



NSWBIR SOP1

Ground shooting of pest birds

Background

Shooting is used either to directly reduce numbers of pest birds through killing or more commonly as a scaring or dispersal strategy. Shooting may have short-term advantages, but the technique is often labour intensive, opportunistic and may have limited value in bird control.

Shooting can be a humane method of killing pest birds when it is carried out by experienced, skilled shooters, the animal can be clearly seen and is within range, the correct firearm, ammunition and shot placement is used, and wounded animals are promptly located and killed.

This standard operating procedure (SOP) is a guide only; it does not replace or override the relevant NSW or federal legislation. The SOP should only be used subject to the applicable legal requirements including Work Health and Safety (WHS) operating in the relevant jurisdiction.

Individual SOPs should be read in conjunction with the overarching Code of Practice for that species to help ensure that the most appropriate control techniques are selected and that they are deployed in a strategic way, usually in combination with other control techniques, to achieve rapid and sustained reduction of pest animal populations and impacts.

Application

- Shooting should only be used in a strategic manner as part of a co-ordinated program designed to achieve sustained effective control.
- A management plan that specifically targets the main pest species should be developed. Birds differ greatly in their ecology and behaviour, and this influences the way in which they respond to different forms of control.
- Shooting is often used as a scaring strategy to train the birds to associate the sharp, sudden noise with real danger and subsequently, a fear of humans and human activities. Birds can be frightened away without attempts to kill them although small numbers of birds are usually killed with a view to enhance the scaring effect.
- Shooting as a lethal method can be effective in reducing localised populations of birds when low numbers are involved. However, it is labour intensive, costly and rarely effective in achieving long-term reductions in bird numbers or associated damage. Other birds will often move into an area to take the place of those that are killed. Also, some species of bird, particularly parrots, learn to avoid shooters.

- Shooting as a scaring strategy may increase the damage levels in some crops, where birds may drop the fruit or seed head they are feeding on when scared off, and then attack a new one on their return.
- Shooting of pest birds should only be performed by skilled operators who have the necessary experience with firearms and who hold the appropriate licences and accreditation.
- Any control of pest birds must be implemented in accordance with any relevant State and Commonwealth legislation. Permits may be required for the control of some species. Contact the relevant State agency ([LLS](#), [NPWS](#)) for further details.
- Native game bird species in NSW can only be killed under the Native Game Bird Management Program (DPI Game Licensing Unit) in accordance with the *Game and Feral Animal Control Act 2002*. The program allows landholders to manage native game birds on agricultural lands in NSW using licensed hunters under a [State-wide quota](#) determined by NSW DPI. For details on which birds may be legally hunted and under what conditions/licenses, see <https://www.dpi.nsw.gov.au/hunting/game-and-pests>.
- Storage and transportation of firearms and ammunition must comply with relevant legislative requirements (See *Firearms Act 1996*, *Firearms Regulation 2017*).

Animal welfare implications

Target animals

- The humaneness of shooting as a control technique depends almost entirely on the skill and judgement of the shooter. If properly carried out, it is one of the most humane methods of killing birds. On the other hand, if inexpertly carried out, shooting can result in wounding that can cause considerable pain and suffering.
- Shooting must be conducted with the appropriate firearms and ammunition and in a manner that aims to cause immediate insensibility and painless death.
- When using a rifle to shoot a bird, it must be clearly visible and able to be killed with a single shot. A solid rest or support should be utilised to ensure accurate shot placement.
- When using a shotgun, the shooter should aim to have the bird in the centre of the pattern at the point of impact. Shooting of birds in flight must only be carried out by experienced operators who are able to accurately gauge distance and speed to ensure the correct forward-lead is applied to each shot.
- Only one bird should be targeted at a time. Shooting with a shotgun at a group of birds flying overhead often results in welfare problems as the birds aligned with the central cluster of pellets will usually be fatally injured, but those at the perimeter of the volley may only be hit by one or two pellets and stand a good chance of surviving. These birds are likely to experience suffering.
- The shooter must be certain that each animal is dead before another is targeted.
- Wounded birds must be located and killed as quickly and humanely as possible with either a second shot preferably directed to the head or in restrained or immobile birds, a blow to the rear of the skull to destroy the brain. If left, wounded birds can suffer from the disabling effects of the injury, from sickness due to infection of the wound, from pain

created by the wound or from thirst or starvation if unable to drink or eat. Wing fractures, which increase the likelihood of being taken by a predator, are common in wounded birds.

- A trained dog may be used to locate and recover wounded birds as quickly as practicable. The dog must be adequately controlled to prevent it from chasing or catching birds that are not wounded. Dogs should only be trained to retrieve wounded birds, under the direction of the handler, without causing physical injury to the bird. For further information on the use of dogs refer to *GEN004: The care and management of dogs used for pest animal control*.
- If possible, shooting should be avoided at times when birds are nesting and there are dependent young present. If dependent young are found, they should be killed quickly and humanely.

Non-target animals

- Shooting is relatively target specific and does not usually impact on other species. However, there is always a risk of injuring or killing non-target animals, including protected birds that have been mistaken for a pest bird. Only shoot at the target bird once it has been positively identified and never shoot over the top of hills or ridges.
- Shooting should be used with caution around lambing paddocks as it may disturb the lambing flock and cause mismothering. Also avoid paddocks containing sensitive livestock, e.g., horses, deer. They are easily frightened by spotlights and gunshots and may injure themselves by running into fences and other obstacles.

Workplace health and safety considerations

- Firearms are hazardous. Everyone should stand well behind the shooter when a bird is being shot. The line of fire must be chosen to prevent accidents or injury from stray bullets or ricochets.
- Firearm users must strictly observe all relevant safety guidelines relating to firearm ownership, possession and use.
- Firearms must be securely stored in a compartment that meets state legal requirements. Ammunition must be stored in a locked container separate from firearms.
- The shooter and others in the immediate vicinity should wear adequate hearing protection to prevent irreversible hearing damage, and safety glasses to protect eyes from gases, metal fragments and other particles.
- Care must be taken when handling birds as they may carry diseases such as psittacosis (chlamydiosis), aspergillosis, erysipelas, yersiniosis and salmonellosis that can affect humans and other animals. Routinely wash hands after handling all birds. Personal protective equipment, especially face masks, are recommended when handling bird carcasses to reduce the risk of contracting disease.

Equipment required

Firearms and ammunition

- The type of firearm, ammunition and ammunition loads should be appropriate to the species being targeted as well as the location where shooting will occur. A summary of recommended firearms, shot sizes and ranges for some bird species can be found at: https://www.environment.sa.gov.au/topics/plants-and-animals/animal-welfare/Codes_of_practice/codes-of-practice-humane-destruction-wildlife
- Shotguns are recommended for most birds. Twelve-gauge shotguns are commonly used but smaller gauges such as the 410 are effective on smaller birds.
- Non-toxic shot (e.g., tungsten-bismuth-tin, bismuth, tungsten-iron, steel, bismuth-tin, zinc etc.) should be used. Lead shot is potentially toxic to a range of species, however, in NSW the use of lead shot has not been prohibited because all game bird hunting is for mitigation purposes. Hunters participating in the NSW Native Game Bird Management Program are encouraged to use steel shot. Animals may be poisoned by lead in one of two general ways:
 - Species such as waterfowl mistake spent shot for food or grit and ingest it from wetland or terrestrial environments.
 - Other species, especially eagles and other raptors, and scavengers, ingest pellets when they consume prey that have been shot with shotgun ammunition and are carrying shot pellets embedded in their tissues.
- If intending to use steel shot, ensure that it is safe and effective to do so in your gun. Steel shot should only be discharged in modern guns that are capable of withstanding the extra stresses produced.
- When using shotguns, ensure that the choke configuration delivers a dense pattern on the target within the specified distances. For larger birds, tighter chokes are preferred, e.g., ½ to full.
- Centrefire rifles are suitable for large birds such as emus.
- On some occasions birds such as pigeons need to be shot inside shelters, sheds or other buildings. Air rifles are suitable for this task, but they must have sufficient power (e.g., 1,000 feet / second in .17 calibre or 750 feet / second in .22 calibre) to kill humanely and consistently. They must also be fitted with a telescopic sight and because of their high recoil, a sight specifically designed for pneumatic air rifles is required. Magnification of 4x is suitable and ranges kept under 25 metres to ensure adequate energy is applied to the target. Alternatively, .22 rim fire shot cartridge can be used in buildings or shelters. This round is the ordinary .22 rimfire loaded with very fine No. 11 shot (generally known as .22 rat shot or .22 bird shot). Because of their poor patterning characteristics and light weight shot, 15 metres should be regarded as maximum range. Normally the pellets will not penetrate galvanised iron.
- The accuracy and precision of firearms should be tested against inanimate targets prior to the commencement of any shooting operation. Pattern your chosen gun/cartridge/choke combination before shooting to check your accuracy and that the pattern is adequate for the intended target bird.

Other equipment

- First Aid kit.
- Lockable firearm box.
- Lockable ammunition box.
- Personal protective equipment (hearing and eye protection).
- Communication devices (2 way/mobile etc.) are recommended for safety reasons.

Procedures

Identification of birds

- Shooters should have sufficient knowledge and skill to identify the bird species causing the damage. If the identification of the bird is in doubt it must not be shot.

Conduct of shooting

- Shooting should only be conducted during daylight hours. Shooting in poor light conditions makes it difficult to correctly identify birds and to search for wounded birds. Also, accurate marksmanship may be compromised. If shooting needs to occur at night, then a light of sufficient brightness must be used so you can clearly identify the target species.
- Shooting should not be conducted in adverse weather conditions where birds cannot be shot and located/retrieved in a safe and humane manner.
- Birds must NOT be shot from a moving vehicle. Ensure you are in a firm, safe and stable position before taking a shot.

Target bird and point of aim

- Only one bird should be targeted at a time. The shooter should aim to have a single bird in the centre of the shot pattern at the point of impact. Shooting at a flock is not an acceptable practice.
- The objective is to fire at the closest range practicable in order to reduce the risk of non-lethal wounding. Accuracy is important to achieve a humane death. One shot should ensure instantaneous loss of consciousness and rapid death without resumption of consciousness.
- A pest bird should only be shot at when:
 - it can be clearly seen and identified
 - it is within the effective range of the firearm and ammunition being used; and
 - a humane kill is highly probable. If in doubt, do NOT shoot.
- For most small to medium birds, the point of aim should be the centre of the birds' chest.
- For large birds such as emus, a shot to the brain, using a shotgun, is preferred when the bird is in close range (<30 metres). If the bird is > 30 metres from the shooter, a chest shot using a large calibre centrefire rifle (e.g., .243) should be used.

- When using a rifle, the target bird must be stationary and within a range that permits accurate placement of the shot.
- When using a shotgun, the target bird may be stationary or mobile, but must be no more than 30 metres from the shooter. The pattern of shot should be centred on the head (for large birds, e.g., emus) or chest (for small birds, e.g., common myna, to medium birds, e.g., ducks). It is essential that the distance to the target bird is accurately judged. To achieve adequate penetration of shot, the bird must be in range. It is recommended that shooters practice estimating distances before a shooting operation.
- The target bird should be checked to ensure it is dead before moving on to the next bird. When targeting multiple birds in a flock, a number of birds will need to be shot in rapid succession. In this case, the birds in the group should be checked to ensure they are dead before moving on to the next group. Death of shot birds can be confirmed by observing a combination of the following:
 - no heartbeat
 - no breathing
 - no corneal reflex (no blinking when the eyeball is touched)
 - no response to a painful stimulus (e.g., a toe pinch).
- If death cannot be verified, a second shot to the head should be taken immediately or the bird killed with a blow to the skull using a heavy instrument to destroy the brain.
- Killed birds must be collected and disposed of in an appropriate manner in accordance with acceptable practices as required by local councils and applicable State or Federal regulations.

References

Aebischer, N.J., Wheatley, C.J., & Rose, H.R. (2014). Factors associated with shooting accuracy and wounding rate of four managed wild deer species in the UK, based on anonymous field records from deer stalkers. *PLoS One*, 9: e109698.

American Veterinary Medical Association (AVMA). (2013). *AVMA guidelines for the euthanasia of animals: 2013 edition*. American Veterinary Medical Association. Available at: www.avma.org/KB/Policies/Documents/euthanasia.pdf

American Veterinary Medical Association (AVMA). (2016). *AVMA Guidelines for the Humane Slaughter of Animals*. Available at: <https://www.avma.org/KB/Resources/Reference/AnimalWelfare/Documents/Humane-Slaughter-Guidelines.pdf>

Anon. (2009). *Fauna Note no. 9 Destruction of Birds to Reduce Damage*. Department of Environment and Conservation, Western Australia. Available at: <https://library.dbca.wa.gov.au/static/FullTextFiles/922841.pdf>

Bishop, J., McKay, H., Parrott, D. & Allan, J. (2003). *Review of international research literature regarding the effectiveness of auditory bird scaring techniques and potential alternatives*. Available at: <https://www.semanticscholar.org/paper/Review-of-international-research-literature-the-of-Bishop-McKay/52d17a806a7156c45b3f50bf7ea8eb7b918ac4ab>

- Dolbeer, R. A., Holler, N. R. & Hawthorne, D. W. (1994) Identification and control of wildlife damage. Pp. 474-506, in T.A. Bookhout (ed.) *Research and management techniques for wildlife and habitats*. 5th ed., rev. The Wildlife Society, Bethesda, Maryland. Available at: <https://nwrcontentdm.oclc.org/digital/api/collection/p16473coll8/id/18969/download>
- Gregory, N. (2004). *Physiology and Behaviour of Animal Suffering*. Blackwell. Oxford, United Kingdom.
- Lambooj, B. & Algers, B. (2016). Mechanical stunning and killing methods. In Verlade A, Raj M (eds.) *Animal Welfare at Slaughter*. 5M Publishing, Sheffield, United Kingdom.
- NSW Government. (2017) *Don't wing it: be an effective game bird hunter*. NSW Department of Industry. Available at: https://www.dpi.nsw.gov.au/_data/assets/pdf_file/0008/748655/dont-wing-it-booklet.pdf
- NSW Government. (n.d.). *Hunting native game birds in NSW*. NSW Department of Primary Industries. Available at: <https://www.dpi.nsw.gov.au/hunting/game-and-pests/native-game-birds>
- SA Government. (2007). *Code of practice for the humane destruction of birds by shooting in South Australia*. Department for Environment and Heritage (DEH), SA. Available at: https://www.environment.sa.gov.au/topics/plants-and-animals/animal-welfare/Codes_of_practice/codes-of-practice-humane-destruction-wildlife
- Sinclair, R. (undated) *Guidelines for best practice bird management*. Animal and Plant Control Commission, Department of Water, Land and Biodiversity Conservation, SA. Available at: <https://www.pestsmart.org.au/wp-content/uploads/2010/03/9246.pdf>
- Smith, G. (1999). *A Guide to Hunting and Shooting in Australia*. Regency Publishing, Adelaide.
- Stokke, S., Arnemo, J. M., Brainerd, S., Söderberg, A., Kraabøl, M., & Ytrehus, B. (2018). Defining animal welfare standards in hunting: body mass determines thresholds for incapacitation time and flight distance. *Scientific Reports*, 8: 13786.
- Tracey, J., Bomford, M., Hart, Q., Saunders, G & Sinclair, R. (2007). *Managing bird damage to fruit and other horticultural crops*. Bureau of Rural Sciences, Canberra. Available at: <https://www.dpi.nsw.gov.au/agriculture/horticulture/pests-diseases-hort/information-for-multiple-crops/managing-bird-damage>
- Victorian Government. (2007) *Code of practice for the husbandry of captive emus (Revision 1)*. Victoria Government Gazette, Department of Primary Industries. Available at: <https://agriculture.vic.gov.au/livestock-and-animals/animal-welfare-victoria/pocta-act-1986/victorian-codes-of-practice-for-animal-welfare/code-of-practice-for-the-husbandry-of-captive-emus-revision-1>
- Woods, J., Shearer, J.K. & Hill, J. (2010). Recommended On-farm Euthanasia Practices. Pp 186-213 in, Grandin T (ed.) *Improving Animal Welfare: A Practical Approach*. CABI Publishing, Wallingford, Oxfordshire, United Kingdom