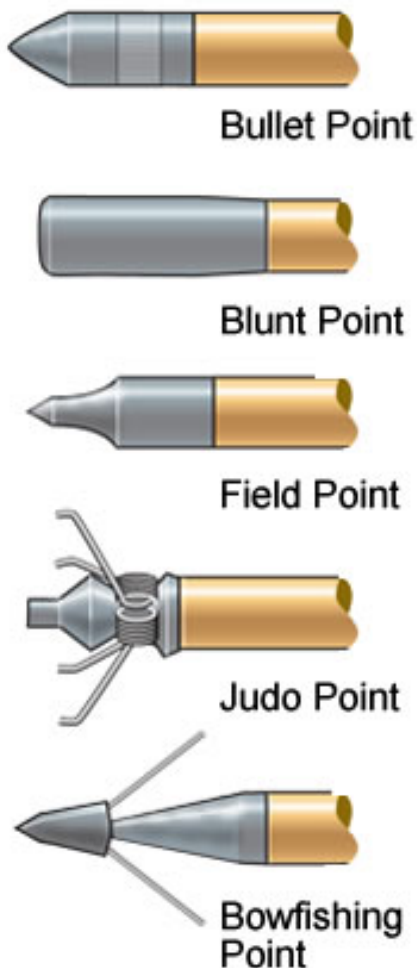
The nock of a bolt should be a flat surface no larger than the diameter of the bolt shaft. As most sporting crossbows have a bolt retainer to hold it on the track or rail they are not required to clip onto the string. More importantly the string should be of a sufficient diameter as to touch the bolt just above centre of the shaft.

Broadheads and Field Points

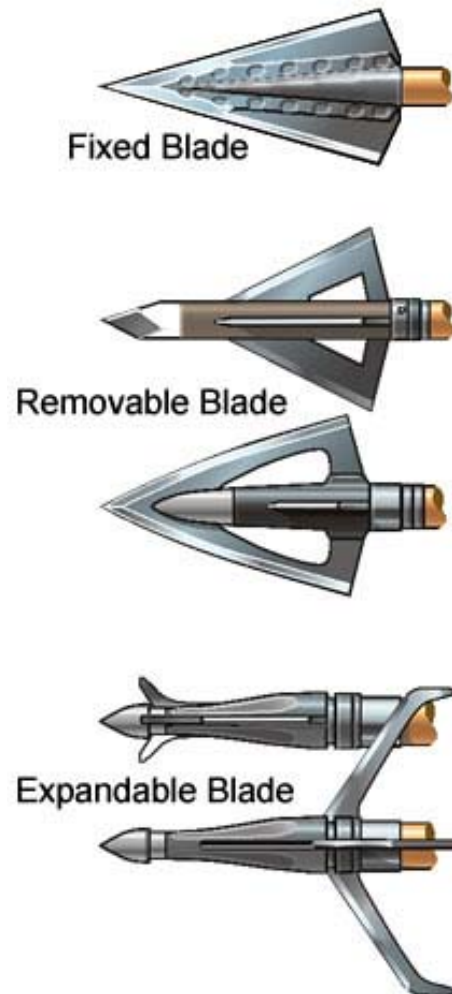
The point of a bolt defines its function. A bolt can be fitted with a variety of points designed for specific tasks, from target practice to big game hunting. The same dozen bolts, when properly matched to your crossbow, can be tipped with practice points before hunting season and later tipped with big game hunting broadheads that shoot equally well.

Points are available in numerous styles, shapes, and weights; and each is designed for a specific purpose.

Target, bullet or field points are used for paper, foam, straw or grass type targets and are used for target shooting.



Broadheads come in all different types and sizes but the common idea with crossbows is that a good 3 or 4 blade head should be used. However there are many crossbow hunters using 2 blade or fixed blade broadheads.



When selecting two blade broadheads you should look for long slender style of heads that group with your target points. If the broadheads do not group with your target points they are not safe to use with your bow.

All testing of broadhead flight should be done at close range to prevent stray bolts leaving the shooting area and gradually moving out to the normal shooting distance.

Accessories

There are a number of accessories available for the sporting crossbow;

- Quivers to carry bolts are normally fastened to the crossbow.
- Slings so you can carry the crossbow over your shoulder.
- Spanning aids are available to assist with the drawing of the crossbow as most people find the crossbow may be hard to span for repeated shots when shooting in target competitions.
- Scopes that enable you to sight game in low light. Scopes for crossbows are normally low powered magnification because of the short shooting distances.

Chapter 5 Preparation

Preparation for the Hunt

Preparation for the hunt involves three important steps:

- Assembling the right clothing and equipment
- Perfecting your shooting skills
- Learning about your quarry and the hunting area

Basic Shooting Practice

There are no instant crossbow hunters. Learning to hit your target accurately with a crossbow and bolt requires practice. The more you practise, the better you'll shoot.

- **Safety:** Make safety your first consideration when practicing with your crossbow. Always make sure your target is in a safe practice area, which includes a safe background.

Don't practise in a location if there is even a remote possibility that your bolt could escape the area and endanger people, pets, buildings, or property. For a nominal fee, some archery clubs offer range access, which is a great way to practise. Shooting in the backyard is not considered to be a safe practice and is illegal in some jurisdictions.

- **Proper Form:** All the practice in the world won't help if you shoot with poor form. Seek professional assistance at your local archery club. It's not too difficult to find an instructor to teach you the correct shooting form.
- **Gradual Improvement:** Start your practise sessions with close-up targets. As your skill improves with closer targets, you can work farther away. Over time, you'll determine your maximum range for accurate shooting.
- **Frequency:** The quickest way to build accuracy and confidence is with regular practice. It's only after you become a competent shooter that you can make the transition to crossbow hunter.

Sighting in your Crossbow

Sighting-in is the process of adjusting your sights to hit the centre on a sight-in target consistently.

- Begin by shooting a minimum of five bolts at a standard target from 10 metres. Even though you're aiming for the centre, hitting it isn't the key. The goal is to place a grouping of bolts anywhere on the target. A grouping demonstrates that your stance, anchor point, aim, sight picture, and release are consistent. Tight groups also show that you are consistent in your attempts to hit your aiming spot.

- “Follow the bolt” when adjusting your front sight. That is, if your bolts are grouping below and to the right of the centre on the target, move your front sight down and to the right.
- Scopes use a different method of sighting and the instructions are included with the scope when purchased. The scope would normally have two adjustments one for the vertical and the other for the horizontal.
- If you have difficulty placing a grouping, return to your archery club for further assistance, or seek the advice of a more experienced shooter.

Advanced Practice for the Hunt

- Top crossbow hunters practise year-round. The length of the practice session should increase as hunting trips approach.
- Locate a safe place to sight-in and practice with the size and style of broadheads you expect to use for hunting.
- Resolve all equipment problems before you hunt. If your target arrows don't shoot well at the practice range, your broadheads won't shoot any better in the field.
- Practice from unknown distances. One of the difficulties many crossbow hunters encounter is estimating distances to a target. Practice sessions tend to take place at known distances with sight pins set to those distances. Practising without marked distances will help you learn how to estimate distances in the field.

Learn to Judge Distances

Judging distances is critical for correct shot placement in crossbow hunting because bolts have a short trajectory. A responsible crossbow hunter learns to correctly judge distances to a variety of game animals within 90 to 95 percent of the actual distance.

Preparing to Hunt Your Quarry

A prepared crossbow hunter will study the game and learn about the animal's habits, food preferences, habitat and other characteristics. Knowledge of the animal's anatomy will determine an aiming point in the vital area.

Knowing game sign is also critical. Game sign provides clues that help you locate game. Sight, hearing, smell and touch all come into play when reading game signs.

Chapter 6 Hunting Techniques

Hunting Methods: Still Hunting, Stalking and Glassing

Still hunting, stalking and glassing are various methods of moving slowly through woods and pastures or along trails, hillsides, and mountain slopes. In still hunting, you move slowly and deliberately until you spot game—before it spots you. Still hunting requires exact attention to details such as wind, sunlight, weather conditions, cover, and noise. Generally, the hunter will take a few slow, deliberate steps and then stand or squat motionless for several minutes while scanning all surrounding areas for game. In stalking, the game has been spotted and the hunter slowly and deliberately manoeuvres into shooting range and position for an effective shot. Glassing is sitting for a long time at vantage points and spotting game from afar with binoculars or spotting scopes. All of these methods require patience and are usually most effective from the downwind side.

Ground Blinds

One methods of crossbow hunting is using ground blinds. They can be as simple as a natural blind built behind a tree, bush, log, or rock or as sophisticated as a portable enclosed camouflage-cloth blind.

Tree Stands

A popular way to hunt deer with a crossbow is from an elevated stand - particularly in North America. The most common type of elevated stand is the tree stand—a temporary stand placed in or against a tree.

Tree stands have become increasingly popular in recent years with both crossbow hunters and Bowhunters alike. While they offer certain advantages, they also have some drawbacks, including safety issues.

Care should be taken when accessing tree stands and hauling equipment into the stand. Hunters should also consider the use of safety harnesses to prevent falling injuries.

Crossbows should not be spanned and loaded when being hauled up to the stand or lowered to the ground.

Using Game Calls

Game calls have been popular for many years. Some of the most commonly used calls are made for attracting ducks, dogs, deer and turkeys. Many other species of wildlife can be attracted with the use of calls. Crossbow hunters can select from a wide variety of calls targeting most game species.

Chapter 7 Shot Placement & Recovery

Shot Placement

Proper shot placement is critical in crossbow hunting because a bolt must be precisely placed for a quick, clean kill. The responsible crossbow hunter only takes a shot which can reliably strike the vital area of the animal and

passes up anything less. Anything less is considered un-ethical. Merely wounding an animal is a serious error that can be avoided if the hunter knows the vital area of the game being pursued.

For big game animals, the crossbow hunter's primary target area lies within the animal's chest cavity. The chest cavity holds the heart, lungs, and major arteries and veins of the body, all of which are crucial to sustain life. A broadhead arrow that passes through the chest cavity is certain to cut many of these vital organs and vessels, causing severe blood loss and organ dysfunction followed by death.

The most effective shot for crossbow hunters on animals is a diagonal shot (45 degrees), angling forward that hits the liver, diaphragm, lungs, and heart. The second most effective shot is the double-lung, broadside shot because it collapses both lungs. The animal leaves a good-to-excellent blood trail and typically goes a shorter distance before lying down.

The crossbow bolt kills by shock and hemorrhage, and is a very humane method of dispatching an animal.

Shot Strategy

One of the most common reasons crossbow hunters miss opportunities to take an animal is because of the excitement of being close to their quarry. "Target Panic" or "Buck Fever" may cause them to completely forget the fundamentals of shooting and miss the shot. Planning a shot strategy before the animal arrives increases the chance of taking game. Shot strategy, which involves determining possible pick-off points and shot angles in a given hunting area, can be accomplished best through visualisation and simulated practice.

The Perfect Shot

Every aspect of your hunting plan should centre on making a "perfect" shot. While absolute perfection is rare, you can come close by striving for perfection, which involves:

- Proper placement of the elevated stand or ground blind
- Staying downwind when possible
- Good camouflage and concealment techniques
- Effective use of covering or attractant scent and game calls
- Limiting your movements
- Shooting within your effective range
- Applying everything you've learned in previous hunting experiences

Animals rarely offer the ideal target: poised broadside, within range, in the clear, and looking the other way. So you'll need to practise to make more challenging shots.

You must also learn to seize just the right moment to shoot. To take your best shot when an animal approaches:

- Control your desire to move immediately into shooting position.
- Wait for the right moment.
- Compare the eyes of the approaching game to sweeping beams of light, such as the headlights of a car. Don't move until those "headlight beams" are pointed well away from you or until they pass behind screening brush or trees.

- Wait until the animal stops near your pre-selected "pick-off" spot. (If you can't ready yourself without exposing yourself to the animal, wait motionless until the animal has passed by before making your move into the shooting position)
- Focus on the aiming spot over the animal's vital area.
- Relax and take the shot.
- Continue to aim after the shot until you see the arrow hit the target. "Peeking" or dropping your bow will cause erratic arrow flight and affect the point of impact.

When to Begin Recovery

A mortally struck animal may die in only 10 to 30 seconds. An animal can cover a lot of ground in those few seconds and could disappear from view. An animal struck with less than ideal arrow placement may travel a longer distance before collapsing.

With the exception of a spine shot, a wise crossbow hunter gives the animal time to expire. Crossbow hunters should be patient and allow the broadhead to do its work before approaching or trailing the animal.

Approaching a downed animal or starting the tracking process too soon may cause it to run even further away, making the recovery more difficult. Usually you will find a well-hit animal within 200 metres. A poorly hit animal may travel considerably further, but never give up while there is sign to follow.

Approaching Downed Game

When approaching downed game, use extreme caution. The animal may appear to be dead but actually is not.

- Approach the animal from its rear. If the animal is still alive and jumps as

you approach, you don't want to be in front of it.

- Stop a reasonable distance from the animal and observe the rib cage. If the chest is heaving, the animal is still alive.
- If you can't detect rib cage movement, check the animal's eyes—the eyes of a dead animal are usually open.
- Some hunters use a stick or bow tip to prod the rear of the animal to see if there is a response.
- If the animal is still alive, back off and take a careful finishing shot.
- Don't pose or handle your animal for photographs or begin field dressing until you are positive it's dead.

Field Dressing Game

The way you handle game after it has been harvested can have a significant impact on the quality of the meat. Three factors contribute to spoiled meat: heat, dirt, and moisture.

Heat is the number one concern. Bacteria grow rapidly in a carcass, especially if it's allowed to stay warm. Meat begins to spoil above 4 degrees Celsius. The higher the temperature—and the longer the meat is exposed—the greater the chance of spoilage.

This is particularly true with large game. Basic field dressing techniques help cool game by removing entrails, which lowers body heat by allowing air into the body cavity.

As a rule, it's best to field dress immediately.

Field dressing a game animal isn't a complicated process, but it's a technique that's best learned by observing someone with experience.

The basic procedure involves cutting open the animal from the sternum to the anus and then cutting the connective tissue that anchors the internal organs inside the body cavity and removing the organs.

As you proceed, there are several things to keep in mind.

- A small or medium-size knife is appropriate for field dressing most deer or smaller animals.
- There is no need to slit the animal's throat to make it bleed—your arrow did that.
- Any trophy animal that you intend to have mounted must not be slit up the neck. Stop your cut well behind the front legs to avoid ruining the cape.
- As you work on the animal, avoid cutting or puncturing the internal organs, especially the intestines, stomach, and bladder, which can unleash fluids that require additional cleanup and may taint the meat.
- When working inside the animal, be aware that your broadhead (or someone else's) may still be inside the animal.
- Once the animal is slit open, it's easier to empty the contents if the carcass is on a slight incline. The body cavity can be tilted downhill to allow the contents to drain.
- Wash out the body cavity with a solution of water and vinegar (mix two tablespoons of white vinegar in a litre of water)
- Prop the body cavity open with a stick to help it cool.
- If insects are a problem, many hunters place the carcass in a bag. Flies and

insects? Can be repelled with a liberal application of black pepper.

Chapter 8 Outdoor Awareness

Planning you Hunting Trip

After a few years in the sport, many crossbow hunters consider taking a special trip far away from their usual hunting places. Such trips are often set up to pursue game species that normally cannot be hunted around home.

Whether such an adventure is planned as a "do-it-yourself" hunt or a fully or partially guided/outfitted trip, you need to decide where to go, when to go, and what to take. The following checklist will help you get the information you need:

- Contact the authorities of the state you are considering.
- Get a map of the planned hunting area.
- Get names, addresses, and phone numbers of the people in the areas recommended to you. Contact them about game locations.
- Check hunting magazines for information about guided or outfitted hunts. Since many of the best outfitters are known only through word of mouth, talk to other crossbow hunters about hunts with which they've been happy. Crossbow hunting clubs are a great source for this type of information.
- Any trip of this type must be planned well in advance if it is to be enjoyable. Consider a minimum of one year ahead of departure as adequate planning time.

Licences and Permits

Many states within Australia have differing laws regarding the use of crossbows. It is the

responsibility of the crossbow hunter to ensure they have the correct licence or permit required.

National and State associations are a good source of information regarding the laws within the country.

Basic First Aid & Kit

It is imperative to transport an injured hunter to professional medical care as quickly as possible. What happens before the victim is treated by medical professionals can be critical to his or her survival and future quality of life. It is strongly recommended to complete a first aid course.

Most ambulance stations are able to provide you with access to a basic first aid kit that would be suitable for your purpose.



Knowing Your Hunting Grounds

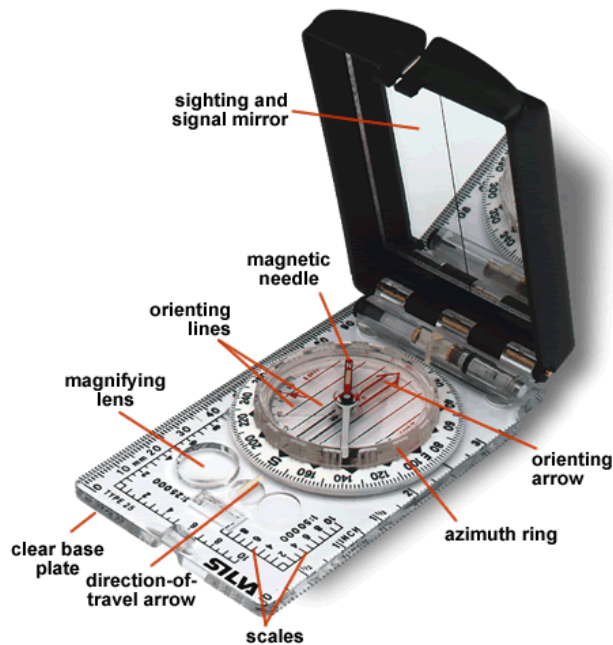
Whenever you're in a remote or unfamiliar area, a topographic map and a compass are a must.

Topographic maps are created from aerial photographs and reveal the contours of the land, including hills, ridges, and valleys, as well as lakes, rivers, creeks, trails and roads.

- Contour lines show the elevation of the ground.
- Contour intervals reveal how much vertical distance there is between each contour line—closely spaced contour lines indicate very steep slopes.

- Contour lines that are sharply tapered indicate an uphill direction.
- Topographic maps are available at many outdoor stores

A compass is a simple device that contains a magnetized needle that points to a location on Earth known as magnetic north. By using an orienteering compass—a compass with a base plate designed to be used with a topographical map—you can find your way over any terrain.



The Elements

The elements are something to consider when planning your hunting trip. Australia has a wide variety of weather patterns and they can have adverse affects on hunters if they are not prepared.

Heat exhaustion is a common problem. Following are some points to consider helping prevent this.

- Drink plenty of water and/or sports drinks.

- Take frequent breaks if you're hiking to or from your hunting spot, especially when carrying a large load.
- Dress in layers and shed layers as physical activity increases.

Hypothermia occurs when your body loses heat faster than it can produce it, causing your core body temperature to fall. When the core temperature drops below 26 degrees Celsius, the body dies. Hypothermia is often induced by cold, wet conditions, such as rain, snow, sleet, or immersion in water. The outdoor temperature does not have to be below freezing. A person may develop hypothermia when the temperature is around 10 degrees Celsius and it's damp or windy.

You're Safety

- Prior to each use, check your crossbow and bolts for signs of damage or wear.
- Only point your crossbow in a safe direction.
- Only load a bolt when it's safe to shoot.
- Be sure of your target and what's in front of it, immediately behind it and beyond it.
- Never shoot over a ridge.
- Only shoot when you have a safe range or shooting area, as well as a safe backstop or background.
- Keep your emotions under control, and think about safety first.
- Do not drink alcohol or take mood-altering drugs before or during crossbow hunting.

- Hunt and shoot within your own physical limitations.
- Exercise regularly and stay in good shape, especially before strenuous hunts.
- Let family or friends know exactly where you will be hunting.
- Always carry broadheads in a sturdy quiver that fully covers razor-sharp blades.
- Dress properly for the worst weather conditions you might encounter.
- Carry basic survival gear every time you go a field, even for short hikes.
- Clearly identify the specific game animal you intend to shoot before shooting.
- Do not shoot at an animal standing on a ridge top (a "skyline" shot) where you can't identify a safe background.
- Carefully cross barriers or obstacles with bolts secured in a quiver.
- When climbing into an elevated stand, always attach yourself to the tree from the time you start climbing until you are back on the ground.
- Use a full-body harness, attached so that you drop less than a foot if you fall.
- Always use a haul line to bring your gear into your elevated stand and to lower your gear when you're through hunting—don't climb or descend with a bow in your hand.
- Always wear the correct clothing for the conditions in area you are hunting. Long pants and sleeves offer

protection against stinging plants and insect bites.

- Good foot wear is important for your safety to prevent personal injury from twisted and sprained ankles.
- A whistle can be used for assisting others in finding you should you be injured or lost.