


# Be a better game bird hunter

## Shotgunning Education Program Handbook

2nd Edition

Shotgunning
Education
Program

VICTORIA
State
Government

Game
Management
Authority

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# Contents

# Introduction

Welcome to the Shotgunning Education Program (SEP) Handbook, which aims to improve game bird hunting practices in Victoria. This handbook is part of the Victorian Government's commitment to produce a comprehensive education program for Victorian waterfowl hunters.

Hunting organisations are partnering with the Victorian Government to deliver this program to game bird hunters. This cooperative approach has provided many positive changes for game bird hunting, such as the introduction of non-toxic shot and the requirement for all waterfowl hunters to pass a Waterfowl Identification Test.

Duck and quail hunting is a pastime enjoyed by tens of thousands of Australians. It provides incentives to conserve game birds and their habitats and creates jobs and economic activity in regional areas.

This handbook provides guidance on how hunters can improve their skills. In following the principles and practices outlined in this handbook, hunters will significantly reduce the number of wounded birds, ensuring that game bird hunting remains sustainable and humane. It will also mean fewer shots and more birds in your bag.

Information in this handbook provides instruction on improved practices, the use of appropriate chokes and loads for different hunting scenarios, the recognition of equipment limitations, and information on best practice hunting and retrieval strategies. I strongly encourage all gamebird hunters to regularly attend the SEP field workshops conducted by Field and Game Australia and the Sporting Shooters Association of Australia and developed in consultation with the Game Management Authority. These workshops show you how to put into practice the principles outlined in this handbook. Remember to practice regularly, use the right equipment for your hunting situation and only take shots within your personal shooting skills distance.

Hunters are encouraged to use the handbook to improve their hunting skills and help educate fellow hunters.

Please enjoy your hunting responsibly.

Greg Hyams

Chief Executive Officer
Game Management Authority

# Foreword

Greetings Victorian Shotgunners.

This Shotgunning Education Program Handbook, published by the Game Management Authority (GMA), is – at the time I write this – the leading shotgun hunting educational publication of its kind anywhere in the world. I can assure you that the information it contains is technically correct and top drawer.

This handbook will inform you of current Victorian game bird regulations and also outline proven bird hunting techniques to help you become a more efficient and effective shotgun hunter. It will help you understand the mysteries of 'leading' and the various systems of obtaining leads when shooting at game birds. This handbook will guide you in strategies – both before and after the shot – that will assist you to harvest game birds efficiently.

Please be especially mindful of one subject area covered in this handbook. Worldwide, reducing wounding losses is becoming an increasingly central issue of focus in all hunting activities. It is the hunter's responsibility to efficiently and humanely bring to bag the animals being hunted. With that responsibility is the tacit assumption and goal of not leaving behind wounded birds. To perpetuate hunting, it is of paramount importance that wounding losses be reduced to an absolute minimum.

During 2007, 2008 and 2012 I was privileged to travel to Australia to train those who would become Australia's leading shotgun hunting educators. Those training activities resulted in this handbook. To pass the training, besides demonstrating knowledge of technical shotgunning issues on a written test, your trainees had to reduce their wounding losses while bird hunting to a measured rate below 10%. That is the level acceptable to the non-hunting public. If you ever have the opportunity to meet with any of these shotgunning educators, they can tell you the amount of discipline it takes to achieve that goal. It requires a thorough knowledge of the shotgun, how to measure its effectiveness and limitations, how to measure and face up to your maximum shooting skill level, how to improve your shooting proficiency and then, finally, how to implement proven preventative wounding loss measures and successful retrieval strategies when bird hunting.

All these subjects are covered thoroughly and illustrated brilliantly in this handbook. If you put into practice what is taught in this handbook, you will achieve the high level of competence that will be required of all hunters in future years. Do not be intimidated by this. My experience with thousands of shotgun hunters worldwide tells me that the vast majority of shotgunners can reach the needed skill level – IF they want to.

So, be proud to be a Victorian bird hunter and be proud of this handbook. The Victorian Game Management Authority and your trained shotgunning educators, with the aid of this handbook, are at the forefront of developing responsible and efficient bird hunters. Together, you can ensure that bird hunting will continue to be a legally licensed activity.

Thank you for the opportunity to serve you, and best regards always.

Tom Roster

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December 21, 2016

Tom Roster is an independent ballistics consultant and author, specialising in the design and testing of shotshell loads. Holding patents for shotshell components, he is periodically contracted by Remington, Winchester and other companies to assist them with research and development of both lead and non-toxic shotshell lines.

Throughout the world, shotgunners best know Tom for his work in developing buffered lead loads and his authorship of several steel, bismuth, lead, and HEVI-Shot reloading manuals. He currently is the Ballistics editor of Sporting Clays magazine and the Shot Talk editor of Shooting Sportsman magazine and has served as editor and contributor to several other US shotgunning publications. Tom has also designed, administered and authored or co-authored scientific reports on the seven most extensive non-toxic shot versus lead shot duck, goose, turkey, pheasant and dove field shooting tests ever conducted.

Tom previously served as an instructor and ballistics research director at the Oregon Institute of Technology and as a Ballistics Specialist with the US Fish and Wildlife Service. As a consultant with the former Cooperative North American Shotgunning Education Program (CONSEP), Tom has directed and collated the world's most extensive pattern testing and terminal ballistics performance database on both lead and non-toxic shotshell loads for taking game birds.

# The tradition of hunting

**Waterfowl have been hunted for food, down, and feathers worldwide since prehistoric times. Ducks, geese, and swans appear in European cave paintings from the last Ice Age, and a mural in the Ancient Egyptian tomb of Khum-Hotpe (c. 1900 BC) shows a man in a hunting blind capturing swimming ducks in a trap.**[1]

Similarly, Australia has a long history of hunting and gathering. Indigenous people relied on hunting as a food source and it was an important part of their culture and traditions. Through the roles of 'Ceremony and Talk', 'Hunt and Gather' and 'Song and Dance', experiences were shared, important decisions made, relationships created and maintained, resources acquired and distributed, and celebrations undertaken. This is still so to an extent today for some indigenous communities.[2]

Today, the hunter in Australia is descended from a variety of worldwide cultures. Modern hunters are still providers of sustenance for families and hunting is seen as a long-standing and respected tradition within different ethnic communities. For many, the role of a hunter is seen as an important part in maintaining their traditional and cultural heritage.

Game bird hunting and its associated sporting and cultural traditions remain popular with many of Australia's recreational hunters. Hunting equipment and methods have continued to improve and change over time. Bag and season limits ensure that the number of game birds harvested is not detrimental to the sustainability of future populations.

Game bird hunting throughout the world is no longer singularly focused on harvest results. Many hunting organisations have led the way in habitat restoration and conservation aimed at ensuring game bird populations remain robust.

As community attitudes change, the demands on hunters are greater.

Hunters have many considerations to contend with, including:

- threats leading to a decline in game species habitat (e.g. climate change, draining of wetlands, changed water regimes and modern farming practices)
- a variety of public attitudes to hunting
- urbanisation and declining access to hunting areas
- legislation and associated regulatory requirements.

The continuation of the proud tradition of game bird hunting in Australia is dependent on hunters' conduct and the sustainable management of game species and their habitats.

[1] *Waterfowl Ecology and Management* (1994) by Guy A. Baldassarre, Eric G. Bolen, D. Andrew Saunders, pp. 3-6.

[2] *pers comm. Rodney Carter. Rod is a descendant of the Dja Dja Wurrung and Yorta Yorta Indigenous people of south-eastern Australia and is the current Chief Executive Officer of the Dja Dja Wurrung Clans Aboriginal Corporation.*

# Hunting organisations

Field & Game Australia Inc. (FGA) and the Sporting Shooters' Association Australia (SSAA), together with other hunting organisations, undertake many activities to preserve and enhance game birds and their habitats and promote ethical hunting in Victoria.

Organisations such as these provide education and information for new hunters and further avenues for individuals wishing to contribute to game bird conservation.

Hunting organisations have a rich history in conservation and research works and have effectively partnered with government to introduce regulations, licensing systems and policies to ensure the sustainable harvest of game birds. One of the most significant outcomes was the establishment of many of the State Game Reserves in Victoria, which today include some of the best-preserved wetland habitats throughout Victoria's landscape. Other ongoing works include the enhancement of game bird populations through voluntary habitat works, nest boxes and pest animal control.

The community has expectations on how natural resources are harvested; it is expected that hunters are both proficient and ethical in hunting activities.

Hunters can help to enhance their recreation by:

- respecting varying public attitudes towards hunting
- supporting practical wetland and habitat conservation efforts, including research
- exhibiting the highest ethical standards when in the field
- promoting responsible and ethical hunting to fellow hunters and the wider community.

# Overview

**The Victorian Shotgunning Education Program (SEP), is designed to assist hunters in the use of non-toxic shot and to provide education material which will assist game bird hunters in equipment selection, development of key shooting and hunting skills and proven hunting strategies and techniques. This material is purposefully designed to increase the proficiency of hunters and subsequently reduce wounding losses in recreational game bird hunting.**

**DEFINITION: Wounded = struck but not retrieved**

In addition, this handbook provides information that game bird hunters will find useful before going out into the field. The handbook is divided into six sections:

1. **Know your game and regulations**
2. **Understanding your tools and environment**
3. **Sharpen your skills**
4. **Taking the shot**
5. **After the shot**
6. **Caring for your game**

These sections take the reader through the basics of game bird hunting, providing techniques to familiarise and increase their skill with their chosen hunting equipment.

By understanding this information and applying it, game bird hunters can increase the success and enjoyment of their hunting experience.

# Section 1
# Know your game and regulations

Black Duck (large duck)

Blue Winged Shoveler (small duck)

Chestnut Teal (small duck)

Grey Teal (small duck)

Hardhead Duck (medium duck)

Mountain Duck (very large duck)

Pink-eared Duck (small duck)

Wood Duck (medium duck)

Stubble Quail (very small bird)

**Figure 1. Victorian game birds**

Note: Does not include introduced game birds such as pheasant, partridge and non-native quail. *Illustrations are not to scale.*

# Regulations

The legislation and regulations for game bird hunting vary in all states and territories of Australia. You should be aware of the differences and adhere to local laws at all times.

In Victoria, all game bird hunters must hold a valid Game Licence endorsed for game bird hunting. Hunters must carry this licence in the field at all times.

Waterfowl hunters are required to use non-toxic shot when hunting and all harvested game ducks must have one fully feathered wing attached until immediately prior to cooking, or until the duck has been taken to the hunter's place of residence.

Hunters must adhere to daily bag limits and hunt only during the designated season. The hunting of game birds at night is prohibited. Hunters should familiarise themselves with information on the Victorian Game Management Authority's website prior to entering the field.

# Game identification

All hunters must be proficient in identifying game species and other animals that inhabit the same locations. Failure to properly identify game birds and the illegal destruction of non-game species or game species out of season is illegal and can result in significant penalties.

In order to ensure proficiency in the field, all waterfowl hunters must pass the Waterfowl Identification Test before applying for a Game Licence. This also applies to hunters from interstate and overseas.

To learn about game species and improve your identification skills, refer to *A Guide to Australian Waterfowl* (see website: www.gma.vic.gov.au). There is also an informative DVD available from the Game Management Authority called *Duck WISE*. Duck WISE (**W**aterfowl **I**dentification, **S**afety, **E**ffective and Efficient Hunting) is an educational video for duck hunters. The video helps all duck hunters accurately identify game and non-game species to reduce the risk of the wrong birds being taken in the field. In addition, Duck WISE promotes responsible and lawful hunter behaviour, and provides important information on effective and efficient hunting practices and firearm safety.

**The *Duck WISE* video can be viewed online (www.gma.vic.gov.au) or to obtain a DVD, contact the GMA customer service centre on 136 186.**

# Ethics and Code of Practice for game bird hunting

The concept of ethical hunting has been around for some time and it is important that all hunters understand its principles and practise them when in the field.

Ethical hunting means that a person knows and respects the game being hunted, follows the law and behaves in a way that will satisfy what society expects of a hunter. Ethical hunters are familiar with the way they should behave when hunting, the places they hunt and the wildlife that live there.

Practising ethical hunting techniques in the field will ensure that you get the most out of your hunting experience and will help secure the future of your recreational activity.

There are three key aspects to ethical hunting:

1. **Knowing and respecting the game** – understanding the birds and their habitat and treating them with respect.
2. **Obeying the law** – laws and regulations have been introduced to ensure that hunting is conducted in a safe and responsible manner. Complying with the law will ensure that hunting remains sustainable. It also maintains public confidence in recreational hunting and ensures it will continue into the future.
3. **Behaving in the right manner** – hunter behaviour has a direct impact on public opinion and may affect the future of waterfowl hunting.

Other considerations are:

- using appropriate practice regimes
- being aware of shot placement
- following up every shot
- respecting dispatched game
- respecting the habitat
- respecting the opinion of non-hunters
- respecting private property and landowner rights
- choosing your hunting companions wisely.

A Code of Practice is in place for the welfare of animals in hunting. The Code was developed to prevent cruelty, encourage the considerate treatment of animals that are hunted and protect the welfare of other animals where hunting occurs. For a copy of the Code, visit Agriculture Victoria, website: http://agriculture.vic.gov.au/ or contact the Bureau of Animal Welfare on (03) 9217 4200 for further details.

Other states and hunting organisations also produce guidelines for the ethical hunting of game birds. These also provide hunters with valuable information about how to act in the field.

# Section 2
# Understanding your tools and environment

**In game bird hunting, the primary goal is to bag a bird as effectively and efficiently as possible. This is achieved by shooting at a bird within your own effective shooting range and properly placing adequate pellet strikes with sufficient energy to immediately dispatch or immobilise the bird so that it can be quickly recovered to hand. Wounding losses must be avoided; this requires knowledge of situations that lead to wounding and practices to avoid while hunting.**

Dr Tom Roster has identified the main causes that lead to wounding loss. Here is a summary.

1. **Poor shooting skills**

- Poor shooting skills are the single largest contributor to wounding in duck hunting
- Some hunters fail to practice regularly or even at all. It is vital that hunters practice properly and regularly to reach and maintain an acceptable skill level
- Some hunters shoot well beyond their maximum shooting skill distance – many hunters think that they are capable of shooting further and take shots well beyond their capabilities

2. **Poor distance estimation skills**

- Some hunters cannot accurately judge distance. As a result, they shoot at birds beyond their maximum shooting skill range

Long distance shots can increase levels of wounding because:

  - birds are hit by pellets at the edge of the pattern (fringe hitting), resulting in a reduced number of pellet strikes
  - pellets may lack the energy for adequate penetration at long distances

3. **Using the wrong choke and shotshell combination for the specific game bird and shot distance**

- Pellets need sufficient energy to penetrate vital organs at specific distances to effectively take a bird
- Pattern density is also important to ensure a sufficient number of strikes to the vital organs
- Bigger birds, such as a Pacific Black Duck, need a less dense pattern count due to the large size of the vital areas Conversely, smaller birds require a denser pattern count to ensure that they are taken effectively

4. **Failing to properly pattern test choke and shotshell combinations**

- Some hunters do not know how different choke and shotshell combinations perform in their shotgun
- Some hunters have never measured pellet strike densities at different distances
- Some hunters do not know which choke and shotshell combination will effectively harvest particular game birds at different distances.

5. **Shooting beyond your maximum shooting skills distance**

The chance of wounding a bird increases as shot distances increase

- Increased distance reduces pellet density and reduces pellet penetration
- Hunters must be aware of their maximum shooting skills distance and only shoot birds within this range

6. **Shooting at the front bird or into the middle of flocks**

- Hunters who shoot into the middle of large flocks risk missing and wounding birds. There is also a risk that non-game species could be inadvertently shot when traveling with mixed flocks
- If hunters target the front (lead) bird, then any misses will likely impact trailing birds in the flock
- Hunters should target lone or back birds. In doing so, any aim error will not affect nearby birds

**7. Taking going-away shots at birds beyond 35 metres**

- A 'going away' bird has its vital organs protected by its thick muscular gizzard and backbone structure, reducing the likelihood of adequate pellet penetration, resulting in lost or wounded birds
- Beyond 35 metres, there is generally insufficient energy in pellets to consistently penetrate the gizzard and reach vital organs

**8. Dropping birds in heavy cover**

- Birds dropped in heavy cover hide and are often extremely difficult to locate, even with the assistance of a well-trained dog
- Birds that are lost become vulnerable to predators, the natural elements or are often not able to feed and will likely perish

**9. Failure to use swatter loads when dispatching birds downed in wetlands**

- A downed bird on the water offers a very small lethal area for effective dispatching. Often only the head and neck are exposed as the bird sits low on the water
- A density-rich pattern is needed to effectively dispatch the bird by striking the small exposed vital area. Normal hunting loads don't provide this
- Using cartridges of size 5-7 shot at 1 oz / 28 grams will greatly increase your ability to quickly bring the bird to hand

**10. Poor retrieving strategies**

- Some hunters will take their eyes off a struck bird to shoot at another; this makes locating a downed bird difficult as the hunter becomes disorientated, or the struck bird has moved.
- In going to retrieve a bird, many hunters fail to take a straight line to the bird. This changes the angles and perspective of where the bird fell

**11. Not using a trained dog when game bird hunting**

- Some hunters practise poor retrieval strategies, in the hope that their dog will make up for them
- An untrained dog can disrupt hunters, cause commotion and sometimes force a hunter to take shots outside their maximum shooting skill distance.

**These factors can be easily addressed by practising concepts outlined in this handbook and by using the lethality table to select appropriate choke and shotshell combinations. This will help you become a better hunter and importantly, reduce the number of birds that are wounded and lost. Remember, practise properly and often to ensure a sustainable and humane hunting future.**

To be an efficient and effective hunter, it is important to understand your equipment – how it works and its capabilities – the game you are pursuing and the habitat it lives in.

# Shotgun

All hunters have their own preference when it comes to selecting a suitable shotgun for game bird hunting, depending on their age, physique, economic circumstances and the type of hunting they do. For game bird hunting, hunters generally use double-barrelled shotguns, as a second barrel provides the hunter with a quick second/follow-up shot and a second choke choice. Current firearms legislation in Victoria restricts the use of pump action or semi-automatic shotguns and they aren't permitted to be used for recreational game bird hunting.

Over and under shotguns are preferred for most hunting and target situations. Hunters often prefer over and under shotguns compared to side-by-side configurations, as they can produce a more succinct sight picture of the target. Twelve gauge shotguns are considered the most popular size; this is reflected in the diversity and amount of available ammunition. In Victoria, it is illegal to use any gauge larger than 12 for game bird hunting. The use of smaller gauges (16, 20, 28 and .410) for Australian waterfowl hunting is waning. Although smaller gauges can be easier to handle, their use is often restricted as non-toxic shot (a legal requirement for waterfowl hunting) is often unavailable.

Firearm dealers and hunting organisations will be able to assist any hunter with questions they have about shotguns, and the most comfortable configuration (e.g. barrel lengths, stock requirements, fit) suited to the hunter's needs. Firearms manufactures or gunsmiths will be able to advise you on whether your gun and chokes are compatible and safe to use with current non-toxic shot types.

Whatever the shotgun, it is essential to be familiar with the operation and safe handling of the gun you are using. It is also important to practise with your gun as much as possible before going hunting.

In Victoria, all firearm users must hold a current Firearms Licence which must be carried at all times when hunting or in possession of firearms.

**For further information regarding Firearms Licences, contact Licensing and Regulation Division, Victoria Police, on 1300 651 645.**

When using a firearm, it is your responsibility to ensure that your actions do not put the safety of yourself or others at risk. All hunters should adhere to the Firearms Safety Code to help avoid any risk or injury (see *Safety Considerations* – page 22).

# Ammunition – chokes and loads

All hunters want to use equipment that makes them more effective and efficient at harvesting animals. Different scenarios often require specialised equipment.

This section will help you to assess and select the right ammunition for various game bird hunting situations. There is also information about assessing the actual performance capabilities of nominated choke and shotshell combinations, through simple and effective pattern testing exercises.

**DEFINITION: Choke = the constriction (size of opening) measured at the end of a shotgun barrel (muzzle). Changes in choke size vary the pattern of shot (shot column) leaving the barrel.**
**NOTE: after exiting the muzzle, the shot column is greatly affected by wind resistance and gravity.**

Different chokes provide different shot columns. Generally, the smaller (i.e. tighter) a choke constriction, the greater the shot column is compressed and the spread of pellets Is reduced. This allows the shot column to hold together over extended distances.

Historically, shotguns had fixed chokes. However, in modern shotguns have been designed to accept a range of interchangeable chokes with different constrictions. This allows hunters to use one shotgun for a wide range of hunting scenarios. There are a number of commercially made chokes available, and it is important to note that all chokes, irrespective of make or model, will operate differently in individual shotguns. See **Appendix 1** for a **Comparison of Choke Constrictions and Descriptions**.

There are two main variables which influence the effectiveness of ammunition types for shotguns. This is the choke and shotshell (load) cartridge combination (the configuration of the amount of gunpowder and the number of shotgun pellets).

The first consideration when selecting the appropriate choke and shotshell combination is to determine the game bird species being hunted, and knowing the minimum combination required to achieve a lethal result when the bird is struck.

The lethality requirement of specific bird species is subject to the size and build of the bird you are hunting (anatomical characteristics) and the shotgunning distances they will be hunted at.

**DEFINITION: Lethality requirement = the minimum pattern density and penetration of shotgun pellets required to sufficiently shut down the vital organs of a bird, resulting in a quick and humane harvest.**

To assess and review which choke and shotshell combinations work to quickly and humanely harvest different game birds at different ranges, Dr Tom Roster (former consultant for the Cooperative North American Shotgunning Education Program and a ballistics expert) developed *Tom Roster's 2012 Nontoxic Shot Lethality Table Adapted to Australian Game Birds* (the lethality table, page 14).

This lethality table provides scientifically tested, peer-reviewed data for selecting the appropriate choke constriction(s) and load properties (shot size, load weight and load velocity) for various game bird hunting activities. *Tom Roster's 2012 Nontoxic Shot Lethality Table Adapted to Australian Game Birds* is a quick guide for game bird hunters wanting to improve their hunting effectiveness by using correct ammunition.

This table has been developed by investigating the lethality requirements of many game bird species. These empirically derived lethality requirements are the result of many extensive peer-reviewed scientific studies dating back to as early as 1968. This research work involved the harvesting of tens of thousands of ducks, geese and various game species at varying angles and ranges, and with many different choke and shotshell combinations. The harvested birds were x-rayed and necropsied to identify which choke and shotshell combination(s) worked effectively and which didn't.

For further information regarding international shot sizes, see **Appendix 2 – A General Guide to International Shot Sizes**.

# Selecting appropriate choke and shotshell combinations

Following are step-by-step guidelines for selecting appropriate choke/s and shotshell/s (ammunition). By following each step and making constant reference to *Tom Roster's 2012 Nontoxic Shot Lethality Table Adapted to Australian Game Birds*, you will be able to accurately identify the chokes and loads that are right for you given your maximum shooting skill distance, the game birds you are hunting and the environment you are hunting in.

A **Pacific Black Duck (which falls into the category of 'large duck'**) is used in this section to explain each step clearly. For these examples, the duck will be harvested at a distance of **30 metres**.

## 1 – Identify your game species and hunting situation

Before selecting any choke and shotshell combination, a game bird hunter must know the species that are likely to occur in the area they intend to hunt, the habitat type at the location where they will be hunting, and the approximate (shooting) range which game birds will be taken at.

It is important to accurately identify individual game species that are likely to occur at your hunting location. This information may change the appropriate choke or shotshell combination, even though the hunting situation may remain the same. This is because different birds have different sizes and body types. These factors may change the lethality requirements (i.e. Grey Teal and Wood Duck are game species that can be found at the same hunting locations, however, Grey Teal fall into the category of 'small duck' while Wood Ducks are larger and are categorised as 'medium ducks').

It is recommended that hunters visit their hunting location prior to hunting to assess its suitability and to see which ducks are typically in the area. You will also need to take into account whether your shooting skills are suited for the location and, if so, what likely game retrieval strategies will work best.

## 2 – Check your load velocity

Load velocity is the measurement of pellet speed about 1 metre (3 feet) from the end of the barrel.

When selecting a shotshell load, it is important that its factory velocity is marked between **1,275 and 1,450 feet per second (fps)** in order to compare with *Tom Roster's 2012 Nontoxic Shot Lethality Table Adapted to Australian Game Birds*. There are shotshell loads with higher velocities, however, they can disrupt the desired pattern of shotgun pellets and increase the recoil of a gun. Also, it is important to practise with loads with similar velocities to the loads you are going to use in the field.

Some hunters prefer lower load velocities to reduce the recoil of a gun. It is worth noting that prolonged effects of recoil may have an adverse impact on many game bird hunters' shooting skills, as it may cause them to flinch before pulling the trigger. This may result in misses or wounding.

A large percentage of shotgun ammunition available in Australia is produced in the United States (US). Some ammunition loads manufactured outside the US only label the muzzle velocity (different from the load velocity). If this is the case, as a general rule of thumb, you can subtract 100–125 fps off the quoted muzzle velocity. This will give you the approximate load velocity.

**Most countries outside the United States use metric units (e.g. metres) of measure, as opposed to imperial measurements (e.g. feet). For further information, see Appendix 3 – A Comparative Guide to Imperial and Metric Shotshell Load Weight Conversions.**


## 3 – Identify your required shot size

Continue to use the above example and refer to the lethality table. In the example of a Pacific Black Duck to be hunted at an approximate range of 30 m, select from a shot size range of US #6s through US #2s. This means that United States pellets sizes #6, #5, #4, #3 and #2s are all capable of efficiently harvesting a Pacific Black Duck at the range identified. In this instance, US size #4s would be the middle starting option.

A common mistake made by many game bird hunters is the incorrect identification of shot size/s. This affects their ability to meet minimum patterning and penetration requirements.

**It is important to understand that the shot size coding/ labelling given for one cartridge brand may not be the same as that given for another. While these shot size differences are primarily driven by the country of manufacture and the units of measure (imperial or metric) being used, there are instances where manufacturers located in the same country use the same shot coding system but proceed to load different sized shot.**

## 4 – Identify your required load weight

Using a US size #4 shot as appropriate for harvesting Pacific Black Duck at a distance of 30 metres, we are provided with the option of a load weight range between 7/8 ounce (24 grams) and 1 ounce (28 grams) of shot.

For this example, it would be safe to nominate a 7/8 ounce (24 grams) load weight as a minimum.

## 5 – Identifying an appropriate choke

Now that the load requirements (velocity, shot size and load weight) for hunting Pacific Black Duck have been identified, for effective lethal harvest at around 30 m, the last step is to select the choke.

In this scenario, the recommended chokes are split into specific ranges – Improved Cylinder (20–32 m) or Modified (32–40 m).

While the specific range in this example refers to shooting at ranges of around 30 m, you next need to think about which of these two chokes is most appropriate.

Assuming that you will use 30 m as the nominated shooting range, you can opt for the Improved Cylinder (IC) choke. If you have a double-barrelled gun it would be wise to use a Modified choke in the second barrel. This would allow you to take a second shot at an increased distance if the duck was not sufficiently struck and disabled by the first shot fired through the first barrel.

All these steps, when followed correctly, ensure that the hunter achieves the required minimum pattern count as provided in *Tom Roster's 2012 Nontoxic Shot Lethality Table Adapted to Australian Game Birds* to adequately and effectively harvest the intended game bird. It is essential that hunters test whether their chosen choke and shotshell combinations produce the minimum pattern count required. Information on how to do this is provided in **Section 3 – Sharpen your skills** (page 24). For the effective dispatch of a bird, shotgun pellets need to carry enough momentum to penetrate through the vital organs of the bird at the distance it is being hunted. Vital organs are defined as the heart, lungs, spinal cord and brain. At a minimum, 1–2 pellets are needed to strike and penetrate these areas for a clean kill.

**It is recommended that hunters don't fire at game birds that are flying away from them (referred to as 'going away' birds) at a range further than 35 m. This is because a 'going away' bird has its vital organs protected by its gizzard and backbone structure, reducing the likelihood of adequate pellet penetration into the vital organs This can result in lost or wounded birds.**

**Table 1. Tom Roster's 2012 Nontoxic Shot Lethality Table Adapted to Australian Game Birds**

This table summarises Tom Roster's analyses to date of the waterfowl and upland game bird lethiality data bases for 15 published U.S. steel versus lead shooting tests and birds taken for published ballistics reports he authored for ammunition companies and/or the CONSEP organisation. Pellet sizes listed are for steel shot unless otherwise noted.

## Tom Roster's 2012 Nontoxic Shot Lethality Table Adapted to Australian Game Birds ©

| **Proven Nontoxic Shot Loads For Waterfowl & Upland Game Birds**[1] *Load Velocity: 1,275 – 1,450 FPS* **Activity** | **Typical Shooting Range of Activity (Meters)** | **Most Effective Steel Shot Size(s) for Activity (USA & Spanish Shot Size Designations** | **Minimum Load Weight in Ounces and (Grams)** | **Minimum Pellet Hits Needed on Lethal Areas for Clean Kills** | **Minimum Pattern Count Needed at any Distance for Clean Kills (#of Pellets in 30" Circle)** | **Most Effective Choke(s) (Given in Lead Shot Choke Designations)** |
|---|---|---|---|---|---|---|
| **Indian Peafowl &**<br>**Cape Barren Goose** | 35–45<br>35–45 | BB to BBB<br>HEVI–Shot 2 | 1–1/8 (32 g)<br>1–1/2 (42 g) | 1–2<br>1–2 | 60–65<br>60–65 | Modified<br>I.C., Modified |
| **Medium Geese at Long Range**<br>**Magpie Goose** | 45–60<br>45–60 | BB to BBB<br>HEVI–Shot 2 | 1–1/4 (36 g)<br>1–1/2 (42 g) | 1–2 | 60–65<br>60–65 | Improved Modified<br>Improved Modified or Full |
| **Medium Geese over Decoys**<br>**Magpie Goose** | 35–45<br>35–40 | 1 to BB<br>HEVI–Shot 4 | 1–1/8 (32 g)<br>1–1/4 (36 g) | 1–2<br>1–2 | 60–65<br>60–65 | Modified<br>Modified |
| **Mountain Ducks at Long Range** | 45–60 | 2 to 1 | 1–1/8 (32 g) | 1–2 | 75–85 | Full |
| **Mountain Ducks over Decoys** | 20–40 | 3 to 2 | 1–1/8 (32 g) | 1–2 | 75–85 | I.C. (20–32 M),<br>Modified (32–40 m) |
| **Black Ducks at Long Range** | 40–60<br>40–60 | 2 to 1<br>HEVI–Shot 4 | 1–1/8 (32 g)<br>1–1/4 (36 g) | 1–2<br>1–2 | 85–90<br>85–90 | Full<br>Full |
| **Black Ducks over Decoys** | 20–40 | 6 to 2 | (24–28 g) | 1–2 | 85–90 | I.C. (20–32 M),<br>Modified (32–40 m) |
| **Medium Ducks over Decoys**<br>**White-eyed, Wood, Grass**<br>**& Water Whistle Ducks** | 20–40<br>20–40 | 6 to 3<br>HEVI–Shot 6 | (24–28 g)<br>(28–36 g) | 1–2<br>1–2 | 115–120<br>115–120 | Improved Cylinder (20–32 m),<br>Modified (32–40 m) |
| **Small Ducks over Decoys**<br>**Shoveler, Teal, & Pink-eared Ducks** | 20–40<br>20–45 | 6 to 4<br>HEVI–Shot 6 | (24–28 g)<br>(28 g) | 1–2<br>1–2 | 135–145<br>135–145 | Modified (20–32 m),<br>Full (32–40 m) |
| **Chukar Partridge & Feral Pigeon** | 20–40 | 6 to 4 | 3/4 oz (21 g) | 1–2 | 150–160 | Modified |
| **Quail – Stubble**<br>**– Brown, Bobwhite,**<br>**California & European** | 20–30<br>20–30 | 7<br>7 to 6 | 3/4 oz (21 g)<br>3/4 oz (21 g) | 1–2<br>1–2 | 225–245<br>170–190 | Skeet, Improved Cylinder<br>Skeet, Improved Cylinder |
| **Ring-necked Pheasants** | 20–45<br>20–45 | 3 to 2<br>HEVI–Shot 6-4 | 1 oz (28 g)<br>(32–35 g) | 2–3<br>2–3 | 90–95<br>90–95 | I.C. (20–30 Yds), M. (30–50 Yrds)<br>I.C. (20–30 Yds), M. (30–50 Yrds) |
| **Turkeys (Head and Neck Shots)** | 20–35 | Steel 4; HEVI 5 | 1–1/4 (36 g) | 3–4 | 210–230 | Full or Extra Full |
| **Swatter Load for Wounded Birds** | 20–32 | 7 to 6 | 1 oz (28 g) | 1 | 200 | Modified or Full |

**Note:** The pellets in the steel shot loads tested for this table were traditional, highly spherical ball-shaped pellets of ~ 7.86 g/cc density and 90–95 DPH hardness. The HEVI-Shot pellets were of 12.0 g/cc density and slightly harder than traditional steel pellets.

To date, steel #BB (4.57 mm) has exhibited the best overall performance for taking medium geese; steel #3 (3.56 mm) the best overall performance for ducks.

[1] Values in this table involved testing 2 3/4" (70 mm) & 3" (76 mm) 20-ga.; 2 3/4" (70 mm), 3" (76 mm) and 3 1/2" (89 mm) 12-ga. steel loads; & 2 3/4"& 3" 12 ga. HEVI-Shot loads.

# Hunting environment

All effective hunters understand and research the environment they will be hunting in. This knowledge will inform what hunting equipment and strategies will be required.

Some points to consider are:

- Plan your hunting trip well in advance. Know where you can legally hunt (see the GMA website or Game Hunting Victoria smartphone app)
- Visit the location before your hunting trip and assess things like available cover, wind direction and feeding and resting areas
- Identify what species of game birds are at this location and how many there are.
- Observe the behaviour of game, such as flight patterns and paths, and time during the day the game is active
- Estimate what the water levels will be on the day you go hunting
- Identify hunting methods, appropriate retrieval strategies, and correct load and choke choices prior to hunting
- Check the weather forecast before going hunting to assess personal safety and game behaviour

# Blinds

Waterfowl hunters use blinds (or 'hides') as an effective way to conceal themselves and their equipment from waterfowl. The use of a blind combined with camouflage clothing, successful decoy patterns and calling will bring more waterfowl into your maximum shooting skill distance.

**It doesn't take waterfowl long to associate hunters with a permanent blind, so change sites regularly.**

A blind can be made of anything that conceals you from ducks. Natural features are a great resource to use or integrate into your blind system. This includes features such as trees, cumbungi, logs, etc, that make up waterfowl habitat. Be creative – use round hay bales, pipe from a centre pivot irrigation system … you can use nearly anything that will be familiar to the birds and blends well with the surrounding environment.

When constructing a blind, remember that you'll need to be able to see approaching birds without them seeing you. The most frequent mistake hunters make is using vegetation or other blind material that doesn't match the surroundings. For example, don't disguise a blind with dark colours when the surrounding vegetation is light in colour.

No matter what kind of permanent or makeshift blind you use, pay attention to the following:

- its position relative to the sun (you don't want to be looking into the sun when shooting)
- prevailing winds
- other blinds in the area
- shadows
- regulations governing their use on public land
- how many people will hunt from it
- what natural features can be used in the blind
- the frequency of waterfowl using the area

**In Victoria, there are many different regulations regarding the removal of vegetation and construction of blinds and hides on public land. Hunters should familiarise themselves with the laws before hunting.**

## Types of blinds

A blind can be anything that conceals the hunter. Some common types used by waterfowl hunters are:

**Pit blind** – a pit or hole dug into the ground, and often used when there is little or no cover.

Some hunters will use hessian to cover freshly dug earth and take a bailing bucket to empty water seeping into the blind. Watch out for snakes or other hazards before getting into a pit blind.

**Lay out blinds** – portable blinds that you can lie in. They generally come with a frame and back support and used in open paddocks and on the edges of wetlands and lakes with little cover.

**Portable blinds** – a portable frame that is covered with camouflage netting. They are often used where there is some cover, but more is needed, or where a pit blind is not suitable.

If using an ex-army camouflage net, ensure it has a light pattern on one side and a dark pattern on the other, which will provide greater flexibility to blend in with your surroundings.

**Boat blind** – a boat blind is a mobile hide (often netting is put up around the sides of the boat). It is used in areas where most of the hunting is done on water storages and where there is little or no cover. The water depth is often too dangerous to wade and it is safer to hunt from a boat.

**Natural blind** – this type of blind uses the natural surrounds (e.g. standing dead timber, cumbungi) to conceal the hunter. It is the best camouflage a hunter can use.

**Permanent blind** – a permanent blind relies on waterfowl coming to its location. Waterfowl move after the first shot of the season is fired over a swamp so don't go to great lengths to build a permanent blind before you are reasonably certain you can predict waterfowl movement patterns. Permanent structures can only be built on private property with the landholders permission.

# Camouflage

Ducks' eyesight is superior to humans and modern camouflage clothing and coverings provide an effective way to prevent scaring birds from approaching within shooting range.

The primary function of camouflage is to conceal hunters from game birds by making them less conspicuous and blending their shape into the surrounding environment. Camouflage breaks up the outline of hunters and their equipment (blinds, boats, guns, etc) by utilising colours and shapes that replicate the surrounding environment.

Bright colours that reflect ultra-violet light should be avoided. Many forms of camouflage equipment and material are produced in blaze orange. Although this works for other hunting scenarios (e.g. deer hunting) it doesn't work for duck hunting as they have good colour vision.

Hunters are advised to wear a hat with a wide brim that will place their face in shadow and also shield their head from rain and sun. It is also most important to wear camouflage on areas where the skin is normally exposed and highly visible, such as the face and hands.

Head-nets, balaclavas, face masks or camouflage face paints provide excellent coverage for the face. Good camouflage shooting gloves will hide the glare from the back of the hands as well as providing comfort in cold weather.

**Choose camouflage clothing that most closely matches the local hunting environment (e.g. vegetation). Choose an open camouflage pattern with light and dark areas to simulate shadows.**

# Using decoys

Decoys are designed to attract waterfowl within effective shooting range. When used correctly, decoys greatly improve the success of waterfowl hunters.

Learn about the effective use of decoys. Understand waterfowl behaviour, where and when they rest and feed, what makes them feel safe and secure, and flight paths. This will help in your decoy pattern and site selection. Take the time to observe waterfowl and understand their habits.

## Types of decoys

There are many types of decoys available for a range of hunting situations and conditions. Some decoys are designed to float on water and others are designed for dry-land hunting.

**Figure 3. Fold up decoys** – are lightweight and two-dimensional, folding up flat for easy transportation and storage. They are used effectively on water or on a bank in a sitting position.

**Figure 4. Floaters** – the most common decoy on the market. Floaters are three-dimensional hollow plastic or wooden replicas of ducks. They are used on water and have keels to ensure they sit the right way up. Floaters generally have either weighted keels or hollow keels that fill with water. The water keels are lighter and easier to carry, whereas the weighted keel types are favoured for hunting from a boat, as they are easy to throw out onto the water and quickly float on top. They are held in position by a line with a sinker that sits on the lake or wetland bottom. The line can be attached to the front or rear of the decoy. Mix them up to give a more realistic look to your decoy spread.

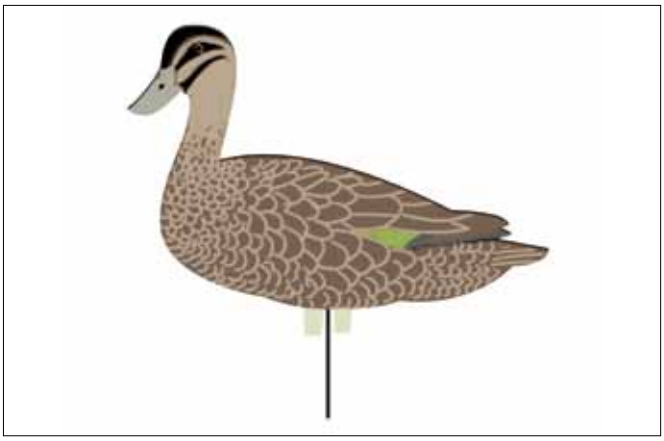


**Figure 5. Silhouettes** – are cheap and effective, and can be made by hunters from plywood or similar. These two-dimensional decoys are generally used in conjunction with other decoys to bolster the number on display. They can be used in shallow water and on land, and are normally attached to a stand for easy placement.

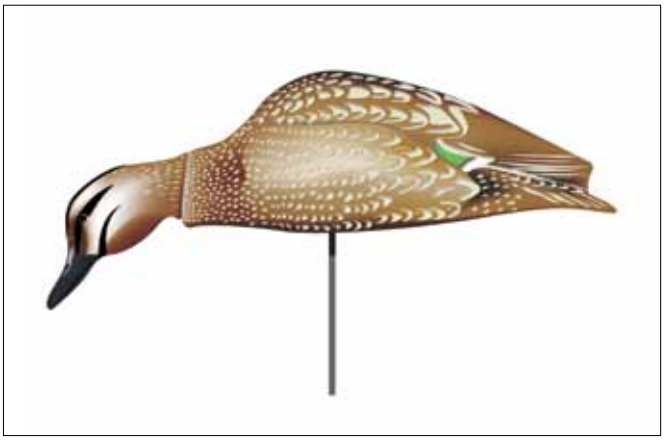


**Figure 6. Shell decoys** – there are several types on the market. These decoys are three-dimensional and have a hollow shell body and detachable head. Some are fixed to stakes, while others are placed on the ground or floated on water. Shell decoys can be made of hard plastic and/or from soft foam that floats. They are both lightweight and compact making them easy to carry.

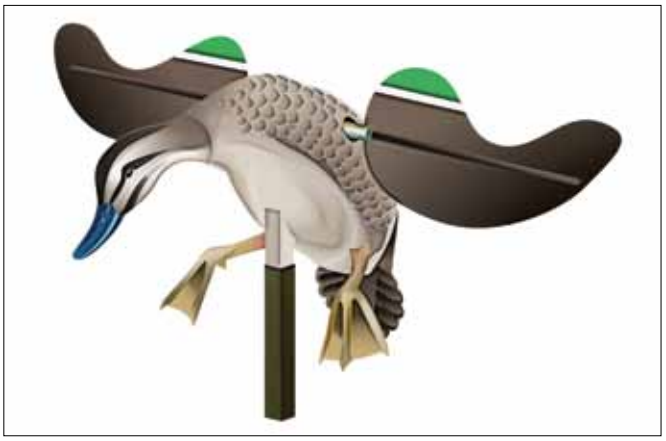


**Figure 7. Motion decoys** – provide movement to your set of decoys and are three-dimensional. They stand on stakes and their wings spin, driven by wind or small battery operated motors to give the impression of a bird pitching in to land. Other motion decoys can be rigged with a bungee cord, decoy line and weights that allow you to jerk your decoy and provide movement to make your set more life-like.

**Motorised decoys** – motorised decoys can be a valuable addition to your decoy spread, adding movement to attract wary birds. Motorised decoys are battery operated and are available in differing construction and movement types, from decoys with spinning wings to decoys that swim and even decoys that fly, pivoting on a stake and wire.

**Confidence decoys** – have one purpose; to create a sense of realism that gives ducks confidence in their decision to land in your decoy spread. Normally, a confidence decoy is an imitation of a species you probably don't intend to hunt but one that might normally be found among a contented flock of waterfowl. These are normally waterbirds (e.g. swans or coots) or wading birds (e.g. herons).

**Size** – decoys come in a number of sizes: Standard 300 mm (12"), Magnum 360 mm (14"), Super Magnum 450 mm (18") and some that are larger. The bigger the decoy, the easier it is for passing ducks to see, although large decoys decrease the amount you can comfortably carry.

**Hunters generally prefer decoys that are 10% bigger than the real thing, as this size is considered to be more effective at attracting ducks.**

**Quantity** – the number of decoys required changes depending on your hunting location and the species you are hunting. Hunters should aim to have a reasonable spread of decoys. If you are hunting on large, open water lakes, the more decoys the better. If you are hunting at a small hole in a cumbungi swamp, a dozen may be enough.

## Decoy strategies

The effective use of decoys doesn't just relate to the quantity you have, but the way in which you set them out. There are many decoy patterns that can be used when setting your spread. The appropriate pattern depends on prevailing wind conditions. One common element is that the pattern should offer a clear area for the ducks to land in. This should be between 15 and 30 metres in front of where the hunter is concealed (blind or stand) – this is called the 'landing area' and brings the birds to within effective shotgunning range. Make sure you set out specific decoys as distance markers so you know when ducks have entered within your maximum shooting skill distance.

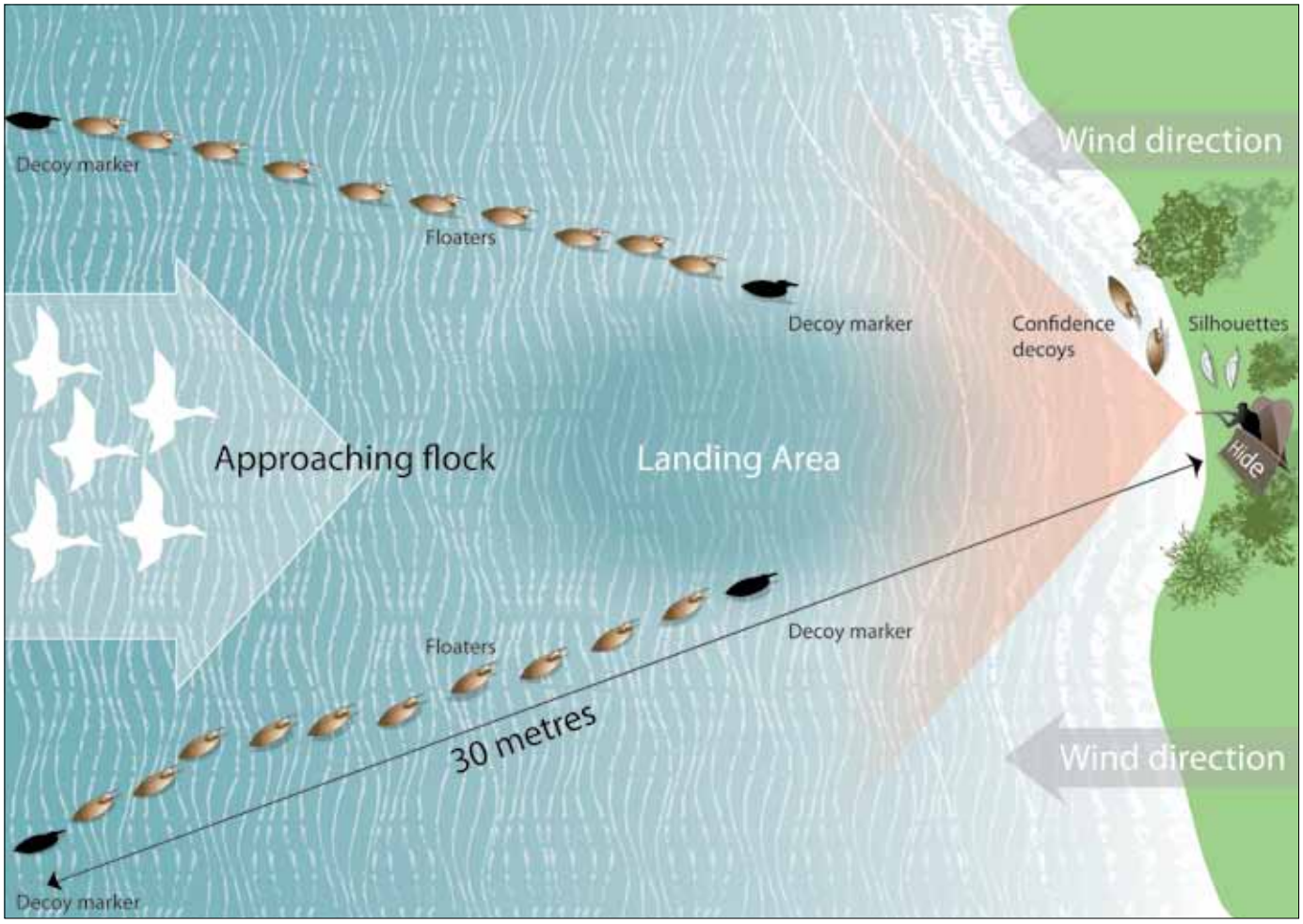



**Figure 8. The V pattern decoy spread**

If the wind is at your back, then a good decoy spread is the V pattern. Run two groups of decoys angling away from the hide. Each group starts 15 metres out and runs for 35 metres. Put a couple of confidence decoys in front of the blind/stand and add some silhouettes on the bank so that the ducks focus on the decoys and not you. This setup uses approximately two dozen floating decoys.

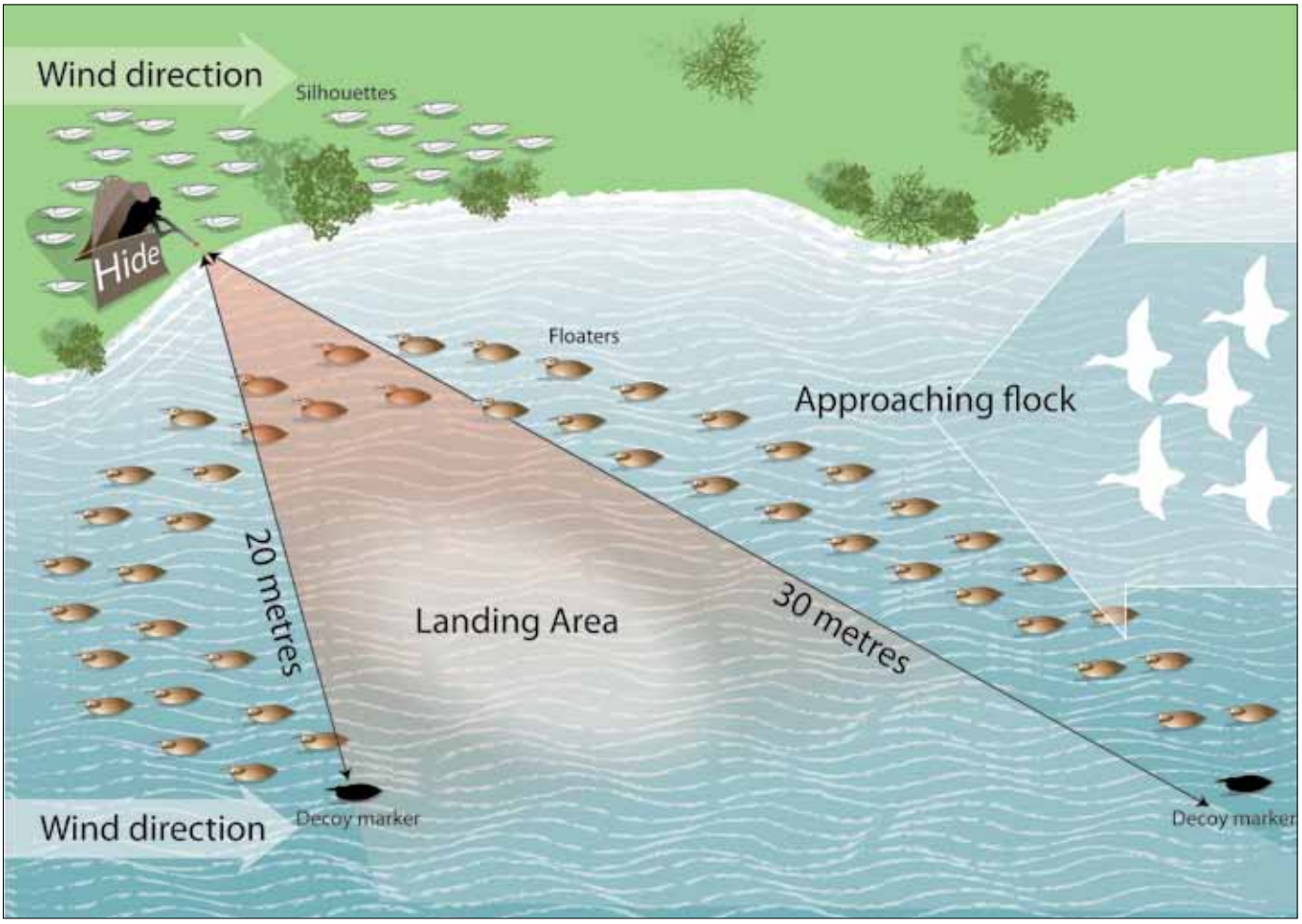



**Figure 9. The J pattern decoy spread**

The J or fishhook pattern is used when you have a cross wind; in other words, a wind that is blowing parallel to the shoreline. You need to site the blind/hide at the base of the hook upwind so that ducks will pass in front of the blind. Look for a natural point or sheltered spot on a river/wetland to set this spread. The J pattern generally uses around four dozen decoys and one or two dozen silhouettes. You can use more or less depending on the habitat in which you are hunting and the number of ducks on the water.

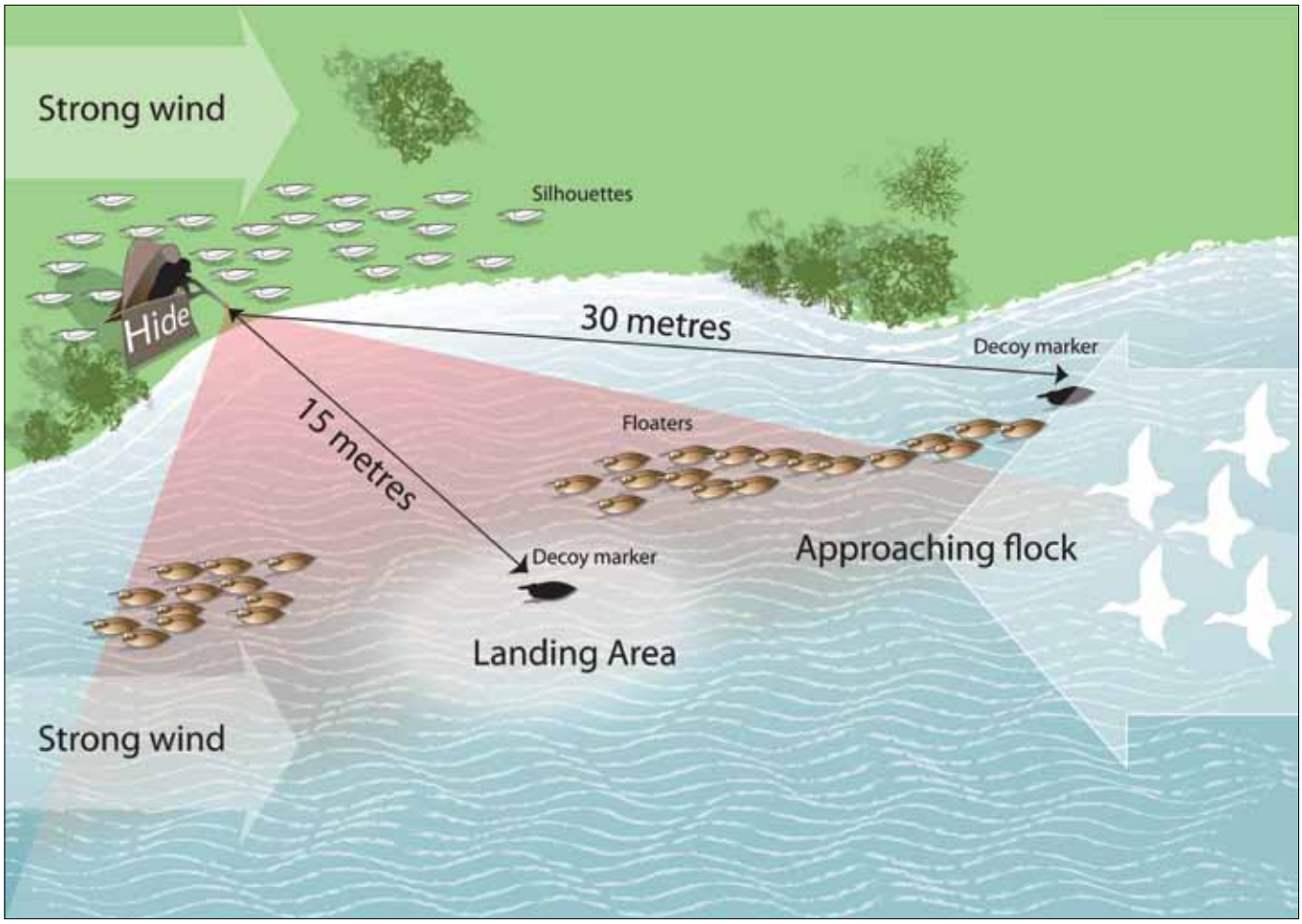



**Figure 10. The dotted 'i' pattern decoy spread**

The dotted i pattern is used when you have a really strong wind blowing parallel to you. In these conditions, the ducks will tend to hug the edge of the shore looking for shelter. Set your decoys close to the edge and close together. The ducks will often fly up the decoy spread and pitch into the landing zone. Again, the landing zone should be directly in the front of the blind/hide.

**Decoy markers, are decoys with distinct features that can be used to mark known distances out on a water body.**

# Tips for successful decoying

Hunters should study the specific feeding habits of ducks and set up decoys to mimic this behaviour. Ducks will often fly into decoy spreads if they believe the decoys are feeding, as it provides a false sense of security.

Example of different feeding habits: Pink-eared Duck – filter feeder, Hardhead – diving duck, Wood Duck – grazing duck and Pacific Black Duck – dabbler.

## Species specific

When decoying, use species that occur in that area. If you are hunting inland around dams and rivers, use Wood and Mountain Duck decoys. Similarly, Chestnut Teal decoys should be used around coastal or saline wetlands.

Hunters can use other methods to entice ducks to land near them. One method is to stir up the water or mud to stimulate feeding activity before placing your decoys out.

Ducks have excellent eyesight, so decoys should be coloured to mimic those of real birds. Try to ensure that your decoys are clean and look realistic.

In decoy spreads for dabbling ducks, hunters will often use a variety of different decoy species, as it can enhance a spread's attraction. Confidence decoys are very beneficial.

**The use of a small number of motorised decoys is effective. Too many will cause incoming birds to become alarmed and flare away. Strategically place one or two between the hide and the 'landing area' of your decoy spread.**

## Wind

Ducks must land into the wind so your blind/hunting should allow for this. Always have your decoys downwind from where you are hunting. If you place your decoys upwind, the chances of the ducks seeing you are greatly increased.

**If the wind is blowing into your face, pack up and move. No matter how good your spread is or how well you call, your success will be limited under these conditions.**

## Spread size

Vary the size of your decoy spread so that it is proportional to the water body you are hunting on. A small number of decoys on a large body of water isn't very inviting for ducks passing by.

Observe how ducks respond to your decoy spread. If the ducks land short, get up and move some of your decoys to steer the ducks into the landing zone. If the wind changes, you may need to change your spread size or configuration to accommodate a different landing zone.

Using silhouettes will greatly increase the appeal of your decoys.

Remember that your decoys must clearly visible to flying birds. Don't place decoys in shadows or close to the bank. Place them in water at least 1.5 m from the bank so that they are easily seen.

**Key points for effectively using decoys:**

- Always have your blind/hide upwind from your decoys and remember that ducks need to land into the wind
- Always leave a space for the ducks to land
- Set decoys marking your maximum shooting skill distance and don't shoot at birds beyond these decoys
- Make sure your decoys can be seen and are not covered in shadow
- Move your decoys according to how the ducks are responding and in response to any wind changes
- Use other tactics such as confidence decoys and silhouettes to mimic realistic conditions
- Use species that occur in the area to be hunted and exhibit similar feeding habits to the target duck you're after

# Effective calling

The duck call is an effective tool that can bring waterfowl into your maximum shooting skill distance. However, calling alone results in limited success. Good calling is one part of an effective, integrated hunting strategy that will include a properly laid out decoy spread, a well-scouted hunting position, and effective concealment and camouflage.

There is a huge difference between a good duck caller and a duck 'blower'. If you fall into the latter category, practice is essential. Excessive calling or bad calling will scare birds away.

## Selecting a duck call

Hunters should select a duck call according to the species they intend to hunt, and where and how they intend to use it. Factors to be considered when assessing a call include its tone, range and sharpness. These variables affect the volume of a call in conjunction with how it is constructed, such as single or double reed, acrylic, wood or polycarbonate body.

Hunters who hunt waterfowl on large open water should use a call that is loud and higher in pitch so the notes will carry. In comparison, hunters who hunt ducks on small water bodies, creeks, dams, etc, should use a call that is lower in volume and softer in pitch.

The majority of duck calls on the market are made of polycarbonate (moulded plastic), wood or acrylic. Wood calls normally produce a mellow and soft tune; while acrylic calls are at the opposite end of the scale and are sharper and louder. As such, wood calls are considered ideal for small water bodies and acrylic calls are traditionally used on large open water. Polycarbonate calls fall in the middle range for tone volume.

**Wooden calls are porous and can absorb moisture. They require higher maintenance than other calls, and should be air dried after each use to retain the same tone. Calls with an oiled finish should be oiled regularly to protect and maintain effective operation.**

## Basic calls

There are a number of different calls that hunters use. Hunters should tailor their calls to their hunting situations and the behaviour of the ducks.

Astute hunters will study waterfowl and determine the calls associated with different behaviours. Some basic calls include:

- basic quack
- greeting call
- feed call
- lone hen call

There are many resources available for hunters wishing to master these calls. Hunting organisations offer many opportunities for hunters to learn from others who are more experienced. Alternatively, you can purchase DVDs or CDs that teach you how to become an effective caller and there are many instructional videos available for free on-line.

**Don't overdo your calling. If a flock of birds is coming in, there is no need to call.**

Hunters should try and purchase calls that are species-specific. However, some calls may work for more than one species.

**Example: The Grey Teal call is a lot higher in pitch than the deeper, raspy Black Duck call. If you cannot afford both, settle for the Black Duck call. Experience has shown this to be a better all-round call for attracting both Black Ducks and Teal.**

# Safety considerations

Safety is paramount in all hunting situations. Failure to remain safe, or ensure the safety of surrounding people, can lead to devastating consequences. At the very least, it will take the enjoyment out of a hunt.

A variety of factors contribute to individual safety, such as firearm use, equipment (including boats), mosquito-borne disese, Blue-green algae and the presence of water.

## Other users

Hunters must be aware of surrounding hunter activity and must be conscious of other users in the area. Although there are regulations to prevent conflicts between hunters and protestors, hunters should always conduct themselves in a manner that does not endanger other people.

All hunters should adhere to the Firearms Safety Code to help avoid any risk or injury. Hunters should not shoot at low flying birds, as it increases the chance of ricochet or could place you in the position of firing directly at other hunters you are unaware of.

Out of courtesy and for safety, you should not select a hide/blind too close to other hunters.

**Don't attempt to dispatch wounded birds on the water when there is a likelihood of striking other hunters in your line of fire. Be conscious of the extent of your firing zone and what may possibly lie behind your target.**

## Firearms Safety Code

1. **Treat every firearm as loaded**

   Do not take anyone's word that a firearm is unloaded. Check every firearm yourself. Only pass or accept a firearm that has the muzzle pointed in a safe direction; the action open; and is not loaded.

2. **Always point firearms in a safe direction**

   Loaded or unloaded, always point the muzzle in a safe direction. A safe direction will depend on where you are and what you are doing.

3. **Load a firearm only when ready to fire**

   Only load a firearm when you intend to use it, and only in an area where it can be safely and legally discharged. Remember to unload it when you have used it.

4. **Identify your target beyond all doubt**

   You must positively identify your target beyond all doubt before firing. **If in doubt, DON'T SHOOT!** The shooter, and anyone supervising an unlicensed shooter, must both positively identify the target.

5. **Check your firing zone**

   Be aware of what is between you and your target, and in the area beyond your target.

6. **Store firearms and ammunition safely**

   You are required by law to have a safe and secure place to store your firearms. All firearms and ammunition should be stored separately, out of the reach of children, out of view and in an approved cabinet.

7. **Avoid alcohol or drugs prior to and while handling firearms**

   When handling a firearm you must be able to think clearly. Alcohol and drugs (even those prescribed) dull and slow your mental and physical reactions. Alcohol and Firearms do not mix! Ever!

8. **Never have loaded firearms in the car, home or camp**

   Before entering a car, home or camp, completely unload your firearm. Ensure that the action is open and that there is no ammunition in either the breech or the magazine.

9. **Never fire at hard surfaces or water**

   Consider the area in which you are shooting, and whether a ricochet could occur.

10. **Don't climb fences or obstacles with loaded firearms**

    Before attempting to negotiate a fence or obstacle unload your firearm. Do not rely on safety catches. Safety catches are only intended to supplement the safe handling of firearms.

## Individual safety

Hunters must be aware of their surrounds, know the environment they are hunting and assess the weather conditions they will likely encounter.

Appropriate wet weather and warm clothing should always be carried. It is also advisable to wear protective safety glasses and hearing protection. Electronically amplified ear-muffs can provide protection from loud gunfire and still allow the hunter to clearly hear other hunters and game.

Hunters are advised not to wear waders in boats or in deep water as waders can fill up with water and increase the risk of drowning. If hunters are wading in rivers, they should be on the lookout for unexpected sink holes that may submerge them. Hunters are advised to use wader belts to minimise the chance of waders filling up with water. Some hunters also prefer quick release buckles, to aid in fast removal.

When wading, be mindful of submerged objects such as logs. Slide your feet along the swamp or wetland floor to feel for submerged hazards. This will help minimise the chance of a slip or a fall. If you fall or stumble when carrying a firearm, your first and most important responsibility is to make sure the muzzle is pointing in a safe direction, and that you do not touch the trigger.

Hunters need to be aware of the dangers of hunting in waters affected by blue-green algae. Blue-green algae is potentially toxic and can be dangerous to both humans and dogs if ingested. Do not consume any water or let your pets consume any water that may be affected by blue-green algae.

Hunters should also be aware of the hazards associated with hunting stagnant water. Such waters are a haven for mosquito breeding. Therefore, hunters need to be equipped to avoid contracting mosquito-borne disease by carrying and applying sufficient mosquito repellent.

**Hunters should always have an up-to-date first aid kit available.**

Hunters should always have a safety plan. Planning for different situations that may arise during the course of a hunt will help you be prepared if something goes wrong.

## Responsible boating

Many duck hunters use a boat or punt when hunting. Hunters using boats should be familiar with the laws relating to their general use and be aware of the minimum legal safety requirement for their own safety and that of others on the water.

Boaters should remember the following points:

- Check weather forecasts, fuel, safety equipment and other gear before a trip
- Ensure that there are sufficient personal flotation devices (PFDs) for all occupants
- Have a working fire extinguisher on board
- Don't overload the boat with equipment (e.g. decoys) or people
- Never mix alcohol consumption with operating a boat or using a firearm

**Something as simple as a shifting wind can cause conditions on water to change for the worst. Always tell someone where you are going and when you will return. Hunters are advised not to wear waders while in a boat.**

## Gundog safety

Gundogs used to assist in the hunting of game should be healthy and in good physical condition. They should not be used under conditions where there is an unacceptable risk of injury, heat stress or exhaustion.

To avoid heat stress, hunt when temperatures are less extreme (early morning and evening) and be sure to provide your dogs with plenty of water.

An untrained dog in a boat can cause a safety concern for the dog and any occupants. Hunters must always be aware of where their dog is before firing a gun; proper training will minimise the potential of injuring a dog while hunting.

A lot of duck hunting occurs around swamps, rivers and dams. These places provide perfect habitat for snakes and ticks. Take your dog to a veterinary clinic at the first sign of any unusual symptoms.

Avoid hunting with dogs in wetlands with blue-green algae blooms. Blue-green algae may kill dogs.

### Dam jumping

- Try stalking around the dam bank to give yourself a crossing shot
- Avoid shooting going away birds, specifically if the shot is more than 35 m – a 'going away' bird has its vital organs protected by its gizzard and backbone structure, reducing the likelihood of adequate pellet penetration. This can result in lost or wounded birds

# Section 3
# Sharpen your skills

## Effective shooting skill distance

It is essential that all hunters know their maximum shooting skill distance. This is the optimum distance at which you can consistently (at least 75%) hit a moving target with the first shot. Shooting at birds beyond this distance will most likely result in misses or, worse, wounding and losing birds.

Shooting beyond your maximum shooting skill distance is one of the most significant contributors to waterfowl wounding. Research has shown that as the distance of shots increases, so too does the level of wounding.

However, shots taken within your maximum shooting skill distance will greatly increase your success rate and significantly reduce game bird wounding. This requires self-restraint and discipline but will pay off by putting more birds in your bag.

To determine your maximum shooting skill distance, set up a clay target thrower to throw crossing shots (left-to-right or right-to-left) approximately 25-45 metres (82-148 feet) off the ground and travelling at about 64-72 km/h (40-45mph) at the point at which it is to be shot.

This simulates one of the most common shots in duck hunting at the approximate speed of a passing duck.

Starting at 20 m from the point in the target's flight path where it will be shot, set up a series of witches hats or other markers at intervals of 10 m, out to a distance of 50 m (i.e. 20, 30, 40 and 50 m). Then, starting at the 20 m mark, shoot at eight targets. If you hit 6 out of the 8 (i.e. 75%), move back to the 30 m mark. Again, if you hit 6 out of 8, move back to the 40 m mark, and so on.

Your maximum shooting skill distance is the greatest distance that you can consistently hit 6 out of 8 targets. For example, if you consistently hit 6 out of 8 targets at 20 m, but fewer than 6 at 30 m, your maximum shooting skill distance is 20 m.

Research has shown that for the vast majority of hunters, their maximum shooting skill distance is 25 m. The only way to increase your maximum shooting skill distance is to practise regularly in situations that replicate field conditions (see the section *Practise properly* on page 29).

Always pass up shots that are beyond your maximum shooting skill distance. If you are not confident, don't shoot. This level of personal discipline should be applied on the shooting range and in the field.

Use strategies to bring the birds to within your maximum shooting skills distance, such as the use of blinds, decoys and callers.

## Pattern testing

Pattern testing is a simple way to assess the performance of your chosen choke and shotshell combination. Not dissimilar to rifle shooters sighting in a rifle, shotgunners should pattern test their shotguns so that they have a clear understanding of how their gun and ammunition performs and how effective it will be in cleanly dispatching birds.

Patterning is a practical exercise that involves shooting a specific barrel, choke and shotshell combination onto a patterning board with a recordable surface (e.g. sheet of paper). This should be undertaken at distances you are likely to encounter in a hunting scenario and within your maximum shooting skill distance.

Patterning shows you the suitability of choke and shotshell combinations for various shotgunning applications, through the assessment of pellet strike density and the distribution of pellets within a given area.

Pellet density and pellet penetration are the two most important factors that combine for a lethal result. Pattern testing is a two-dimensional representation of this three-dimensional event, and allows you to assess the effectiveness of your gun and shotshell loads by comparing results with the lethality table.

### How to pattern test your gun

Patterning can be done with simple, homemade targets—sheets of blank paper about 1.2 x 1.2 metres in size, with a 12-millimetre-thick plywood backing board of the same size. The centre of the paper should be at shoulder height.

This easy setup allows users to simply change the paper after every shot. Also, the backing plywood board is penetrable, meaning pellets won't rebound off the backing surface, re-penetrating the patterning sheet and distorting the results. Because the pellets will penetrate the plywood, ensure that you have a safe background.


**Figure 11. Patterning**

**A good size for a backing board is 1.2 m x 1.2 m.**

1. Fire your chosen shotshell combination into the centre of the patterning sheet.
2. After taking the shot, use a marker to draw a 76-centimetre (30-inch) circle around the largest concentration of pellet strikes. Count and record the number of pellet strikes inside the 76-centimetre circle and mark the details of the shotshell (pellet size, charge, and payload weight) and choke so you don't forget them.
3. Do this a minimum of three times for each shotshell, choke, and distance combination (one shot per sheet of patterning).
4. Total and divide the number of pellet strikes in the 76-centimetre circle by the number of shots taken, which will provide you with an average.
   - The pattern of pellets within a 76-centimetre (30-inch) circle should be of a proper, even density to ensure a clean kill. The pattern should contain a sufficient percentage of the load.
   - Continue this process, trying different choke and load combinations, until you get an even pattern density with a sufficient percentage of the load within a 76-centimetre (30-inch) circle while shooting from the distance that you expect to be from your quarry.
   - Refer to *Tom Roster's 2012 Non-Toxic Shot Lethality Table Adapted to Australian Game Birds* to determine the minimum pattern counts required for a quick kill.

**It is recommended that each barrel, choke and load combination be patterned at least three times to eliminate chance variations in your pattern.**

In order to cater for differing hunting scenarios, hunters should pattern test using different choke and ammunition combinations.

**Issue:**

*At my chosen maximum shooting distance, I did not achieve the minimum pattern density requirement outlined in Tom Roster's 2012 Nontoxic Shot Lethality Table Adapted to Australian Game Birds.*

**Solution(s):**

- Try a smaller shot size within the 'Most Effective Shot Size(s) for Activity' column contained in *Tom Roster's Lethality Table* for the bird and the distance to be hunted
- Try a heavier load weight
- Try a different brand of choke, choke profile or constriction.
- Try a different brand of ammunition
- Try a cartridge with a lower load velocity

**All patterns have 'gaps'. This is only a potential issue when firing at game birds moving in the direct path (in line) of a shot string. When game is flying across the shot string (shot column), this is not an issue.**

# Range estimation

After poor shooting skill, the most important factor contributing to wounded birds and low success hunting, is the inability of a hunter to accurately judge distances and, as a result, fire at game birds beyond their maximum shooting skill distance.

Hunters should know their maximum shooting skill distance and learn to accurately estimate the distance to their game bird. You should only take shots out to this distance and not beyond.

There are a number of techniques for estimating the distance to your game species. These can be applied for all game bird hunting situations.

Correct distance estimation allows you to accurately determine if a game bird is within your maximum shooting skill distance and whether the shotshell and choke combinations that you have tested will be effective in those situations.

**Like all skills, these range estimation techniques must be practised and applied as often as possible so they become an instinctive process when hunting.**

## Personal shooting skill distance and the effective range of equipment

It is essential that game bird hunters are familiar and confident with their shooting skill capabilities and the distances to which these extend. Once game bird hunters know their maximum shooting skill distance, they can tailor their hunting equipment (chokes and loads) to be species and range specific.

**Example:** If a game bird hunter knows his/her maximum shooting skill distance is 25 m, then a game bird should not be shot at beyond this range. Additionally, the hunter's ammunition and choke choice should be suited to this distance.

Knowing their maximum shooting skill distance, a hunter can quickly judge which game birds are within effective range. There are many methods that hunters can use to quickly judge distance. Some of these methods are:

- electronic range finders
- distance markers
- distinctive decoys located at known distances
- surrounding features
- distinctive features on game animals and birds
- the *Subtending Method* (see page 28)

## Electronic range finders

The use of electronic range finders is an easy way to determine actual distances quickly and accurately in the field. It's also an excellent tool for practising and assessing distance estimation skills.

Electronic range finders are also useful for marking the distance to a defined object (i.e. a tree), allowing quick distance judgement for when a game bird flies by.

## Distance markers

This method involves measuring out your maximum shooting skill distance and placing a visible object at that location. This will give a quick indication of whether a game bird is in range or not.

These distance markers should be a distinct object that is clearly visible (but doesn't scare birds off) in different light conditions, at varying angles and at the maximum distance you intend to shoot. These objects can include survey stakes, branches, ribbons, or distinctive sized/coloured decoys, etc.

## Using surrounding features

This method involves identifying features that can be found in any hunting environment and applying a process of measurement that will help to determine the approximate range of game. These features can be naturally occurring or man-made, and include things such as trees, fence posts, irrigation ditches or channels, etc.

The following examples illustrate this easy method.

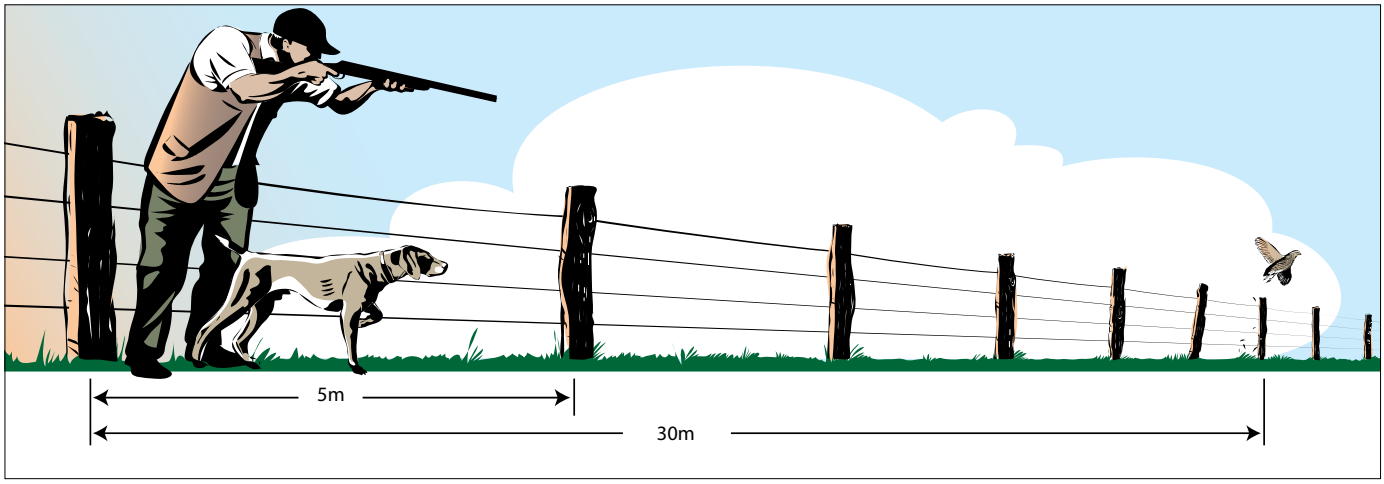



**Figure 12. Man-made features distance comparison**

The use of fence posts to aid in range estimation applies in different land based hunting situations, such as the hunting of quail, hare, rabbit, fox, etc. Fence posts are also sometimes used to help in range estimation when hunting waterfowl in flooded paddocks where the fence posts are still visible. This method works where fence posts are set at uniform distance apart. If the distance between fence posts was measured at 5 m, than you could assume any game getting up beyond the sixth fence post is approximately 30 m away.

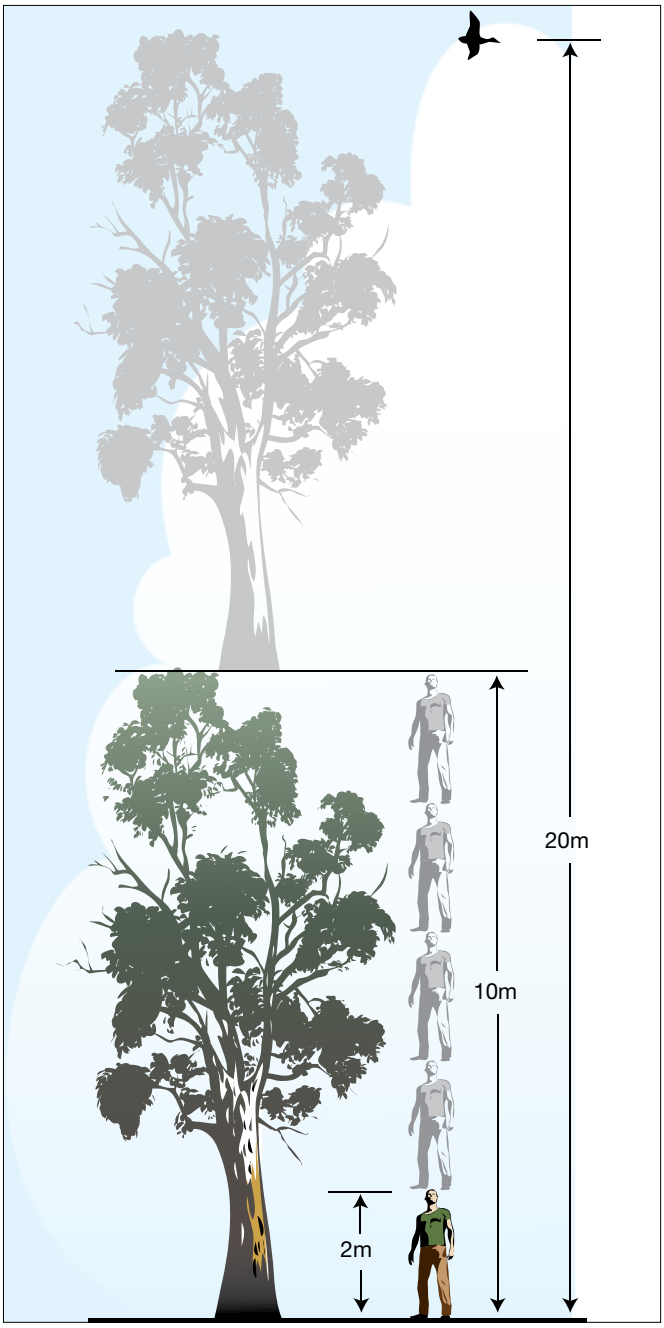



**Figure 13. Natural features distance comparison**

Using the height of a hunter in comparison with a tree is one way to determine the height of a bird's flight path.

If you know that waterfowl are flying two or three times the height of a nominated tree, then by projecting a human form (hunter) against that tree and figuring out how many hunters make up the height of that tree, you can figure out the approximate range of those birds.

Assume that an average hunter is 2 m (over-estimate slightly) tall, and that five hunters would make up the length of that tree. This would make the tree about 10 m tall. If the birds are travelling two or three times the height of the tree, this would mean that the birds are about
20–30 m from the ground.

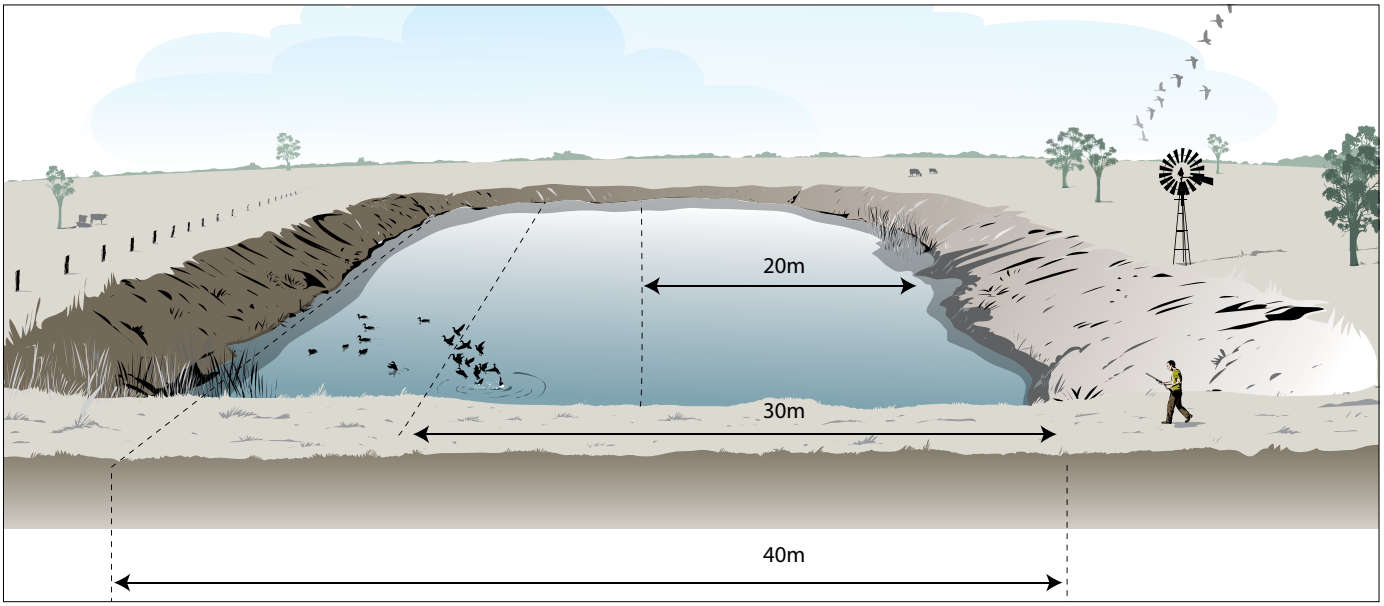
This example is specifically designed for when a hunter is standing directly under the bird.

**Figure 14. Dam distance comparison**

Man-made dams (and channels) are often hunted for ducks. Determining distances across these bodies of water can be measured readily.

Most channels can be measured along foot/road bridges that cross them and dams by walking the levy bank.

If a levy bank is measured to be 40 m in width, you can readily project what the quarter (10 m), halfway (20 m) and three-quarter (30 m) points are with reasonable accuracy.



# The Subtending Method

## Subtending

Subtending (a geometry term) can be used to describe a technique for quickly and accurately determining if various sized game species are in range of a shotgunner's skills and equipment.

Subtending works by knowing how different game birds look at different distances in your shotgun sight picture. Information obtained from practising this technique at home will allow easy application in the field.

## Applying the subtending technique

Identify the game species and the likely range you will take the shot. For this example, we'll assume your normal hunting scenario involves hunting Pacific Black Duck (Large Duck) at a decoying range of around 28 m.

Make a life-size (anatomically correct) cut-out profile silhouette of the game bird. Where possible, these profiles should depict typical game presentations seen by hunters in the field. In the case of the Pacific Black Duck, this could include cut-out profiles of flying birds in an overhead, crossing or incoming position.

Erect the cut-out shapes at the range that you intend to harvest the game bird. Using the example, this will be a distance of 28 m. Cut-outs can be erected on poles or frames, or they can be hung from a tree or other structure.

The subtending technique involves mounting your hunting gun and observing the sight picture you get when pointing the barrel at a life-size cut-out at your desired range. This allows you to assess and compare the width at end of your gun barrel and the overall length (bill to tail) of the cut-out game bird shape for crossing shots. For overhead shots use the wing tip to wing tip measure.

In this specific case using a Pacific Black Duck at 28 m, most hunters will see some overhang of the bird either side of the barrel. This now becomes a frame of reference for determining if this game bird is within range when out hunting in the field.

When hunting, if you see the same sight picture as when practised or a sight picture with more bird overhang, then the game bird is within your maximum shooting skill distance. Alternatively, if you see a smaller sight picture or no overhang, the game bird is beyond your shooting range and a shot should not be attempted.

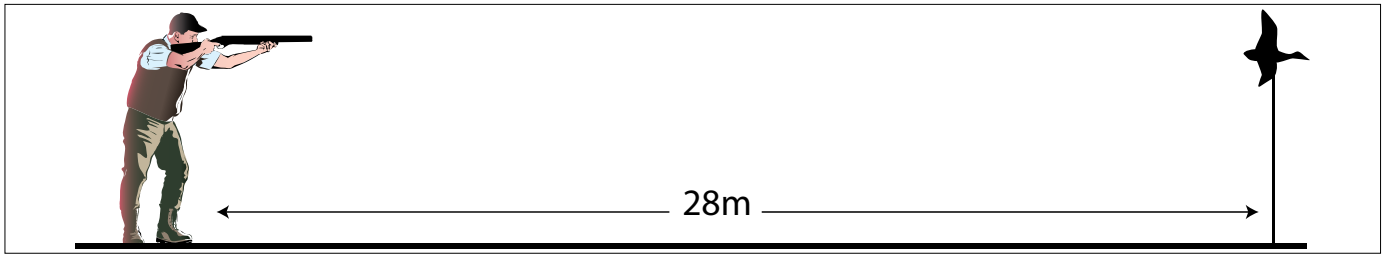



**Figure 15. Illustrates subtending on crossing targets**

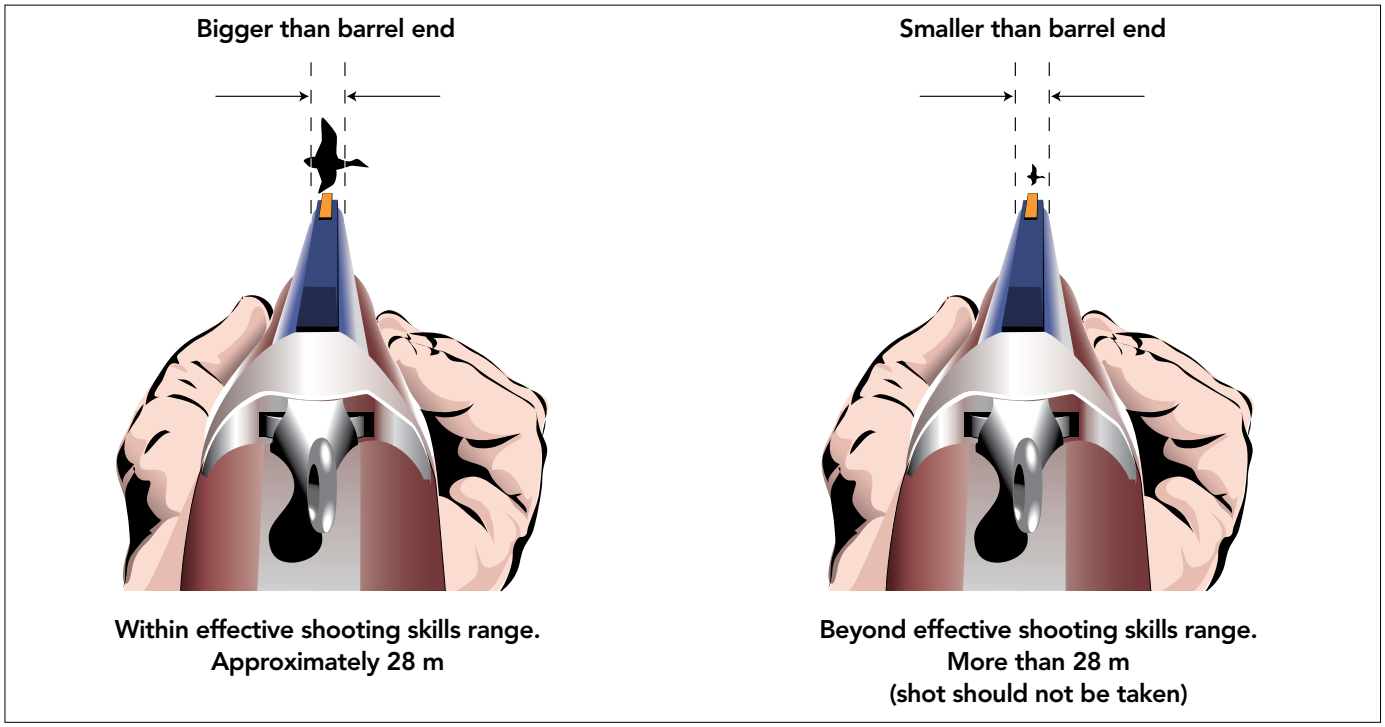



**Figure 16. Subtending sight picture**

# Practise properly

Developing and maintaining proficient shooting skills is a fundamental part of being a responsible and effective bird hunter. In addition, there are significant benefits associated with building and maintaining adequate shooting skills. These include a reduction in the:

- average number of cartridges used to bag a bird and, therefore, a reduction in the annual cost of ammunition
- side effects associated with unnecessarily prolonged shooting, such as recoil, flinching and fatigue
- number of misses and potential to wound game

From a hunting point of view, these are all positive benefits that can help produce a rewarding and satisfying experience.

## Meaningful practice

The best way to develop and maintain proficient shooting skills is through regular and meaningful clay target shooting practice.

Hunters wanting to practise shooting skills before going into the field often ask whether they should be practising with the aid of Tower, Skeet, Trap (DTL), ZZs or Sporting Clays. While all these clay target shooting disciplines offer some value to the hunter, particularly with regard to gun familiarity, they should not be relied upon to develop accurate shooting skills for bird hunting applications. This is because these shotgunning disciplines seldom simulate actual game bird hunting situations or game bird flight characteristics.

To properly practise for field hunting situations, it is imperative that clay targets are presented in a way that accurately (within reason) simulates the typical speed and trajectory of the game bird being hunted. It is also recommended that the hunter should practise with the same non-toxic shot type they will be hunting with In the field (steel shot for most hunters). Furthermore, hunters should practise with loads of the same velocity as those used in the field.

Before undertaking meaningful practice, a hunter should know:

- the type of game bird species (quail, partridge, pheasant or duck) they intend to hunt
- whether they will hunt over flushing or pointing dogs, or will walk up to birds in the field without a dog
- if they will pass-shoot ducks or hunt over decoys
- their individual maximum shooting skill distance

With knowing this information, hunters can set up target facilities to simulate field hunting situations and ensure meaningful practice.

## Targets

Clay targets come in a variety of sizes, shapes and colours. It is important to practise with targets that are clearly visible at all times and of a size that closely (within reason) simulates the game bird being hunted. This will improve your ability to gain the correct sight picture, read the line/ trajectory when measuring the lead (forward allowance) to strike a moving target.

It is recommended that for game birds the size of duck, pheasant and partridge a 'Standard' (105 mm–110 mm) target should be used. For game the size of Stubble, Brown, Bobwhite or California Quail, use a 'Midi' (65 mm) sized target.

**Non-standard targets such as Mini/Super Midis or Battues do not effectively simulate game birds.**

When throwing these targets against or over a background of dense green vegetation, it's recommended that a fluoro-orange coloured target be used to enhance visibility. Avoid using black or banded targets in this scenario. Similarly, when throwing targets against brown or dried-out vegetation, a fluoro-green coloured target may be a good option.

When throwing a target against a blue/clear sky, it's recommended that orange targets be used.

## Target set-up

The purpose of correct practice is to simulate the typical flight of a specific game bird in a field hunting situation. Relevant distance and speed must be decided on before setting a target to allow a practising hunter to place a shot accurately.

There is no benefit in hunters practising at ranges outside their maximum shooting skill distance. If a hunter's maximum shooting skill distance is 25 m, then practising on 30 or 40 m targets is of no benefit.

## Setting-up for quail, partridge and pheasant

For game such as quail and partridge, the target should be presented in an outgoing, quartering away and some instances crossing (right-angle) presentation at a height of approximately 0.9–1.8 moff the ground. See **Appendix 4** for specific information about hunting Stubble Quail in Victoria.

For pheasant, the clay target trajectories are much the same, however, the height should be set at around 0.9–2.1m off the ground. These scenarios simulate hunting over dogs or walked-up hunting situations. To simulate driven pheasant, the target height should be 25–45m off the ground.

All outgoing or incoming targets should be within 45° of either side of where the shotgunner is facing. In specific cases where the hunter knows that they will be hunting over pointing dogs, the clay trap can be set within 5–10 m of the shotgunner. If the hunter knows that they will be working over flushing dogs or walking-up game, clay traps can be set further away at about 10–15m.

Where a hunter doesn't use a dog while hunting, a walked-up target release system can be used. This is done by instructing the shotgunner to begin walking towards the clay trap; when the trap operator feels the shotgunner is within the desired shooting distance, the clay target is released.

With relation to these specific game bird species, the target speed should be set at around 48–56 km/h (30–35 mph) at the point at which it is to be shot.

## Setting-up for duck

For duck, ideally the target should be presented as a crossing (right-angle), overhead incoming or overhead outgoing presentation at a height of 25–45m off the ground.

All outgoing or incoming targets should be within 45° of either side of where the shotgunner is facing. In these scenarios, the target speed should be set at around 64–72 km/h (40–45 mph) at the point at which it is to be shot.

In addition, low incoming targets can be presented to the shotgunner to represent decoyed (incoming) waterfowl. The target speed for this decoying scenario is not critical, however, the target should land within 15–25m from the shotgunner.

## Setting-up for geese

For Magpie Geese, ideally the target should be presented as a crossing (right-angle), overhead incoming and overhead outgoing presentation at a height of 30–45m off the ground, with the target speed set at around 40–48 km/h (25–30 mph) at the point at which it is to be shot.

All outgoing or incoming targets should be within 45° of either side of where the shotgunner is facing.

## Firearms and chokes

In order to simulate in-field hunting scenarios, the gun normally used when hunting should be used during any practice session.

If the shotgun has a removable screw-in choke system, the same chokes tubes used for the hunting should be used when practising. Obviously, each shotgunner will have assessed the suitability of their hunting loads and chokes well before any shooting practice.

## Ammunition

Selected target ammunition should have the same characteristics as ammunition used in the field. If hunters are using non-toxic shot, such as steel (soft iron) shot in the field, then steel shot target loads should be used in practice.

**Ideal steel pellet sizes for target shooting practice should be either U.S. #6 or #7 in either a 21 gram (3/4 ounce), 24 gram (7/8 ounce) or 28 gram (1 ounce) load.**

To maintain consistency, the target load velocity should ideally be within a tolerance range of ±50 fps when compared to the typical shotshell load used in the field.

## Clothing

As far as possible,practising hunters should be encouraged to wear the same clothing that is typically used during any hunting activity as this will influence overall shooting performance.

For example, a thick hunting jacket could affect the feel of the gun, which may have a negative impact on being able to mount the gun correctly and consistently, as well as being able to swing the gun naturally from side to side.

## Shooting practice tips

Don't over-practise; always assess your ability to cope with prolonged exposure to recoil and gun noise. The effects of recoil and gun noise will vary from person-to-person, however, if signs of flinching, fatigue, or loss of concentration are apparent, stop practising.

When practising, only shoot one cartridge at a time and aim to consistently break upwards of 75% of targets at any given presentation and range. As a general rule, shotgunners should shoot about 75–100 cartridges per practice session. Shooting more than this is generally counterproductive due to recoil and fatigue.

**Always wear ear and eye protection, even when watching others shoot.**

In a real hunting situation, the second shot should be reserved as a follow-up of the first shot, which may have only struck and not rendered the bird immobile.

Always pass up shots that are beyond your maximum shooting skill distance. If you're not confident, don't shoot. This level of personal discipline should always be applied on the shooting range and in the hunting environment.

# Further considerations

Being effective and proficient with a shotgun relies on factors such as proper gun fit, correct positioning of feet, body weight distribution and the ability to mount the gun properly and consistently.

Correct foot position and body weight distribution will greatly improve a shotgunner's natural ability to swing the gun, as well as to retain their balance before and after the shot.

Generally, feet are positioned shoulder-width apart with the left foot (for a right-handed shooter) pointed in the general direction of where the shot will finally be taken. In the case of a left-handed shooter, the right foot will be positioned in the general direction of where the shot will be taken.

Body weight distribution while shooting becomes a case of personal preference of what works and what doesn't work for the individual. Irrespective of what method is adopted, the shotgunner must ensure that they are constantly capable of retaining their balance before and after the shot is taken. The chosen method must allow natural and free movement of the gun when it is swung in both a horizontal and vertical plane.

Many shotgunners have found that both free gun movement and balance can be achieved by slightly bending their forward knee and shifting their body over that knee to a point that is comfortable and natural. This method is used specifically when taking crossing targets on a horizontal plane. In a situation where a shotgunner is taking an incoming overhead shot, the body weight is often shifted to the back foot.

Seek help or advice from a qualified shooting instructor or someone whose abilities you have confidence in. Getting assistance could save hours of frustration, time and money, and will help you become a more technically skilled and proficient hunter.

# Section 4
# Taking the shot

## Shooting techniques

The ability to be a proficient shotgunner greatly enhances your ability to be an efficient and effective hunter. A sound proficiency requires many hours of practice and a good understanding of shooting techniques.

### The gun mount

The process of mounting your gun to your shoulder (gun mount), if done correctly, will ensure controlled and consistent shooting and will quicken your reaction time.

The gun mount normally begins from the hold/ready position (see Figure 17). In this situation, once a target has been identified, the heel (butt end of gun) is usually held just beneath the level of the armpit, with the muzzle (end of the barrel) held just under the visual line from the eye to the target.

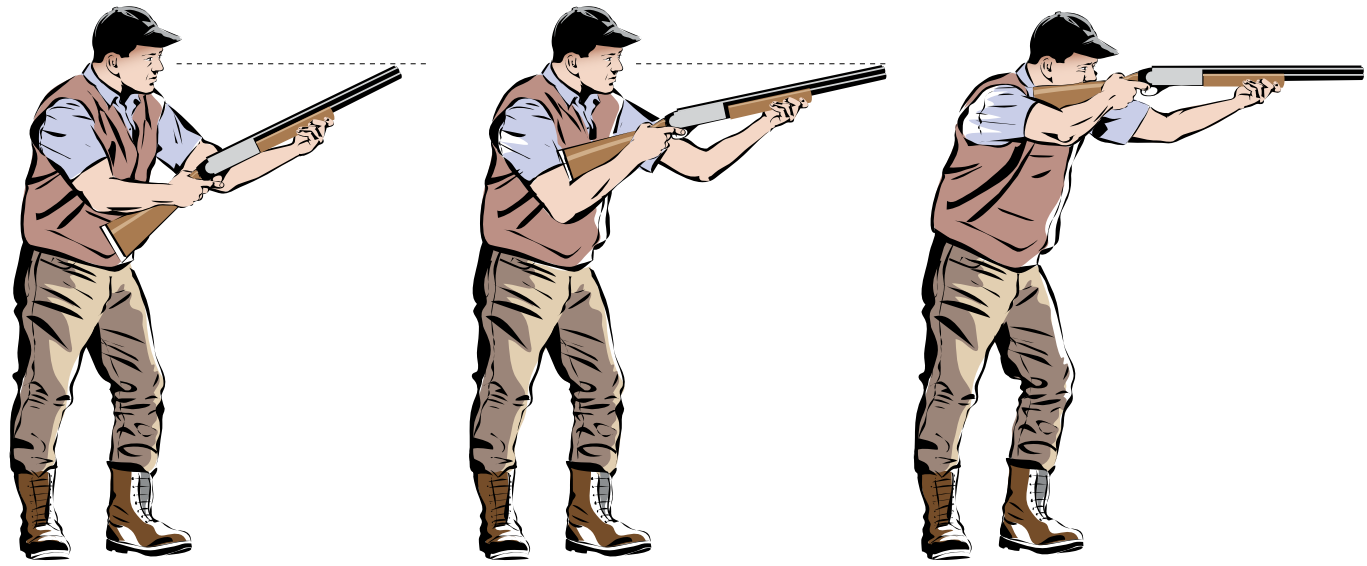
If used correctly, this position is good as the gun doesn't obscure your view. However, if a hunter is late seeing the target, then he or she may not get the gun up to their shoulder quickly enough.

With a coordinated movement of both hands, the gun is raised with the stock rising to the face. The leading hand (the hand holding the fore-end) pushes the gun slightly forward towards the target during this approach before pulling it back to seat firmly into the shoulder, and completing the mount.

**The muzzle should never drop below the level of the stock. The only exception is when taking game at ground level.**

The head movement should remain fairly still during this process, but can be tilted forward to place the cheek firmly on the comb (top section of stock) in a comfortable fashion to allow correct vision along the sighting plane of the gun.

It is important not to hold the gun too tightly. The hands must still be able to control the gun, without creating unwanted tension throughout the arms and body. A good gun mount should be smooth and unhurried but deliberate in action. Regular practising of gun mounting will help maintain and improve your shooting ability.



Hold/ready position

Hold/ready position
*Bring to shoulder*

Mount position
*Stock seated in shoulder*

**Figure 17. Mounting gun**

## Lead (forward allowance)

Shotgun users of all types (hunters, clay target shooters, etc) use the term 'Lead' (Forward Allowance) to describe the distance in front of a moving target at which a shot must be taken to hit it. To hit a moving target, a person must aim (point the muzzle) in front of it, rather than aiming directly at the actual target. This ensures that the shot column intercepts the target while it is moving. If a person aims directly at the target instead of in front, then the shot column will fly behind the target and miss.

The question is how much lead is needed to intercept a moving target at different distances and speeds. Each person, whether hunting or target shooting, has his or her own individual style, experience, ability and reaction time. These individual shooting techniques will affect the way a person calculates the amount of lead required.

Combined with an appropriate shotshell and choke combination, correct lead will ensure that sufficient pellets strike key vital organs harvesting game birds effectively and humanely. It is also important that the front half (vital organ region) of the game bird body is struck. To ensure this happens consistently, you need to be proficient in lead shooting techniques.

There are three commonly used and proven shooting techniques:

1. **Maintained Lead or Sustained Lead**
2. **Pull-away**
3. **Swing Through.**

## Maintained or Sustained Lead

Before attempting this shot, the hunter should have a preferred shooting distance within their skill range and a designated shooting zone in which they have chosen to take the shot.

As a game bird comes into view, the shotgun muzzle should be ahead of the game bird. When the game bird approaches the designated shooting zone, the gun is mounted with the muzzle still in front of the game bird. The muzzle is brought forward of the target, allowing the hunter to measure the required distance necessary to intercept the game bird. The trigger is then pulled and the gun continues to swing on after the shot is taken.

## Step-by-step

Be familiar with the hunting area and know where a shot can be taken to achieve a successful retrieval.

- Identify the game bird, distance and speed
- Don't rush; move the muzzle forward of the target
- Mount gun in front of the target
- Move forward to required lead and squeeze trigger
- Keep the gun moving and mark the fall area of the game
- Never allow the muzzle to fall behind the game bird path during flight

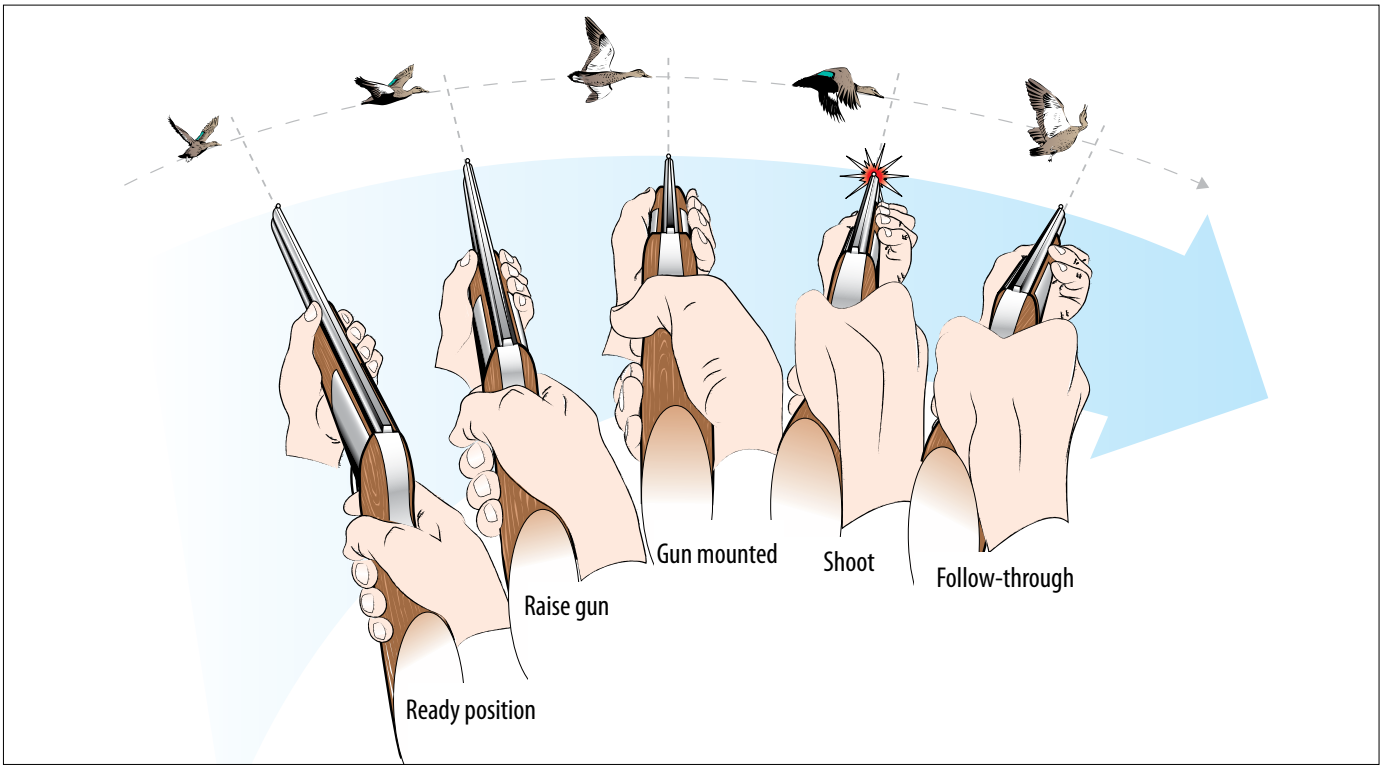



**Figure 18. Sustained Lead technique**

## Pull-away

The Pull-away is similar to the Maintained/Sustained Lead technique but has a greater emphasis on intercepting the target in the final stages of the process without sustaining a maintained lead position.

Before attempting this shot, the hunter should have a preferred shooting distance within their skill range and a designated shooting zone in which they have chosen to take the shot.

As the game bird approaches, the hunter must visualise the distance, speed and angle. Once the game bird moves within the effective shooting range, the hunter begins to move the upper body – pushing the muzzle towards the game bird. As the gun is rising to the face and shoulder, the muzzle will be pointed at the game bird and continue along the same trajectory.

With the gun now completely mounted, it is pulled forward of the bird in a controlled and deliberate effort, once the correct lead distance is identified the trigger is pulled. The gun must continue to follow through, helping the hunter maintain visual contact with the struck game bird.

To accurately place a shot column using the Pull-away technique, it is important to create a gun and target relationship. Pointing and following the target for a distance prior to shooting, helps to ensure the correct line (trajectory) for the shot to be taken.

## Step-by-step

- Be familiar with the surrounds and where the bird is likely to drop to increase chances of a successful retrieval.
- Clearly visualise the game bird to help judge distance, speed and angle.
- Don't rush; move the muzzle towards target
- As the gun is mounted, point at the target
- Continue along its flight (gun and target relationship)
- Move gun ahead of the bird to create lead and squeeze the trigger
- Continue to swing, maintaining visual contact of struck game bird

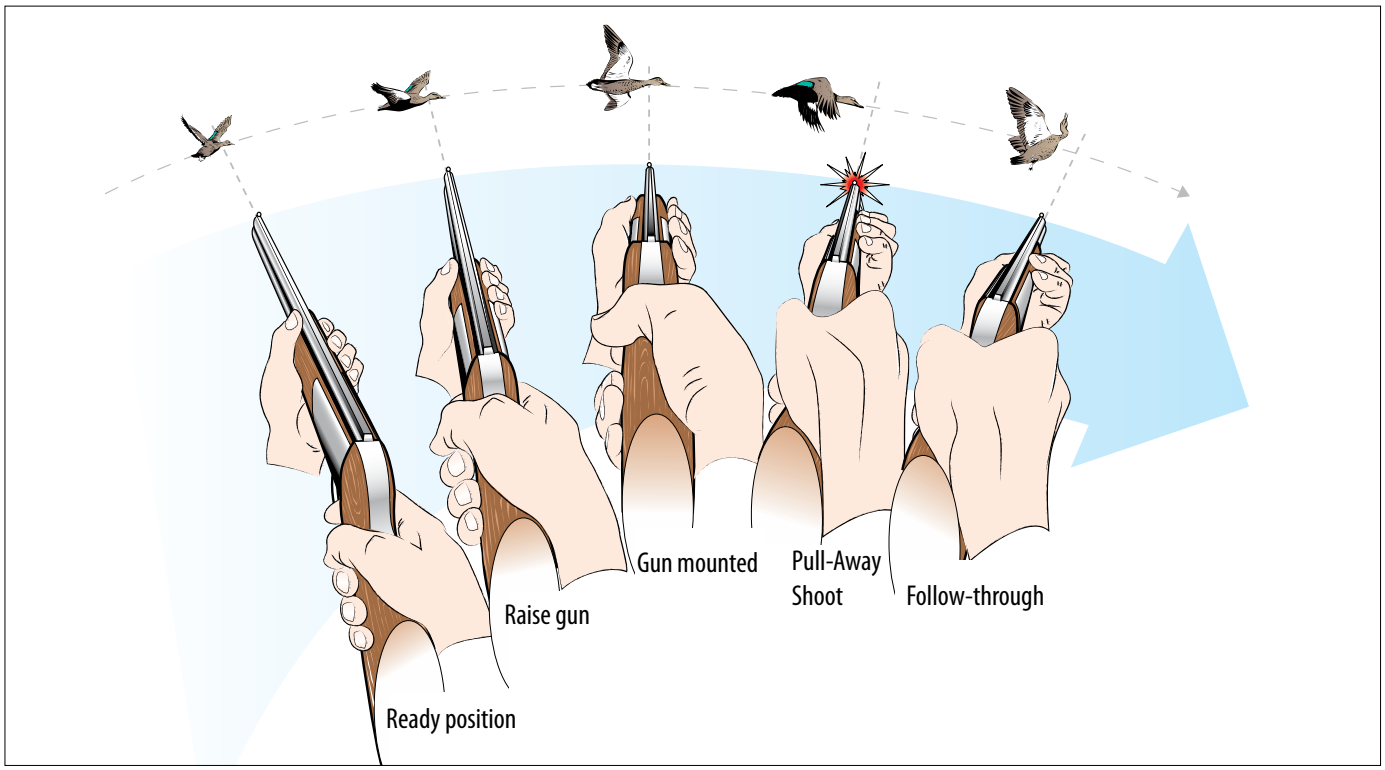



**Figure 19. Pull-away technique**

## Swing Through

The Swing Through method can be used effectively in a range of shooting disciplines. This technique is the one most commonly used by duck hunters and can be used when a game bird approaches or retreats from a hunter at any angle.

Before attempting this shot, the hunter should have a preferred shooting distance within their skill range and a designated shooting zone in which they have chosen to take the shot.

As a game bird enters within the hunter's known maximum shooting skill distance, the hunter, judging the game bird's speed, distance and angle of approach, concentrates purely on the front half of the game bird. The gun is mounted with the muzzle approaching from behind the game bird.

When the muzzle catches up to the game bird, it is pushed through and in front of the target in a controlled manner. The trigger is pulled instinctively as the muzzle reaches the correct distance in front of the game bird. The gun must continue to follow through, helping the hunter to maintain visual contact with the struck game bird.

**The Swing Through technique is probably the most natural of all three. Instinctive movements, like hand and eye coordination and good gun handling skills, will achieve the desired result.**

## Step-by-step

- Be familiar with the surrounds and where the bird is likely to drop to increase chances of a successful retrieval.
- Pick up and clearly identify the chosen target
- Judge the speed, angle and distance, concentrating on the front of the bird
- Starting the muzzle behind the bird, move the muzzle towards the target approaching from behind
- Swing the muzzle along the same plane as the target, drawing level with it and then moving ahead in a controlled motion to creat the required lead
- Squeeze the trigger when reaching the correct distance in front of the bird
- Continue your swing (do not suddenly stop swinging on pulling the trigger) looking for evidence of a struck target for retrieval purposes

**Successful retrieval of downed birds should be your highest priority. Similarly, keeping shooting to within your maximum shooting skill distance and known effective range of your choke and shotshell combination is also vital.**

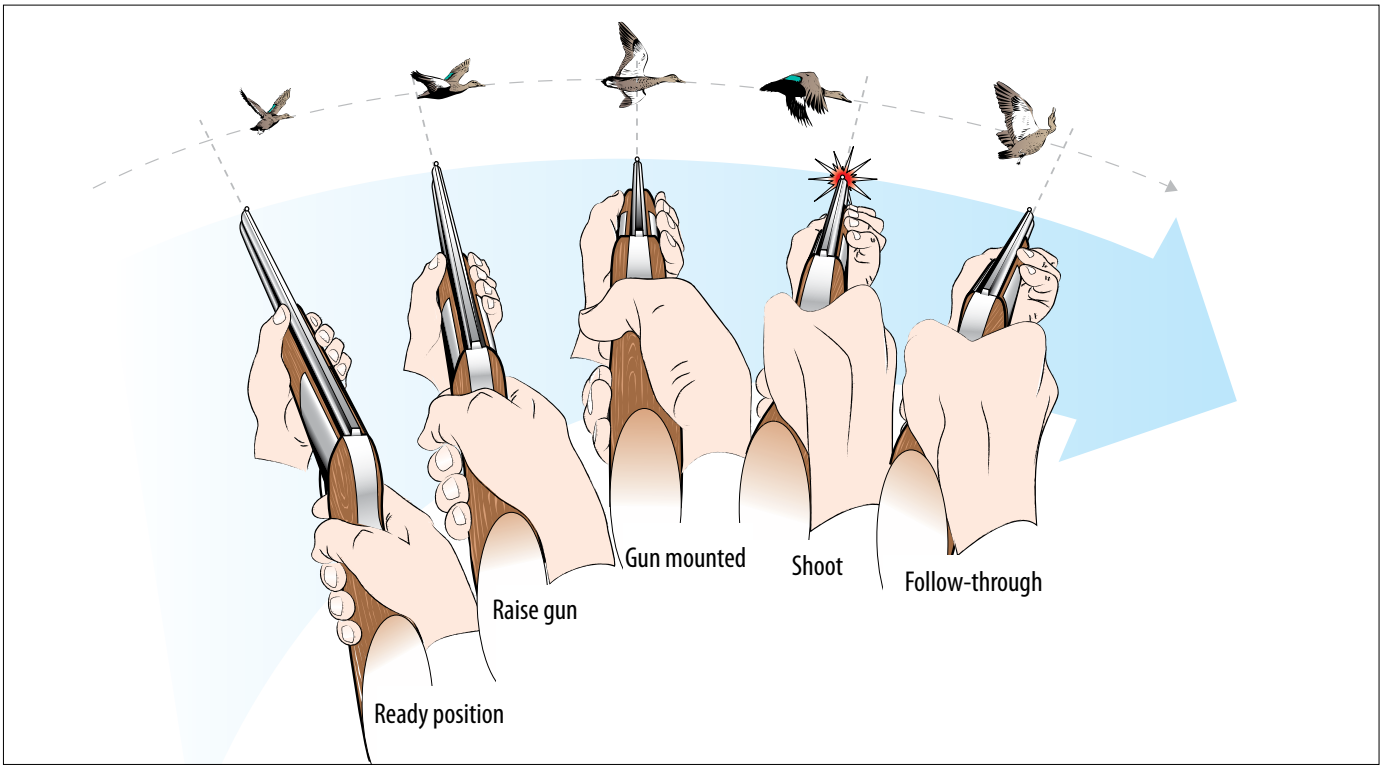



**Figure 20. Swing Through method**

# Take the shot

**Whichever shotgunning technique you have adopted, there will be a moment while hunting when your mind says "pull the trigger". This rapid assessment of the target comes from hours of practice. It assesses target size, speed, trajectory, distance and your surroundings so you can make a safe and effective shot. However, there will be situations where taking a shot is to be avoided.**

## Situations to avoid

**'Skybusting' – do not shoot beyond your maximum shooting skills distance.**

- The chance of wounding a bird increases as shot distances increase
- Increased distance reduces pellet density at the point of impact and reduces pellet penetration
- Hunters must be aware of their maximum shooting skill distance and only shoot birds within this range
- Shooting at distant birds only makes them more wary of hunters and deprives other hunters of taking more realistic shots

**Do not shoot at the front bird or into the middle of flocks**

- Hunters who shoot into the middle of large flocks risk missing and wounding birds
- If hunters target the front (lead) bird, then any misses are likely to affect trailing birds in the flock
- Hunters should target the back or lone birds. In doing so, any aim error will not affect nearby birds

**Avoid taking going away shots at birds beyond 35 metres**

- A 'going away' bird has its vital organs protected by its thick muscular gizzard and backbone structure, reducing the likelihood of adequate pellet penetration and often resulting in lost or wounded bird.
- Beyond 35 metres, there is generally insufficient energy in pellets to consistently penetrate the gizzard and reach vital organs

**Avoid dropping birds in heavy cover**

- Birds dropped in heavy cover hide and are often extremely difficult to locate, even with the assistance of a well-trained dog
- Birds that are lost become vulnerable to predators and the natural elements, are often not able to feed and are likely to perish

**Avoid shooting at multiple birds**

- Once a bird is downed, cease shooting and focus on retrieving the downed bird immediately
- If another bird presents itself following a downed bird, do not take a shot. Another shot will shift your focus away from retrieving the downed bird. This provides the downed bird an opportunity to escape if it is wounded. This situation may result in two wounded and lost birds instead of one successfully retrieved bird
- If a pair of birds present, focus on one bird only. If one bird is struck, reserve the second shot to immediately dispatch it if wounded

# Section 5
# After the shot

## Retrieval strategies

Planning the retrieval of your game is an important part of planning your day's hunting. A successful hunt requires well thought out retrieval strategies. All hunters must make every effort to retrieve the game they have shot, ensuring game is recovered in a humane and efficient manner. There are a number of strategies a hunter can use.

Never shoot at multiple birds. If you down a bird, recovering it must be the sole focus of your attention. Don't shoot at another bird until you have made every effort to successfully bring the downed bird to hand.

Any retrieval strategy should cater for two possible scenarios:

1. Game that has been struck and killed by a hunter's shot.
2. Game that has been struck and wounded.

It is important that gamebird hunters can distinguish between these two scenarios and can identify signs of wounding.

**Definition: Wounded = struck but not retrieved**

### Identifying struck and wounded game

Some of the most common signs of wounding in game birds include:

- a trail of feathers in line with where the shot was taken
- momentary hunching of the rear of the bird when the shot is taken
- irregular wing beats or limp wing tips in birds, either immediately or soon after the shot
- irregular flight pattern either rapidly downward or upward "towering" sometime after the shot was taken
- "sailing", where the struck bird will glide for periods in between periods of wing beats
- hanging leg/s soon after the shot

### Developing a retrieval strategy

When developing a retrieval strategy, a game bird hunter should consider all hunting situations that are likely to be encountered in the field. The first consideration is how struck game will be recovered.

Consider the following factors when developing an effective retrieval strategy:

- Identify hunting sites or shooting zones where downed game can be readily retrieved – avoid hunting in areas of heavy cover
- Don't assume that downed birds have been killed outright
- Once a bird is struck, stop shooting and immediately recover the bird
- Know the hunting location and the characteristics of its associated habitat
- Use equipment that will aid in the retrieval of downed birds. (This could include such things as a gundog, swatter loads, boats, etc)

**Poorly trained dogs are a hindrance to successful retrieval and can lead to lost birds. If they can't be effectively controlled, Its best to leave them at home and continue training.**

**Swatter loads are shotshell combinations specifically used for dispatching downed birds. These loads produce a rich, dense shot pattern. Typical shooting range for swatter loads is 20–32 m, with the most effective steel shot size #7 to #5 at 1 oz/28 g.**

# Recovering downed birds

Recovering downed birds is not as simple as moving to the spot where you thought your bird went down. In most cases, planned retrievals are required. Practices and techniques that game bird hunters can use include:

- As far as possible, once game has been shot at, never take your eye off the bird until it has been retrieved.
- Hunt with a partner and work as a team, taking turns to shoot. Your partner watches the results of your shot and acts as a spotter for downed or struck game. The partner can then provide directions to get to a position of downed game once you have left the cover or blind/hide.
- If the game bird has been shot at and visibly struck, keep your eye on it and carefully fix the spot in your mind where it has finally gone down. Where possible, use a nearby natural feature (distinct stump, vegetation, etc) to mark the spot.

**Once a bird is struck, you must focus on that bird only and retrieve it immediately. Do not continue to shoot at other birds.**

**Skilled hunters should be able to reload their shotgun without taking their eyes off a downed game bird.**

- Carry swatter loads to dispatch downed birds that might otherwise escape.
- If possible, use a hunting partner to search for and retrieve the bird while you direct them to the spot where you saw it go down.
- When beginning your search, look for tell-tale signs of where the game went down. This could include feathers, blood and flatterned or moving cover (vegetation).
- Look and listen for any movement that give away the position of downed game.
- If you can't locate a downed bird, mark where the bird went down and search in half circle arches away from where the bird fell at 1 m intervals out to a distance of 20 m.

**Use a highly visible marker to indicate where a bird went down, such as a piece of fluorescent material or clothing. Don't use camouflaged markers as they are hard to relocate. Don't use your gun, as you may need it to dispatch a bird.**

**As an ethical game bird hunter, you should immediately dispatch wounded or possibly wounded game.**

**Things you should do:**

- Only fire at birds that are within your maximum shooting skill distance.
- Always use appropriate and tested shotshell and choke combinations.
- Avoid shooting at the lead bird in a flock. Instead, pick out trailing or side birds.
- Reserve your second shot for an already struck bird. Don't shoot at another bird and risk wounding or losing both birds.
- Carry and use swatter loads for dispatching downed game.
- Retrieve any fallen bird by dog or by hand as quickly as possible.

# Using a retrieving dog

Retrieving dogs can be the best investment that a game bird hunter makes. A well-trained retriever can significantly increase the chances of recovering downed birds. However, a poorly trained dog can result in los birds and disrupt other hunters.

Most waterfowl hunters use a retriever or utility breed. Hunters are responsible for keeping their dogs fit, conditioned and ready for the hunting season. Obedience training is essential to ensure that you have control of your dog at all times while in the field. An obedient dog is easy to handle, will not compromise hunting situations, and won't damage downed birds.

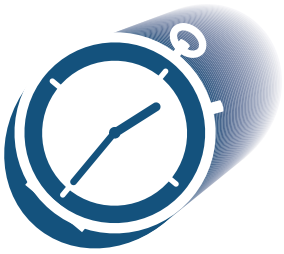
Many hunting organisations and kennel clubs have programs dedicated to training working gun dogs. These offer the perfect environment for hunters to train and skill their dog, and may also organise field trials where dogs can compete and showcase their talents.

Hunters should be aware of regulations regarding field trials and training gundogs to locate birds outside the game bird seasons. For further information, hunters should refer to the Game Management Authority's website.

When hunting, allow your dog to work. Don't take another shot until the dog has completed its retrieval.

Don't shoot over your dog's head. The hearing damage done by a shotgun blast at close range is as bad for dogs as it is for hunters.

Always remember your retriever dog's needs. They get thirsty, cold and hungry. When your hunt is finished, see to the dog's needs before your own. Your dog has worked hard to make your hunt a success and to put birds in your bag.



# Section 6
# Caring for your game

Game birds can easily become contaminated with bacteria if not handled properly. The following guidelines for handling game in the field, as well as its storage and preparation, will help to make food as safe as possible.

*No guarantees can be offered for the safety of any field harvested and dressed game meat given the diverse handling conditions it can be subjected to. However, if these guidelines are followed, they will minimise (but not eliminate) the hazards and maximise the quality of the game meat that you harvest.*

## Care in the field and transport

Always carry a sharp hunting knife, game shears, plastic bags, paper towel, disposable latex or vinyl gloves and a cooler box with ice. A water container, bucket, soap and scrubbing brush are also essential for the hygienic field dressing of game.

There are three choices of basic dressing methods:

1. **Skinning and breasting on the bone**
2. **Skinning and breasting off the bone**
3. **Gutting and plucking.**

Always field dress your birds promptly. The dressing should take place as soon as practical. It is good practice to spread your birds in a shaded area to allow the carcass to cool. Do not pile up birds close together or leave them in the sun.

## Game bird dressing

All animals can carry bacteria in their gut that can be harmful to humans. Hunters should remember that ducks will frequent effluent ponds and may carry bacterial contaminants on their feathers and skins.

**It is always a good idea to wear gloves to prevent the spread of contaminants during any game dressing.**

Dressing a carcass involves separating the edible meat from the potentially contaminated parts of the bird – feathers, skin and innards. Avoid letting the feathers and skin make contact with the meat or your hands.

To skin a bird, always work off the ground by suspending the birds by the neck. After completing the skinning or plucking, wash gloved hands in a container of soapy water and rinse off with further fresh water and dry with paper towel before handling any meat surface. This minimises bacterial transfer.

For duck hunters using mechanical pluckers, consider wearing a dust mask to protect against air-borne pathogens.

The majority of game bird contamination is a result of gut leakages. Early dressing is a priority and birds should be field dressed as quickly as possible. This reduces bacterial migration from the gut if it is retained for too long after the bird is harvested.

Where shot pellets have penetrated the intestinal tract, trim all affected meat. If contaminated meat cannot be completely cut off, the carcass must be rejected as unfit for consumption.

Often during field dressing, hunters may contaminate meat through the spillage of a torn or ruptured gut. Gut spillage cannot be washed off or wiped away, as this just dilutes and potentially spreads contaminants. A good practice is to remove all contaminated meat.

After processing the game bird carcass, put it into in a new freezer bag and place on ice in a cool box as soon as possible to maintain meat quality and minimise bacterial growth in the field.

**Duck hunters must be considerate when disposing of waterfowl remains. Remains should be buried, or bagged and disposed of in the rubbish. If buried, remains should be at least 100 m from water bodies and covered completely with soil in a pit at least 15 cm deep.**

### Method 1: Skinning and breasting on the bone

- Using game shears, snip off both legs above the feather line and both or one wing at the shoulder as required.
- Nick the skin near the base of the neck and tear downwards (avoid puncturing the crop when doing so). Work down and around until the skin is removed past the back of the thighs.
- Avoid meat contact with the feathers while skinning and promptly remove any stray loose feathers.
- Skinned birds can now be breasted without touching or disturbing the entrails, minimising bacterial gut spillage.
- Bacterial gut migration is less likely to come in contact with the meat to be removed so the gutting time interval after death becomes less critical but is not eliminated.
- Breasts are removed in one unit attached to the keel and shoulders by snipping the ribs along the two breast margins and levering it upwards before detaching at the shoulders.
- Promptly place bagged birds on ice in a cooler box, the meat sets on the bone minimising shrinkage and toughness.

### Method 2: Skin and breast off the bone

- Skin the hanging bird as outlined in Method 1.
- Cut down one side of the keel then peel the breast sideways, freeing the outer margins right up to the shoulder.
- Free the fillet at the shoulder or snip it free so that the wing is retained.
- Repeat with the opposite fillet.
- Bag the fillets and promptly place the meat package on ice into a cooler box.

### Method 3: Gut and pluck

- Gutting should be done as soon as practical after the bird is harvested.
- Cut around the vent and open the abdomen to each side, empty the lower crop, sever and remove from the neck at the head.
- Carefully draw out the entrails and the gizzard or stomach, making every effort to remove it intact to prevent gut spillage.
- Pull out the heart and lungs, and wipe the cavity with paper towel.
- As soon as is practical, the birds should be plucked, de-pinned, and bagged after cutting off legs at the feather line.
- Place bagged birds on ice in a cooler box.

## Tips on food handling, processing and storage

- Don't cross-contaminate during processing. Always wash your gloves, knife, and shears with hot soapy water and rinse thoroughly between birds. Rinse off with further clean water and dry everything with paper towel.
- Wear disposable gloves when dressing game.
- Avoid letting your gloves, knife, shears make contact with contaminants as they can be easily spread to the meat and to other carcasses. If this does occur, wash everything as before.
- Store game birds for no longer than two or three days on ice or in a refrigerator before cooking or freezing.
- Bad smelling meat is an indication of bacterial activity and such meats should not be consumed. When in doubt, throw it out.

## Care in cooking preparation

- Thaw game birds in the refrigerator rather than at room temperature. Slow thawing further helps to tenderise the meat and also retards bacterial growth during the thawing process.
- Game birds should be cooked as soon as possible once fully thawed. Do not reheat cooked game birds.
- Always keep raw food and cooked food separate.

### Reminder

All hunters in Victoria must leave a fully feathered wing on any harvested duck until immediately prior to cooking or the duck has been taken to the person's ordinary place of residence.

# Appendix 1

## Comparison of 12 gauge choke constrictions and descriptions

### Comparison of 12 gauge choke constrictions and descriptions

| Choke Constriction Inches (") | Common Choke Descriptions used in *Tom Roster's 2012 Nontoxic Shot Lethality Table Adapted to Australian Game Birds* and by choke manufacturers listed below | | | |
|---|---|---|---|---|
| | Tom Roster's Lethality Table | Briley | Trulock | Carlson's |
| 0.040" | Full | Extra Full | Extra Full | Extra Full |
| 0.035" | Full | Full | – | – |
| 0.030" | Full | Light Full | Full | Full |
| 0.025" | Improved Modified | Improved Modified | Improved Modified | Improved Modified |
| 0.020" | Modified | Modified | Modified | Modified |
| 0.015" | Modified | Light Modified | Skeet 2 | Light Modified |
| 0.010" | Improved Cylinder | Improved Cylinder | Improved Cylinder | Improved Cylinder |
| 0.005" | – | Skeet | Skeet 1 | Skeet |
| 0.000" | – | Cylinder | Cylinder | Cylinder |

**Notes:** The above choke manufacturers have been included for comparison purposes only.

# Appendix 2

## A general guide to international shot sizes

| A general guide to international shot sizes | | | | |
|---|---|---|---|---|
| **Pellet/Shot Designation** | **United States** | **English & Norwegian** | **Italian** | **German, French & Spanish** |
| F | 0.220″ (5.6mm) | | | |
| TT | 0.220″ (5.3mm) | | | |
| T | 0.200″ (5.1mm) | | | |
| BBB | 0.190″ (4.8mm) | | | |
| BB | 0.180″ (4.6mm) | 0.160″ (4.1mm) | | 0.180″ (4.6mm) |
| B | 0.170″ (4.3mm) | | | |
| 0 | | | 0.160″ (4.1mm) | |
| 1 | 0.160″ (4.1mm) | 0.150″ (3.8mm) | 0.150″ (3.8mm) | 0.160″ (4.1mm) |
| 2 | 0.150″ (3.8mm) | 0.140″ (3.6mm) | 0.140″ (3.6mm) | 0.150″ (3.8mm) |
| 3 | 0.140″ (3.6mm) | 0.130″ (3.3mm) | 0.130″ (3.3mm) | 0.140″ (3.6mm) |
| 4 | 0.130″ (3.3mm) | 0.120″ (3.0mm) | 0.120″ (3.0mm) | 0.130″ (3.3mm) |
| 5 | 0.120″ (3.0mm) | 0.110″ (2.8mm) | | 0.120″ (3.0mm) |
| 6 | 0.110 (2.8mm) | 0.102″ (2.6mm) | 0.110″ (2.8mm) | 0.110 (2.8mm) |
| 6½ | | 0.100″ (2.5mm) | | |

## A general guide to international shot sizes (cont.)

| Pellet/Shot Designation | United States | English & Norwegian | Italian | German, French & Spanish |
|---|---|---|---|---|
| 7 | 0.100″ (2.5mm) | 0.095″ (2.4mm) | 0.100″ (2.5mm) | 0.100″ (2.5mm) |
| 7½ | 0.095″ (2.4mm) | 0.090″ (2.3mm) | 0.095″ (2.4mm) | 0.095″ (2.4mm) |
| 8 | 0.090″ (2.3mm) | 0.085″ (2.2mm) | 0.090″ (2.3mm) | 0.090″ (2.3mm) |
| 8½ | 0.085″ (2.2mm) | | | 0.085″ (2.2mm) |
| 9 | 0.080″ (2.0mm) | 0.080″ (2.0mm) | 0.080″ (2.0mm) | 0.080″ (2.0mm) |

**Notes:** Pellet diameters are given in imperial (inches ″) and metric (millimetres or mm) units of measure.

In some cases, pellet diameters have been rounded off to the nearest decimal point to aid comparison purposes.

Pellet diameters are based where possible on standard institute formulae for the sizing of shot or ammunition manufacturers' literature.

This table provides a direct comparison that can be made for shot sizes manufactured and loaded outside the United States. Where possible, overall diameters have been rounded off to aid any comparison with United States shot sizes.

# Appendix 3

## A comparative guide to imperial and metric shotshell load weight conversions

### A comparative guide to imperial and metric shotshell load weight conversions

| Typical Imperial Shot Load Weight(s) | | Typical Metric Shot Load Weight(s) | |
|---|---|---|---|
| Column 1<br>Ounce(s) | Column 2<br>Grains | Column 3<br>Grams | Column 4<br>Grams |
| 3/4 | 328.1 | 21.26 | 21 |
| 7/8 | 382.8 | 24.81 | 24 |
| 1 | 437.5 | 28.35 | 28 |
| 1-1/16 | 464.8 | 30.12 | 30 |
| 1-1/8 | 492.2 | 31.89 | 32 |
| 1-3/16 | 519.5 | 33.67 | 34 |
| 1-1/4 | 546.9 | 35.44 | 35 or 36 |
| 1-3/8 | 601.6 | 38.98 | 39 or 40 |

**General Notes:**

1) The above weight conversions are based on the following; 7,000 grains = 16 ounces = 1 pound = 453.59 grams. Therefore, 437.5 grains = 1 ounce = 0.0625 (1/16) pound = 28.35 grams.

2) Column 4 provides a 'nominal' metric load weight which is used by some manufacturers.

# Appendix 4

## Quail hunting in Victoria

Hunting Stubble Quail (*Coturnix pectoralis*) is a popular recreational pastime in Victoria. Generations of hunters have hunted quail and they are still a favourite game bird. Like all types of hunting, quail hunting has its own set of challenges.

Many of the principles (specifically shotgunning techniques and ammunitions) outlined in this Shotgunning Education Program Handbook are applicable to the hunting of all game birds. However, there are some distinct differences between hunting waterfowl and hunting quail. This section provides specific information to assist quail hunters to become more effective and efficient.

### Introduction

The Stubble Quail is an opportunistic and nomadic game bird that can be found in many parts of Victoria. It is the only native quail species legally hunted in Victoria. Historically, Stubble Quail adapted reasonably well to agriculture practices. However, modern farming practices have reduced the abundance of insects and weed food plants and created monocultures, decreasing the productivity and diversity of quail habitat on farmland.

During the open season quail can be found in a wide variety of habitats, from native grasses to improved pasture, leafy crops and stubble. They prefer open country in preference to timbered country.

Many hunters use gundogs to locate and flush quail and to find downed game. A struck quail can be difficult to locate, especially if wounded; a trained gundog will cut the time spent looking for downed birds. Ethical hunting requires that all game be retrieved.

### Equipment

The traditional quail gun in Australia has been an over and under shotgun with fairly open chokes. Because quail hunting involves a lot of walking and the gun has to be carried every step of the way, quail hunters favour a light gun with short barrels (e.g. 28 inch).

Gun slings have become popular and, more recently, some quail hunters have started to use 16 and 20 gauge shotguns. Many quail hunters prefer a double trigger gun, maintaining that this configuration gives quicker access to the tighter choked barrel when necessary.

Most quail hunters use lead shot sizes ranging from #7 through to #10 with loads of 1oz. These loads will bring down quail within most hunters' maximum shooting skill distance. (non-toxic shot examples are found in *Tom Roster's 2012 Non-toxic Shot Lethality Table Adapted to Australian Game Birds* – see page 14).

Shooting glasses protect eyes and are good for keeping the wind out and for making things appear 'brighter' on a dull day. Other essential items are good walking boots, hunting coats, windproof and waterproof hunting clothing, sunscreen and gloves for extremely cold days. Quail hunting in Victoria occurs during the warm autumn months and continues into winter when the temperature can be quite low. It is worthwhile having the right gear.

**Remember if you are hunting with a gundog, you must look after its needs as well.**

A good game bag is often overlooked by quail hunters. Hanging quail off a lanyard on your belt is not the best way to carry birds around all day. Birds can break off when swinging around or get hooked while you are getting through a fence. A good game bag with a mesh outer that cools and dries the birds is best. Don't place shot birds inside a plastic bag as the plastic causes the birds to sweat and promotes bacterial growth.

### Hunting strategy

Before hunting, make sure you are proficient in using your chosen shotgun. Practise on clay targets prior to the open season. Choose targets that simulate the typical flight (height, trajectory and speed) of the game bird to mimic scenarios that you are likely to face in a hunting situation.

For quail, the target should ideally have an outgoing, quartering away (and sometimes crossing) presentation at a height of 90–180 cm (3–6 feet) off the ground. In this scenario, the target speed should be set at around 48–56 km/h (30–35 mph) at the point at which it will be shot.

Always think about the wind direction in relation to the paddock and how you are going to work it. This will assist you in predicting quail behaviour or deciding how you will use your gundog.

**Gundogs scent best when they are working into the wind so try to maximise this advantage for your dog.**

Study the paddock carefully. Are there likely looking 'birdy' spots? If so, what is the best direction to approach them? Try to plan things so that you cover the area in a thorough way, rather than just wandering all over the place.

**A 'birdy' spot is an area that looks like it contains potential populations of quail. Indicators are normally site specific, so hunters should study their hunting area carefully. Some indicative signs may be that your hunting paddock has green pick coming through, the cover is thick and the area is away from non-preferred habitat like woodland.**

If a covey of quail rises outside your effective shooting range, don't shoot! Instead, watch carefully as often quail will drop in again within a few hundred metres, giving the hunter another opportunity. In such cases, when using a gundog, it is often a good idea to let the birds settle for some time (this allows the scent to build up).

## Stubble Quail behaviours

Learn the behavioural characteristics of quail. Try to understand their predicted movements so you will know the best times to go hunting.

On windy days, birds will often turn and swerve, sometimes taking full advantage of a tail wind. They often also rise well away from the hunter, making shooting difficult and appropriate retrieval strategies are needed.

When disturbed, they will often try to escape by running through cover, only flushing as a last resort. Stubble Quail fly with a loud whirring of wings, often just above the grass/vegetation for approximately 50–250 m, then drop to the ground and continue running. It is sometimes difficult to flush them twice.

Stubble Quail have a three syllable clear whistle or a sharp clear 'too-wheep' call.

Some days are perfect for quail hunting no matter what time of day it is. Cool, cloudy and breezy days present excellent hunting conditions. Generally, quail become inactive and difficult to find during warmer temperatures and scenting conditions are more difficult. During these warm periods, it might be better to rest until later in the afternoon when conditions for hunting improve.

## In the field

Quail hunting can be tiring. Be aware of your own fitness levels if you want to enjoy a day that might last for several hours and involve walking many kilometres.

Plan some breaks – it's a good idea to have a rest every hour or so. An organised hunter will make certain that water and food is in the car or perhaps in the game bag. You will appreciate the break and so will your gundog.

## Caring for your gundog

**During the off-season**

Most quail hunters use a gundog to help them hunt, so it is worthwhile keeping your dog fit and well and ready for the beginning of the season. Obedience training is essential to ensure that you have control of your gundog while in the field. An obedient dog is easy to handle, will not compromise hunting situations by roaming too far out in front of the hunter, and won't damage downed birds.

All gundogs should be given daily exercise, and they need to be given many runs. Remember that an older dog will not run around to the same extent as a younger dog when taken for a walk, especially if that walk is over the same route everyday. Some thought and effort needs to be put into a dog's exercise program if you want your dog to put in long days when the season opens.

**During the season**

Don't expect your dog to be in tip-top physical condition early in the season. Even young, apparently fit dogs require a few sessions to become working fit. The physical demands put on a quail dog during a day's hunting are significant. Pay careful attention to your dog and watch for any signs of injury or stress. Limit time spent hunting early in the season (especially if it's warm), and consider hunting in the cooler parts of the day.

Don't shoot over your dog's head. A shotgun blast at close range is as bad for dogs' hearing as it is for hunters'.

Carry water at all times. Check the dog's pads for signs of wear and check it all over for signs of embedded grass seeds, particularly around the eyes, ears and between the toes.

Don't forget the comfort of your dog when travelling to and from the quail paddock. Before travelling home, make certain that your gundog is completely dry. Make sure your vehicle has comfortable bedding where the dog can stretch out and sleep. Consider putting a rug on a gundog after a hard day's work. A warm dog will relax and sleep better than a tired, cold animal.

## Quail hunting tips

If a covey rises in front of you, don't shoot aimlessly into the middle of them. This is a certain way to miss or wound birds. Pick out one bird only, preferably a bird on its own, so you avoid wounding others nearby.

If you shoot a bird, make sure you mark exactly where it falls. Even if you are using a gundog, make it a habit to mark fallen game and don't take your eyes off the spot until you have it fixed in your mind.

When firing at a swinging bird, follow through as you pull the trigger. Do not stop as you fire.

When a bird rises, do not be in a hurry to fire. Relax.

A correctly patterned gun with the appropriate loads and chokes matched to your maximum shooting skill distance will effectively bring a quail down.

If you clean your birds at the end of the day, don't leave a mess of feathers. Clean up after yourself.

The normal bag limit of birds in Victoria is a generous one. Stick to this limit and encourage others hunters to do the same.

# Acknowledgements

Many people have contributed to the development of this Shotgunning Education Program Handbook. Particular mention must be made of the hunting organisation trainees who successfully completed training courses over two years, provided subsequent information for this and previous versions of the handbook and who continue to assist with the delivery of practical training programs.

Many other individuals have been engaged and consulted throughout the development of this handbook in order to make it relevant and readable for game bird hunters.

Thank you very much to you all.

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Successful Trainees in 2012: Daryl Snowdon, Steve Hunt, Tim Finnegan, Andrew Feik, Saviour Mangion, Graham 'PINKY' Kemp, Andrew Winter-Irvine, Geoff Adams, Ross Dodds, Phil 'DUCK' Gaylard (dec.), Heath Dunstan. Government and Hunting organisation Officials: Rod, Drew, Colin Wood, Zac Powell, Simon Toop. Trainer: Tom Roster.

In memory of Allan Semmler and Phil 'DUCK' Gaylard, who were instrumental in the establishment of the SEP training program.

# Further information and training

For further information or practical training, contact the Game Management Authority: www.gma.vic.gov.au, the Sporting Shooters' Association of Australia (Victoria) or Field & Game Australia Inc.

**Sporting Shooters' Association of Australia (Vic)**
Unit 3/26 Ellingworth Parade
Box Hill Vic 3120
Phone (03) 8892 2777
Fax (03) 8892 2700

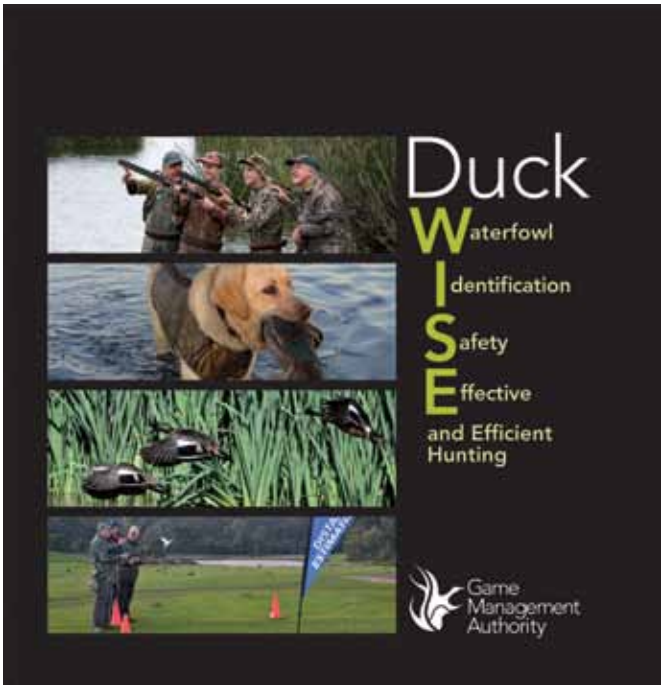
**Field & Game Australia Inc.**
PO Box 464 65 Anzac Avenue
Seymour Vic 3660
Phone (03) 5799 0960
Fax (03) 5799 0961
Email fga@fga.net.au

**DELWP Customer Service Centre 136 186**
www.delwp.vic.gov.au

**Parks Victoria Information Centre 13 19 63**
www.parkweb.vic.gov.au

**Wildlife (Game) Regulations**
www.legislation.vic.gov.au

**Duck WISE (Waterfowl Identification, Safety, Effective and Efficient Hunting)**



# Hunting's future depends on you


We're lucky in Victoria to have such great hunting.

Maybe you went hunting as a kid or you now go hunting with your kids. Maybe you're new to hunting or you're an old hand happy to share some know-how.

Whoever you are, one of the key traits of being a good hunter is respect.

The hunting community has formed a partnership to promote a set of standards to ensure respectful and responsible hunting.

This will help to raise the awareness and maintain the highest standards of behaviour of all involved in hunting.

Through the below standards we can enjoy our hunting even more, improve the perception of hunting and be proud of hunting.

**Respect for animals**

**Respect the environment**

**Respect other hunters**

**Respect non-hunters**

**Respect the hunt**

**Respect the laws**

For more information on the standards visit www.gma.vic.gov.au

**Hunting's future depends on you. Show respect and hunt responsibly.**

Proudly supported by:

Game Management Authority · VICTORIA State Government · Parks VICTORIA · Australian Deer Association · BERETTA AUSTRALIA · field & game Australia Inc.

FIREARM SAFETY FOUNDATION (VICTORIA) INC · OSA · RAYTRADE PTY LTD · SSAA Sporting Shooters Association of Australia Victoria · WINCHESTER AUSTRALIA

# RESPECT
## HUNT RESPONSIBLY

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