



Inquiry into Victoria's recreational native bird hunting arrangements

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Executive summary

The recreational hunting of duck and quail in Victoria is safe, sustainable and well-regulated. The motivations of recreational bird hunters are varied; however, common among them is a connection with nature, overcoming the mental and physical challenges of hunting successfully and the reward of wild, free-range game meat. The argument that duck and quail hunting could be substituted for hunting another quarry (e.g. deer) because of a misconception that shooting and killing are the most critical elements of hunting, betrays a fundamental lack of understanding of hunters.

A consistent, credible, government-commissioned data set clearly outlines the economic benefits of game hunting in Victoria. Attempts to discount those benefits by using hypothetical questions about 'substitutability' or data obtained by using leading questions on social media surveys should be dismissed as mere partisan opinion.

The Interim Harvest Model (IHM) moving into an Adaptive Harvest Model (AHM) put the question of the environmental sustainability of duck hunting beyond credible question. After a promising start with the IHM in 2022, the Government's decision to set aside the objective science in setting the 2023 duck season was a retrograde step that has not (and likely cannot) been adequately explained by the Minister responsible.

To the extent that the arrangements for duck and quail hunting in other jurisdictions are relevant at all, they serve as an example of how far ahead of the rest of the nation Victoria is in the administration of game hunting and in realising the social, economic and environmental benefits of recreational game hunting. The fallacy that "Victoria is the only state in Australia that allows duck hunting" has been peddled with abandon by the anti-hunting lobby for years now. It is just plain false. It indicates the extent to which nothing these activists say can be taken at face value.

A diverse group of stakeholders has developed the Waterfowl Wounding Reduction Action Plan, and it represents a clear pathway forward to address community concerns with duck hunting. It is perplexing that the Government has attempted to use wounding as a rationale for abandoning the objective science in setting the 2023 season whilst suppressing the Action Plan.

Opinion polling commissioned by anti-hunting groups has been used to argue that banning duck and quail hunting would be a 'political winner' for the Government. Those polls are superficial in that they do not look at the situation in marginal seats and do not ask whether a ban would result in a vote change. SSAA Victoria commissioned research early this year that clearly shows that most voters in key marginal electorates oppose a ban on duck hunting and that a good proportion would shift their votes away from Labor if the Government proceeded with a ban.

Whilst duck and quail hunting will be subject to regulatory change to keep pace with societal expectations, there are no sound environmental, animal welfare, social, economic or political reasons for the Government to take any course other than to support duck and quail hunting through the proper implementation of the Waterfowl Wounding Reduction

Action Plan and the IHM moving into an AHM, inline with consistent written commitments by the Victorian Government through pre-election commitments and the Sustainable Hunting Action Plans over the past decade.

About the Sporting Shooters Association of Australia (Victoria)

The Sporting Shooters Association of Australia (Victoria) (SSAA Victoria) is the state's largest organisation representing the interests of Victoria's recreational shooters and hunters.

SSAA has amassed a national membership of 212,000 and 43,500 in Victoria since its establishment in 1948.

SSAA Victoria's recommendations

- The Select Committee should acknowledge that native bird hunting is a well regulated, beneficial activity that should continue.
- The Select Committee should acknowledge that the Game Management Authority (GMA) has undertaken a significant restructuring since the release of the Pegasus Report in 2017 and that the GMA has the appropriate governance and policies in place to manage both actual and perceived conflicts of interest.
- The Select Committee should acknowledge that the Waterfowl Identification Test (WIT) must be successfully completed before hunters are licensed and clarify that the assertion that licensed hunters have not successfully completed the WIT is false.
- The Select Committee should note that modifying seasonal bag limits is the most effective method of manipulating the total harvest and that altering the length of the hunting season has an unnecessary negative impact on hunters.
- The Select Committee should state that a well-regulated game hunting season in Victoria in the twenty-first century has no demonstrable impact on the populations of game species.
- The Select Committee should recommend that the GMA develop a transparent and objective procedure for managing the potential impacts of game duck hunting. Game hunting stakeholders, such as hunting organisations and Birdlife Australia, should be involved in this process, and the closure of public wetlands should be a last resort.
- The Select Committee should recommend that the Minister for Outdoor Recreation immediately endorse, fund and implement the Waterfowl Wounding Reduction Action Plan.
- The Select Committee should recommend that the government acknowledge Victoria's position as Australia's best practice game management leader.
- The Select Committee should recommend that the government continue using the interim harvest model (IHM) and fully fund a transition to an adaptive harvest model within three years. Furthermore, future seasonal arrangements should be determined based on the IHM recommendations and announced via the GMA website no later than the 31st of December in the year preceding the upcoming game duck season.
- The Select Committee should recommend that the government restricts protestors' capacity to hinder the lawful conduct of duck hunters.
- The Select Committee should recommend that future economic reports remove speculative and irrelevant questions about substitutability. Alternatively, the committee could recommend that every government-sponsored industry economic report include similarly framed questions about substitutability.

What is a hunter? Why hunt ducks and quail?

It is essential for the Select Committee to understand the motivations of game hunters at a basic level for it to examine the sustainability of game hunting from a social perspective. Around 29% of people in modern Australia participate or are closely acquainted with someone who participates in hunting or shooting, and 4% of modern Australians own firearms.¹

Nationally, 30% of the public opposes private firearm ownership. While public support for game hunting is lower than that, only a minority opposes it. Research by the Sexton Group states that:

There is less acceptance of the use of guns to kill animals or birds for sport or recreation. Despite duck or deer shooting being justifiable as a source of food, duck and deer shooting is the least supported justification for allowing Australians to use guns.

However, even for those categories of gun use (game shooting), only a minority of the general population opposes those activities.²

The majority of Australians are also uncomfortable with the restrictions placed on the activities of hunters and shooters by the government in response to activist campaigns. The Shooting Industry Foundation of Australia echoes this statement:

While a majority of Australians have nothing to do with guns, most are not wanting to stand in the way of those Australians who want to use a gun for various responsible purposes.

A majority don't like activists calling the shots, especially where the rights of the public are restricted (e.g. access to national parks). They think that governments should stand up for the rights of law-abiding citizens regarding gun use, not bowing to activists who want increased gun control.³

People with little exposure to hunting harbour the misconception that a hunter's core motivations are shooting and killing. They believe that other forms of hunting, such as deer hunting or clay target shooting, will be a satisfactory substitute for duck hunting. Comments such as "If they want to shoot something, they should leave the ducks alone and shoot deer" are common. While many of these sentiments hold good intentions, they betray a fundamental lack of understanding of the complexities of being a hunter and pursuing a particular hunting niche or discipline. More than half of the duck hunting game licences in Victoria do not include an endorsement for deer hunting.⁴ This is despite the fact that there are considerably greater hunting opportunities for deer than for ducks in terms of season length. While some hunting skills are universal, duck hunting requires a particular skill set regarding shotgun proficiency, decoying, calling, concealment and retrieval strategies. An imperfect analogy to demonstrate this would be closing a golf course and informing the

¹ The Sexton Marketing Group for Mr Rod Drew, "Public attitudes towards firearms-related matters in Australia – April 2018", Shooting Industry Foundation of Australia

² Ibid.

³ Ibid.

⁴ Game Management Authority of Victoria (2022) Game Licence Statistics

golfers that there is no problem because they can just go and play croquet – which also involves hitting a ball with a stick.

While shooting and killing are important hunting elements, they do not encapsulate the entire experience. The actual shooting and killing elements comprise just seconds in a hunt that could last several hours or even days.

The allure for game hunters is more instinctive than logical. For that reason, explaining game hunting to those without experience is challenging, particularly in an increasingly urbanised society where most people lack the first-hand understanding that the act of killing is a necessity of everyday life.

Game hunting is a discretionary activity (very few people hunt for subsistence); however, the reality of food production is that killing occurs on an industrial scale in both agriculture and horticulture to feed the population. For example, around 40,000 ducks are killed annually to safeguard Australia's rice production, and a billion mice are poisoned to protect wheat crops in Western Australia alone.⁵ In his documentary *Stars in the Sky: A hunting story*, the writer Steven Rinella ponders the ethics of hunting:

Why do some people respect every predator but themselves? It does not occur to an owl to ask, "Do I belong here? Do I have the right to eat this rabbit and live?" [An owl] is just one with the natural world. It is impossible to untangle that creature from its impending actions. I admire that owl. How good to be so unapologetic about one's sharp talons.⁶

⁵ Chiorando, M. (4 July 2019) "Vegans don't realize billions of animals are killed growing crops' says Pig Farmer", Plant Based News

⁶ Rinella, S. (2018) "Stars in the Sky: A hunting story" (Documentary)

Apprehension of government bias with regard to the Select Committee

SSAA Victoria is apprehensive that the government is biased towards a predetermined result from this Select Committee.

This bias is evident in the 2023 duck season conditions, which disregarded the independent expert advice of the IHM,⁷ using an ambiguous rationale that the outputs were “modified to provide a more precautionary approach to concerns regarding the rates of wounding of ducks, poor behaviour by some hunters and the fact that waterbird abundance, breeding and habitat availability all show long-term declines”⁸. The government has provided no further explanation for this statement. Another bias was apparent when the Minister for Outdoor Recreation actively concealed the compliance data from the first five days of the duck season.⁹

In addition, the government’s apparent bias was evident in its introduction of the motion to establish this Select Committee. The government explicitly signalled its intention when its speaker on the matter stated: “My view is that native waterbird hunting should be banned, but I do believe that, given the hotly contested positions on this issue, an inquiry is an important aspect of coming to a decision.”¹⁰

The government then made several factually incorrect statements that should be rectified during this inquiry.

The allegation that the GMA is “conflicted at its core.”

In the parliamentary debate on 9 March 2023, MP Lizzie Blandthorn stated:

In relation to the operation of the annual native bird hunting seasons, I would note that Victoria’s recreational duck hunting season, as I think was canvassed by others in this place yesterday, is managed by the Game Management Authority [GMA]. The authority is, in theory, responsible for promoting sustainability and responsibility in game hunting, and it is responsible for delivering programs to improve responsible hunting across the state in conjunction with its partner agencies. The authority oversees the game species, seasonal bag limits and dates to ensure that the conservation status of any game species is not threatened. The GMA is also responsible for compliance, and as I have previously said as a member of the other place, I do believe that the Game Management Authority has to be conflicted at its core when it is required to provide for recreational hunting of native birds while also claiming to ensure their protection. I do think that the role of the GMA is one that this committee should give due consideration to – whether or not the same body can be responsible for both providing for hunting and ensuring the protection of the animals at the same time.¹¹

⁷ Klaassen, M. (2022) “Using duck proxies and surface water to inform hunting arrangements for 2023”, Deakin University Centre for Integrative Ecology

⁸ Game Management Authority (Vic) (24 February 2023) “2023 duck hunting season arrangements” (Media Release)

⁹ Hunt, P. (10 May 2023) “Minister orders GMA censor on public duck hunt report”, The Weekly Times

¹⁰ Blandthorn, L., MP (9 March 2023) Parliamentary Debates, Legislative Council, Victoria

¹¹ Ibid.

The Pegasus Report 2017 assessed the GMA's compliance and enforcement operations and made a specific recommendation concerning the GMA's perceived conflict of both enabling and regulating hunting opportunities. The Pegasus Report stated:

The GMA should put in place appropriate governance arrangements, including operational separation, the establishment of an enforcement committee and appropriate protocols, to provide additional transparency and protect the independence of its licensing, compliance and enforcement functions.¹²

The government accepted this recommendation and has fully implemented it, publishing a detailed report on the GMA website. Regarding the issue of governance, the report stated:

The GMA has restructured to separate the compliance and intelligence functions from the strategy, research, stakeholder and hunting program functions and appointed a director to lead the Compliance and Intelligence Division.

Advice on the GMA's standard operating procedures (SOPs) has been sought and received from the Victorian Government Solicitor's Office. All SOPs have been reviewed, updated and approved and are now available to all staff at a central electronic location.

The advice on the outcomes of compliance complaints has been implemented. An intelligence case management system has been selected and is now in operation. Public complaints are lodged through the customer contact centre or the GMA website, and all are reviewed by the Director of Compliance and Intelligence for appropriate action.¹³

Conflicts and perceived conflicts of interest between functions are common and somewhat inevitable when it comes to the broad scope of public authorities. For example, although the Victorian Fisheries Authority (VFA) is perhaps the most analogous to the GMA, the VFA has broader objectives and functions than the GMA, including promotion and enforcement.¹⁴

Recommendation: The Select Committee should acknowledge that the GMA has undertaken a significant restructuring since the release of the Pegasus Report in 2017 and that the GMA has the appropriate governance and policies in place to manage both actual and perceived conflicts of interest.

The allegation that licensed hunters have not successfully completed the Waterfowl Identification Test (WIT).

In the parliamentary debate on 9 March 2023, MP Lizzie Blandthorn said:

Although the list of game ducks limits the species [that one is] permitted to hunt, in practice, the evidence tells us that it becomes hard for hunters to differentiate between the species, and this has raised ethical concerns as to whether the species outlined by the Game Management Authority are the only ducks being targeted by hunters. I believe these concerns are backed up by what I understand is the GMA's own research that shows that up

¹² Pegasus Economics (2017) "Assessment of the GMA's compliance and enforcement function"

¹³ Game Management Authority, "Pegasus report progress reporting", <https://www.gma.vic.gov.au/about-us/gma-reporting-and-governance/pegasus-report-progress-reporting>

¹⁴ Victorian Fisheries Authority Act 2016 (Vic)

to 80 per cent of shooters and hunters that undertook the Waterfowl Identification Test in December 2020 failed the test.¹⁵

The government's reference does not relate to the WIT, a game licensing prerequisite. It relates to a knowledge survey, which was essentially market research. In late December 2020, the GMA published a summary report of findings from a knowledge survey of game licence holders.¹⁶ The survey was conducted by Australian Survey Research with a sample of 5,318 licensed hunters. The published report is an abridged version of the full report, which will not be published. The questions in the report have been summarised from the actual test results. The report aims to give the reader an understanding of the nature of the questions posed to identify areas of relative strength or weakness in the level of understanding of the subject matter. Page one explicitly addresses these limitations and the report's intent. Nevertheless, the report has been misinterpreted by media outlets,¹⁷ anti-hunting politicians¹⁸ and activists.

There would not be any issues if the WIT failure rate was as high as the government asserted, as applicants are not permitted to hunt without successfully completing the WIT.

Recommendation: The Select Committee should acknowledge that the Waterfowl Identification Test must be successfully completed before hunters are licensed and clarify that the assertion that licensed hunters have not successfully completed the WIT is false.

Citation of irrelevant research

In the parliamentary debate on 9 March 2023, MP Lizzie Blandthorn stated that “research compiled between 2004 and 2017 by BirdLife International sourced from Australian academic journals and the CSIRO indicates that fire patterns in Australia threaten 17 of Australia's 52 vulnerable, endangered and critically endangered bird species.”¹⁹ This particular birdlife study specifically relates to the impact of fire regimes in the Australian tropical savannah.²⁰ However, any connection between that study and hunting game birds in Victoria is so obscure as to be meaningless.

The Animal Welfare Action Plan

In regard to the Animal Welfare Action Plan, MP Lizzie Blandthorn said:

That is why the Daniel Andrews Labor government developed the Animal Welfare Action Plan, which both recognises the sentience of animals and promotes their well-being, and it is the first of its kind in Australia. The plan itself outlines that animals experience feelings and emotions such as fear and pain, both of which are feelings our ducks and other native waterbirds and animals are exposed to during the open hunting seasons. An important

¹⁵ Blandthorn, L., MP (9 March 2023) Parliamentary Debates, Legislative Council, Victoria

¹⁶ Game Management Authority (December 2020) “Summary report of hunters' knowledge survey findings”

¹⁷ Hunt, P. (23 December 2020) ‘Hunters falter on knowledge test’, The Weekly Times

¹⁸ Meddick, A., MP (23 December 2020) “This is DISGRACEFUL (sic)”, Facebook post

¹⁹ Blandthorn, L., MP (9 March 2023) Parliamentary Debates, Legislative Council, Victoria

²⁰ Birdlife International (2017) “In Australia, fires are linked to habitat changes and the decline of many bird species”

consideration in looking at the social impacts of duck hunting is animal welfare and animal cruelty.²¹

The Animal Welfare Action Plan outlines the Victorian government's support for hunting and the importance of embracing the subtleties of human–animal interactions in various situations. The Animal Welfare Action Plan states:

The Victorian Government values and continues to support key animal industries and activities, such as agriculture, sport, recreation (including hunting and fishing), research and teaching, invasive species management, pets, breeding and exhibition. The Victorian Government understands that one size does not fit all and will work collaboratively with animal sectors to implement and deliver sustainable improvements to animal welfare that is appropriate to the species or activity.²²

²¹ Blandthorn, L., MP (9 March 2023) Parliamentary Debates, Legislative Council, Victoria

²² Department of Economic Development, Jobs, Transport and Resources (December 2017) "Animal Welfare Action Plan"

The Royal Society for the Prevention of Cruelty to Animals Victoria's conflicted roles of partisan activist and state-sponsored regulator

Generally, SSAA Victoria does not comment on opposing interest groups' submissions to inquiries. The association values the variety of viewpoints and sees it as beneficial for them to be displayed and challenged in public.

However, the Royal Society for the Prevention of Cruelty to Animals (RSPCA) Victoria is different because it holds dual and often conflicting roles as both a state-sanctioned regulator and an increasingly partisan, ideologically driven lobby group. Accordingly, the Select Committee should be aware that when the RSPCA makes submissions or presents evidence in a hearing, it is very much operating in its guise as a lobby group.

The RSPCA's tendency to avoid the evidence base when campaigning on duck hunting is evident throughout its submission. For example, the RSPCA stated:

RSPCA Victoria believes that there is no acceptable level of [animal] wounding, and it does not believe that there is the necessary appetite in Victoria for embarking on a resource-intensive wounding reduction program, as it is not possible to eliminate wounding entirely.²³

RSPCA Victoria's Waterfowl Wounding Reduction Action Plan Working Group representative contributed positively to the plan's development. Furthermore, the RSPCA operates a business that licenses the use of the RSPCA logo to meat and poultry farmers for a fee. These standards acknowledge and support a specific wounding rate as an inevitable aspect of food production. In summary, the RSPCA leases its social licence for a fee. Therefore, the RSPCA's claim that there is no acceptable level of wounding is not credible. In its submission to the inquiry, the RSPCA Victoria stated that

a study of duck shooters (sic) in Victoria found that only one in five hunters were able to correctly answer questions relating to identifying game ducks. This is particularly concerning, as it means that a significant proportion of hunters are potentially shooting at protected species.²⁴

This statement misrepresents the survey summary report, which did not reveal the questions asked.²⁵ The survey was a voluntary survey that involved answering questions that were often confusingly worded.²⁶ In order to hunt ducks in Victoria, hunters must successfully complete the WIT, which involves correctly identifying game and non-game duck species in short videos showing actual field conditions. It is implausible to assume that RSPCA Victoria is unaware of this misrepresentation of facts. Another claim the RSPCA Victoria made is that

two game birds, the Blue-winged Shoveler and the Hardhead Duck are now considered threatened. While the GMA has stipulated that these ducks cannot be shot in the 2023

²³ RSPCA Victoria (2023) Submission to the inquiry into Victoria's recreational native bird hunting arrangements

²⁴ Ibid.

²⁵ Game Management Authority (December 2020) "Summary report of hunters' knowledge survey findings"

²⁶ Ibid.

season, due to the issues with misidentification and shooter aim, there are significant concerns about further declines in these populations.²⁷

The RSPCA Victoria provided no references for this assertion, which implies that regulated game duck hunting poses a population-level threat to these two duck species. There is no scientific data or even credible assertions to support such a claim.

This inquiry is the latest example of RSPCA Victoria engaging in seemingly dishonest campaigning regarding duck hunting.

In 2016 RSPCA Victoria CEO Dr Liz Walker attended the Victorian duck opening along with other activists from Animals Australia, the Greens and the Coalition Against Duck Shooting. For the media event, Dr Walker wore her RSPCA-branded veterinarian scrubs.



In a photograph posted by the RSPCA Victoria on Twitter, Dr Walker and her activist colleagues posed with what was (as must have been apparent to a veterinarian of Dr Walker’s training and experience) quite obviously a long-dead swan. The caption on RSPCA Victoria’s tweet was “BLACK SWAN FALLS VICTIM TO DUCK SHOOTING CRUELTY #BanDuckShooting.”

Later that day, the RSPCA Victoria began to coyly “walk back” their story with another tweet claiming that Dr Walker and a colleague were “determining the cause of death of this swan”. However, the RSPCA’s implication was still apparent given the obligatory hashtag “#BanDuckShooting.”

Moreover, neither the RSPCA Victoria nor Dr Walker made any clarifications, retractions or apologies for their obvious error.



Later in 2016, an ostensibly contrite Dr Walker faced the media following the release of a damning internal review of how the RSPCA Victoria missed a series of warnings about the appalling treatment of 23 horses at a Bulla property on the outskirts of Melbourne. Dr Walker said:

We certainly understand that over the past few years, there have been issues that we have campaigned on, and their tone and the way we have done that definitely impacted the trust with our stakeholders, and we apologise for that.

It’s very challenging for our inspectors to be out there enforcing the law ... it puts them in an untenable position to have to do that whilst the organisation that employs them has, in the past, openly and very emotionally advocated against the existing laws.²⁸

In 2023 Dr Walker’s RSPCA Victoria continues to emotionally advocate against the existing laws.

²⁷ RSPCA Victoria (2023) Submission to the inquiry into Victoria’s recreational native bird hunting arrangements

²⁸ ABC News (6 October 2016) “RSPCA inspectors overworked, reputation threatened by emotional activism: Review”

The management of annual native bird hunting seasons

The annual duck season has a legislated set length in Victoria (duck season begins on the third Saturday of March and ends 30 minutes after sunset on the second Monday of June each year) with a daily bag limit of 10 birds. These arrangements may be varied by the responsible Minister using various legislative instruments.

Over the past 20 years, game bird hunting, particularly duck hunting, has been significantly politicised. Vocal, anti-hunting fringe groups have successfully influenced the decision-making and season-setting processes. As a result, the process has become a political exercise instead of being based on scientifically sound wildlife management principles. Season lengths and bag limits have been arbitrarily adjusted annually for most of the past 20 years.

The shift to adaptive harvest management, as outlined in the Victorian Sustainable Hunting Action Plan, will enable season lengths and bag limits to be set based on solid scientific data and decision-making principles. The scientific evidence clearly demonstrates that managed and regulated duck hunting is ecologically sustainable and does not threaten the viability of duck populations in Victoria.

In 2009, an expert panel of scientists from Australia, New Zealand and the USA formulated a scientific approach to duck season setting in Victoria. The Waterfowl Conservation and Harvest Model aimed to transform the decision-making process into an objective and scientific procedure to remove politics from the current opinion-based system.²⁹ The expert panel recommended adopting an AHM similar to the model used in North America for the past 28 years.

Several models were presented in the report published in 2010, but none were implemented.³⁰ In 2016, the Victorian government committed to AHM in the Sustainable Hunting Action Plan 2016–2020.³¹ As a result, the 2010 report was reviewed by the Arthur Rylah Institute and NSW DPI in 2017. The review recommended a modified approach to the implementation of AHM.³² Then, in 2020, a monitoring program was designed and implemented.³³ Total duck abundance estimates were modelled for the first time, and recommendations were included.³⁴ Dr Steve McLeod, from NSW DPI, was responsible for reviewing this report.³⁵ Subsequently, an expert panel was established to review the 2017 report in response to a 2018 election commitment. The panel report was completed in 2019.³⁶ It made a series of findings and recommendations, including that “a simple harvest management framework be adopted initially, to clearly translate waterfowl monitoring and data on rainfall/wetland availability into harvest recommendations”. The report made these recommendations while the AHM was being developed. This could take various forms, such

²⁹ Ramsey, D., Forsyth, D., Conroy, M., Hall, G., Kingsford, R., Mitchell, G., Roshier, D., Veltman, C., Webb, G. and Wintle, B. (2010) “Developing a sustainable harvest model for Victorian waterfowl”, Arthur Rylah Institute for Environmental Research

³⁰ Ibid.

³¹ Department of Economic Development, Jobs, Transport and Resources (2016) “Sustainable Hunting Action Plan 2016–2020”

³² Ramsey, D., Pacioni, C., McLeod, S. and Dundas, S. (2017) “Towards the implementation of adaptive harvest management of waterfowl in South-Eastern Australia”, Arthur Rylah Institute for Environmental Research Technical Report

³³ Ramsey, D. (2020) “Design of a monitoring program for game ducks in Victoria”, Arthur Rylah Institute for Environmental Research

³⁴ Ramsey, D. and Fanson, B. (2021) “Abundance estimates for game ducks in Victoria, results from the 2020 Aerial Survey”, Arthur Rylah Institute for Environmental Research

³⁵ McLeod, R. (2021) “A review of the survey design and analysis of waterfowl in Victoria”, NSW, Department of Primary Industries

³⁶ Prowse, T., Briggs, S., Cooney, R., Kingsford, R., Klaassen, M., Webb, G. and Whitehead, P. (2019) “Waterfowl adaptive harvest model: Expert panel review”, Department of Jobs, Precincts and Regions

as a “traffic light” system reflecting risk levels (i.e. red light = low abundance/high risk, orange light = medium abundance/medium risk and green light = high abundance/low risk). The abundance and risk levels could be extended, and this categorisation could be linked to appropriate management measures.

To summarise, now in mid-2023, which is fourteen years later, the following has transpired:

- 2009 Expert Panel Review
- 2010 Adaptive Harvest Model Report
- 2016 SHAP Action to implement and fund AHM
- 2017 Review of the 2010 Report
- 2019 Review of the 2017 Review of the 2010 Report
- 2020 Waterfowl monitoring design (helicopter survey) based on the 2019 Review of the 2017 Review of the 2010 Report.
- 2021 Government response to the 2019 Review of the 2017 Review of the 2010 Report
- 2021 Review of the 2020 waterfowl monitoring design (helicopter survey)
- 2021 Results from the 2020 Aerial Survey (helicopter survey)
- 2021 Interim Waterfowl Harvest Management Framework

The Interim Harvest Model

The IHM was developed by two of Australia’s foremost ecologists, Professor Richard Kingsford and Professor Marcel Klaassen. The role of the IHM is to provide an objective framework for making decisions on game duck seasons until sufficient data has been collected to inform an AHM.³⁷ The IHM was successfully used to inform the settings for the 2022 Victorian duck season, with the Minister of the day evading a political decision in favour of accepting the IHM outputs.³⁸

The IHM is a conservative model that places resource sustainability ahead of other considerations. A key aspect of the IHM is the understanding that bag limit manipulation is significantly more effective than season length from a management perspective. Anti-hunting stakeholders were corrected by Professors Kingsford and Klaassen when they argued this point during an IHM consultation. The back and forth went as follows:

Anti-hunting stakeholder: I do not agree that season length can be excluded from the management options.

Kingsford and Klaassen: Research (including analyses of hunters’ behaviour in Victoria) indicates that manipulating season length is less effective than modifying bag limits. But that indeed does not invalidate it as a management option. To be effective, season length will have to be drastically modulated.

³⁷ Marcel Klaassen and Richard Kingsford (2021) “Relationships among duck population indices and abiotic drivers to guide annual duck harvest management”

³⁸ https://www.gma.vic.gov.au/__data/assets/pdf_file/0008/844613/Min-Brief-GMA-rec-2022-duck-season-inc-attachments-Redacted-copy_redacted_AS.pdf

Anti-hunting stakeholder: The model does not consider the advantages of a shorter season length, such as reduced ecological damage and an easier enforcement load. Nor does it recognise that, historically, seasons were shorter.

Kingsford and Klaassen: Modulating season length appears to have a limited impact on hunters' behaviour and, therewith, on the total number of ducks hunted and total "ecological damage". The point regarding the enforcement load is valid.³⁹

Varying season length has no demonstrable impact on the total annual harvest, but it significantly impacts hunter opportunity.

Since its inception, SSAA Victoria has supported decisions on seasonal variations based entirely on the recommendations from the IHM. Although imperfect, the IHM provides a clear objective framework that ensures sustainability and favours full-length hunting seasons.

Recommendation: The Select Committee should note that modifying seasonal bag limits is the most effective method of manipulating total harvest and that altering the length of the hunting season has an unnecessary negative impact on hunters.

Adaptive Harvest Modelling

In 2019, an expert panel assembled by the Victorian government described AHM as follows:

Adaptive harvest management attempts to improve our management of wildlife resources through carefully structured learning by doing. The approach acknowledges that our understanding of wild populations will always be imperfect, but with monitoring over time, we can better predict the outcome of management interventions and extreme environmental events and, thereby, improve management decisions, regardless of knowledge gaps.⁴⁰

All the season-setting mechanisms used in Victoria in recent decades have taken a conservative approach to sustainability. Consequently, no evidence or reasonable basis shows that regulated game bird hunting, as practised in Victoria in the twenty-first century, threatens the viability of game bird populations.

Recommendation: The Select Committee should state that a well-regulated game hunting season in Victoria in the twenty-first century has no demonstrable impact on the populations of game species.

Recommendation: The Select Committee should recommend that the government continue using the IHM and fully fund a transition to an AHM within three years. Furthermore, future seasonal arrangements should be determined based on the recommendations of the IHM and announced via the GMA website no later than the 31st of December in the year preceding the upcoming game duck season.

³⁹ Klaassen, M. and Kingsford, R. (2021) "Relationships among duck population indices and abiotic drivers to guide annual duck harvest management"

⁴⁰ Prowse et al. (October 2019) "Waterfowl adaptive harvest model: Expert panel review", Report for the Department of Jobs, Precincts and Regions

Compliance in game hunting

The compliance level among the hunting community is an area of speculation around duck hunting. However, the degree to which misinformation has been allowed to misplace fact on this issue was put into stark relief when the Premier of Victoria somewhat embarrassingly made the following statement to the media in February 2023:

I'm very keen to get a report from last season because we did see a number of incidents where the rules were not followed in terms of bag limits. It's a genuine decision every single year, so there's no guarantee one way or the other. That's not an announcement. That's just a statement of fact; there's not a guaranteed season in any year.⁴¹

The Premier would have found that the actual "number of incidents" where the bag limit exceeded was one, from 970 bags and over 1,200 game licences checked if he indeed received the report from last season (which was published by the GMA on 16 June 2022).⁴²

According to the compliance data from the first five days of the 2023 Victorian duck season, a statistically low level of illegal behaviour among licensed duck hunters was recorded and has been the trend in recent years. The GMA published this data, but it was removed within an hour as an act of political interference from the Minister for Outdoor Recreation.⁴³ The data showed that from 795 hunters checked, 29 were detected committing miscellaneous offences (including non-hunting related offences such as leaving campfires unattended), and only three hunters (0.37%) were committing serious hunting offences. Furthermore, out of 197 anti-hunting activists engaged, it was discovered that six (3.04%) were committing offences, including one of them committing a serious animal welfare offence. For context and comparison, in 2022, the VFA engaged 25,450 fishermen and detected 2,149 offences, a non-compliance rate of 8%.⁴⁴

The wetland closure process

Hunting areas can be further regulated or closed using a legal notice before or during the duck season. Further regulation or closure can occur for several reasons, including protecting rare and endangered species or avoiding causing disturbances to waterbirds breeding in colonies.

Theoretically, further regulation could involve additional restrictions on hunting times, equipment and methods; however, closing a hunting area is typically the default management response. Closed wetlands are ostensibly monitored throughout the duck season. If the reason for further regulation or closure no longer exists, the legal notice can be theoretically revoked. Instances where the closure reason no longer exists are relatively common; however, instances of the closure being revoked are exceedingly rare.

⁴¹ <https://www.abc.net.au/news/2023-02-09/victorian-duck-season-premier-daniel-andrews-language-signal/101948138>

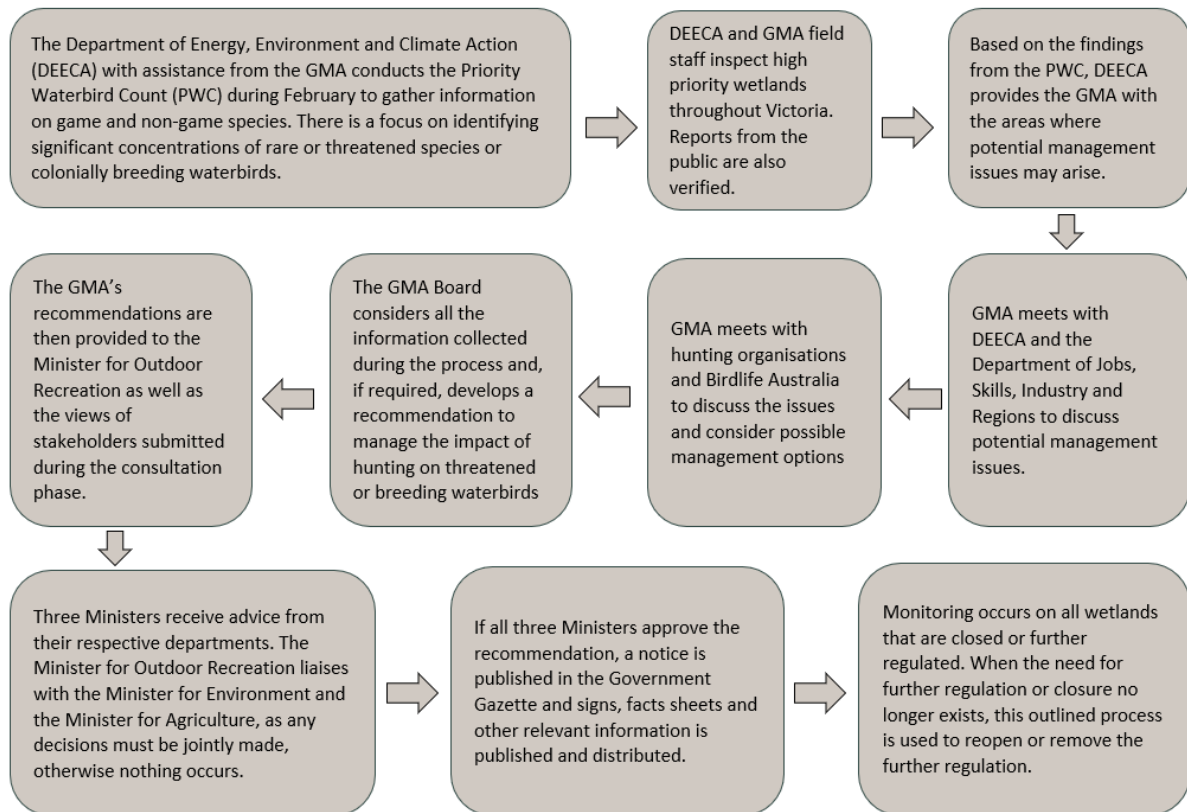
⁴² <https://www.gma.vic.gov.au/media-releases/2022/2022-duck-season-summary>

⁴³ <https://ssaavic.com.au/anatomy-of-a-cover-up/>

⁴⁴ <https://vfa.vic.gov.au/enforcement/enforcement-outcomes>

The Arthur Rylah Institute has provided an objective framework for assessing waterbird susceptibility to disturbance from duck hunters.⁴⁵ The framework sets conservative trigger points for management actions. In 2023 this framework has been applied in certain circumstances but has been overridden in others, with political decisions made to close some wetland areas in response to local campaigning.⁴⁶

The GMA website provides a flowchart for the wetland closure process:



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Recommendation: The Select Committee should recommend that the GMA develop a transparent and objective procedure for managing the potential impacts of game duck hunting. Game hunting stakeholders, such as hunting organisations and Birdlife Australia, should be involved in that process, and the closure of public wetlands should be a last resort.

⁴⁵ Menkhorst, P. W. and Thompson, L. (May 2022) "Assessing waterbird susceptibility to disturbance by duck hunters in Victoria (2022 update)", Arthur Rylah Institute for Environmental Research Technical Report Series No. 338

⁴⁶ <https://ssaavic.com.au/closing-duck-swamps-for-bats-is-another-example-of-political-science-trumping-ecological-science/>

⁴⁷ <https://www.gma.vic.gov.au/hunting/duck/wetland-closures>

The Waterfowl Wounding Reduction Action Plan

Victoria's Waterfowl Wounding Reduction Action Plan was developed through a comprehensive process by a working group comprised of hunting and animal welfare organisations, government agencies and international experts. The plan was forwarded to the government for approval in 2022. However, despite the government using wounding as the rationale for overlooking expert advice on duck and quail season settings in 2023, the Minister for Outdoor Recreation has actively suppressed the plan.⁴⁸

In the foreword of the suppressed Action Plan, working group Chair Professor Andrew Fisher from the University of Melbourne wrote of the extensive work involved in reducing wounding as a common interest among stakeholders.

The Waterfowl Wounding Reduction Working Group comprised a range of members, including from the duck hunting community, the hunting industry, as well as animal welfare advocacy.

Accordingly, while there were very different perspectives in the working group regarding the practice of hunting itself, all the members were committed to the animal welfare and sustainability benefits of reducing wounding rates arising from duck hunting where it occurs. The working group held six formal meetings over the period of development of the Waterfowl Wounding Reduction Action Plan [WWRAP], as well as undertook inter-sessional reviewing and background work. I would like to thank the members of the WWRAP working group for their dedication and commitment to the task, and [I] believe that this final document has benefited greatly from members' input and the background expertise of the bodies they represented.

The Waterfowl Wounding Reduction Action Plan accordingly represents a structured and comprehensive set of actions to drive down wounding rates arising from hunting and, thus, to enable improvements in animal welfare as a result.⁴⁹

International expert Professor Jesper Medsen from Aarhus University, Denmark, also contributed to the foreword. In the foreword, Professor Medsen reflects on his country's progressive approach to this issue:

In Denmark, hunting is a popular recreational activity enjoyed by more than 200,000 hunters.

In the early 1990s, we started x-raying live geese caught for marking, and we discovered a high prevalence of birds carrying shotgun pellets in their tissues. As a result, a national plan to reduce the wounding of game was launched by the Ministry of Environment, which included a suite of initiatives such as awareness raising, training and the sharpening of proficiency tests. The plan also included research to fill knowledge gaps in the understanding of causes and extent of wounding as well as the monitoring of the progress in the fulfilment of the objectives in the plan.

⁴⁸ Official advice from the Game Management Authority of Victoria to the Minister for Outdoor Recreation (13 January 2023) "Recommendations for the 2023 Duck Season Arrangements"

⁴⁹ "Victoria's Draft Waterfowl Wounding Reduction Action Plan 2022–2026", Final draft submitted to Executive Government in 2022

The plan was unanimously endorsed by the Danish Wildlife Council (stakeholder council advisory to the Minister of Environment) and put emphasis on Danish hunters to improve. The Danish Hunters' Association immediately accepted the challenge and took a leading role in the implementation of the plan.

Since the implementation in 1997, we have found evidence of improvements, with reduced wounding rates in geese. Wounding rates have continued to decline in geese and other game, and this has been attributed to a change in hunting practices and the behaviour of hunters. The Danish success to reduce wounding has been achieved through a strong science-based decision-making process and the implementation of a plan with clear messages. Adjusting tools and repeating awareness campaigns as new evidence became available were important to keep momentum. Most important was that Danish hunters took responsibility for reducing wounding.

I want to congratulate the Victorian Government for its proactive initiative to reduce waterfowl wounding by shotgun shooting. Victoria's new Waterfowl Wounding Reduction Action Plan includes strong measures and a strong scientific component, which is critical to understanding the causes of wounding and monitoring the success of the plan. The involvement of hunters is a key focus in the plan, and this is the most important approach to achieving success.⁵⁰

To achieve its vision and goal, the action plan identifies six action areas to reduce waterfowl wounding:

- Leadership and culture
- Raising hunter awareness
- Ensuring hunter knowledge and proficiency
- Sustainability – Accounting for wounding losses in harvest arrangements
- Monitoring wounding
- Evaluation and revision

Each action area outlines steps to reduce waterfowl wounding and continue the good work already undertaken by the hunting community in collaboration with the government. The various action areas are not intended to function separately; combining them will help to achieve a continuous decline in the monitored level of wounding in duck hunting.

The action plan outlines a clear framework that will allow duck hunting to meet and exceed community expectations. The action plan has been released under Freedom of Information and is included as an appendix to this submission.

Recommendation: The Select Committee should recommend that the Minister for Outdoor Recreation immediately endorse and resource the Waterfowl Wounding Reduction Action Plan.

⁵⁰ Victoria's Draft Waterfowl Wounding Reduction Action Plan, 2022 – 2026, Final draft submitted to Executive Government in 2022

Arrangements in other Australian jurisdictions

Victoria is the Australian jurisdiction with the highest number of game hunters and dedicated public land game reserves. It also boasts the most advanced and progressive data collection and sustainability approach and the most sophisticated understanding of the dynamics and conservation of game waterfowl. As a result, the Select Committee should conclude that the arrangements in other Australian jurisdictions are substandard compared to Victoria.

Recommendation: The Select Committee should recommend that the government acknowledge Victoria's position as Australia's best practice game management leader.

A misperception exists that without recreational duck seasons, hunters would not engage in duck hunting and killing. This is incorrect. Currently, Victoria, Tasmania, South Australia and the Northern Territory have regulated recreational duck hunting seasons. However, recreational duck hunting is not legal in New South Wales, Queensland or Western Australia (but recreational duck hunting occurs in New South Wales under a DPI-administered program). In addition, the Australian Capital Territory has never allowed regulated recreational duck hunting due to its small size and lack of suitable wetland habitats.

Native ducks can have a significant impact on Australian agriculture, particularly in rice-growing regions where they feed on newly sown crops. As they consume large quantities of rice seeds and seedlings, their feeding can lead to reduced crop yields and significant financial losses for farmers. Measures such as crop protection and control methods, including hunting, are often implemented to minimise impacts.

New South Wales (NSW) operates the Native Game Bird Management program, which permits recreational hunters to act as agents for landowners, killing thousands of ducks yearly. Hunters of native game birds under this program must hold an up-to-date NSW Game Hunting Licence that is endorsed for native game bird hunting.⁵¹ This involves passing the Waterfowl Identification Test before they can take part in the program.⁵²

Under the terms of the Agriculture and Related Resources Protection Act, which the Department of Agriculture administers, the wood duck (maned goose) in Western Australia has been classified as an agricultural pest in the southwest land division.⁵³ Under this provision, wood ducks may be shot on private property without a damage licence between 1 January and 30 June each year, per a restricted open season notice. Prior to shooting, a damage licence must be obtained outside the open season areas and periods.

In Western Australia and New South Wales, the lack of recreational duck seasons does not equate to a lack of recreational duck hunting. It merely represents a lack of effective game management.

⁵¹ <https://www.dpi.nsw.gov.au/hunting/hunting-licences>

⁵² <https://www.dpi.nsw.gov.au/hunting/game-and-pests/native-game-birds>

⁵³ *Agriculture and Related Resources Protection Act 1976* (WA)

Jurisdictions outside Australia

There is a contention that banning recreational duck hunting could be justified as being “progressive.” This implies that the Victorian government should only be concerned with the opinions of the inner urban population. It also implies that any jurisdiction maintaining recreational duck hunting is not “progressive.” This includes jurisdictions of developed nations such as the Netherlands, Scandinavian countries and Switzerland. Notably, the top 25 countries on the International Social Progress Index participate in recreational native bird hunting.⁵⁴

⁵⁴ The Social Progress Imperative (2021) Social Progress Index Rankings, <https://www.socialprogress.org/index/global/results/>

Environmental sustainability and the impact on amenity

The precautionary principle

The “precautionary principle” is frequently used to justify government decisions inconsistent with the available evidence. However, the principle is central to international environmental law.⁵⁵

In Victorian law, the principle is outlined in the Flora and Fauna Guarantee Act, which requires decision-makers to consider the precautionary principle: “If there are threats of serious or irreversible environmental damage, [a] lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.”⁵⁶

The principle is not a means to neglect scientific evidence; instead, it is a safeguard to apply where evidence is lacking. It is a call for caution rather than an excuse for inaction or prohibition based on guesswork.

The precautionary principle is a statement of common sense and has already been applied by decision-makers in appropriate circumstances prior to the principle being spelt out. It is directed towards the prevention of serious or irreversible harm to the environment in situations of scientific uncertainty. Its premise is that where uncertainty or ignorance exists concerning the nature or scope of environmental harm (whether this follows from policies, decisions or activities), decision-makers should be cautious.⁵⁷

The assertion that regulated duck hunting seasons based on the IHM threaten “serious or irreversible harm to the environment in situations of scientific uncertainty” is simply not credible. The IHM exceeds the legal requirements regarding the precautionary principle.

The Ramsar wetlands

A Ramsar wetland is a wetland area designated by the Commonwealth under the Ramsar Convention.⁵⁸ The prohibited actions under the federal legislation revolve around impacting the “ecological character” of listed wetlands.⁵⁹ “Ecological character” has been defined as “the combination of the ecosystem components, processes and benefits/services that characterise the wetland at a given point in time.”⁶⁰

A principle of the Ramsar Convention is the “wise use” of wetlands.⁶¹ This principle ensures that the management of wetlands is cognisant but not exclusionary of human activity. In the Convention, human activity includes the sustainable harvesting of resources, such as hunting and fishing. In his book, Peter Whitehead states that the “wise use of wetlands

⁵⁵ Johnson, S. P. (1992) “The Earth Summit: The United Nations Conference on Environment and Development (UNCED)”, Graham & Trotman/Martinus Nijhoff

⁵⁶ *Flora and Fauna Guarantee Act 1988* (Vic), s. 4A (d)

⁵⁷ *Leach v National Parks and Wildlife Service* (1993) 81 LGERA 282

⁵⁸ Comino, M. P., (1997) “The Ramsar Convention in Australia: Improving the Implementation Framework”, 14(2) *Environmental and planning law journal*, 89

⁵⁹ *Environment Protection and Biodiversity Conservation Act 1999* (Cth), s. 17B

⁶⁰ Gell, P. A., Finlayson, C. M. and Davidson, N. C. (2016) “Understanding change in the ecological character of Ramsar wetlands: perspectives from a deeper time – synthesis”, *Marine and Freshwater Research*, 67, 869–879, doi:10.1071/MF16075

⁶¹ Whitehead, P. J. (1999) “Wise use of wetlands in Northern Australia: Indigenous use: Proceedings of a workshop held at Batchelor College, Batchelor, Northern Territory, 29 and 30 September and 1 October 1998”, Centre for Tropical Wetlands Management & Centre for Indigenous Natural and Cultural Resource Management, Northern Territory University

entails stakeholder engagement and transparency in negotiating ecosystem services trade-offs associated with various forms of wetland use in order to determine equitable conservation outcomes.”⁶²

Twelve Ramsar sites may be found in Victoria, including places with heavy industrial and recreational use, such as Port Phillip Bay and the Bellarine Peninsula.⁶³ Assertions that regulated duck hunting is incompatible with the Ramsar wetlands demonstrate a lack of understanding of the Ramsar principles.

In a major review of duck hunting open seasons in 2000, a government-appointed expert panel discovered that regulated hunting did not significantly affect the survival of game waterfowl species in Australia. Additionally, they noted that no waterbird species’ survival status had been considerably impacted by previous open seasons and that research indicated that hunting had no impact on waterfowl populations.⁶⁴

Amenity

Hunting provides great amenity to hunters. Visiting and camping on wetlands provides much-needed stress relief from the day-to-day grind of work. State Game Reserves, where a lot of duck hunting occurs, only exist because hunters recognised the importance of protecting habitat for both ducks and other species during the 1950s and ‘60s. The fact that all Victorians can enjoy the amenity of those areas is a direct result of the actions of hunters.

Over time, people move to live in areas around some of these wetlands because of their amenity. They have to accept that these areas only exist because of hunting and that hunting occurs for a part of the year in those areas. Complaining about hunting is equivalent to buying a block of land near the airport or next to a train line and then complaining that there is noise.

A secretive, web-based activist group has been extremely vocal in claiming regional Victorians are being negatively impacted by duck hunting activities. Claims by such groups need to be objectively examined, not accepted without evidence. Credible, independent research conducted for SSAA Victoria on social attitudes to duck hunting should logically be taken more seriously than unscientific, self-selecting internet surveys with leading questions.

Protests and balancing rights

Animal rights protestors have been a constant during the Victorian duck shooting seasons for the past 40 years. In international law, the right to protest is recognised, and it is a cornerstone of Australia’s and Victoria’s liberal democracy. However, that right must be balanced with the citizens’ rights to participate in lawful recreational activities.⁶⁵ It is not

⁶² Pritchard, D. (2018) “Wise use concept of the Ramsar Convention”, *The Wetland Book*, Springer, Netherlands, 477

⁶³ <https://www.water.vic.gov.au/waterways-and-catchments/our-waterways/wetlands/significant-wetlands>

⁶⁴ New South Wales National Parks and Wildlife Service (2000) “Scientific Panel Review of Open Seasons for Waterfowl in New South Wales”

⁶⁵ *International Covenant of Civil and Political Rights*, CCPR/C/GC/37 (17 September 2020), Pt IV, s. 47

feasible for a tiny minority to consistently and methodically obstruct others' lawful activities in the exercise of their own intolerance.

During the hunting season, anti-duck hunting protesters are ostensibly prohibited from accessing or staying on public hunting wetlands before 10 am or two hours before sunset.⁶⁶ However, this law is routinely disregarded by activists exploiting a loophole that allows access if they hold a current game hunting and shooting licence. Furthermore, during duck hunting season, it is illegal for protesters to get within 10 meters of anyone using a firearm or actively hunting ducks in designated hunting areas.⁶⁷ This regulation is also routinely disregarded by protesters.

The Victorian Charter of Human Rights states that "every person has the right of peaceful assembly"⁶⁸. However, the Charter also clarifies that this right is subject to reasonable restrictions to protect and balance the rights of others in society.⁶⁹ While there are no clear comparisons for anti-duck hunting demonstrations in public wetlands, there are instances where society has successfully balanced these competing rights. Protests at horse races, notably during the Melbourne Cup, are now commonplace. Protesters are not permitted on the racetrack, as they risk getting arrested or charged. Recreational duck hunting stands out in Victoria as an activity where hunters' rights are often violated in a systematic, organised manner, and the state rarely intervenes.

Recommendation: The Select Committee should recommend that the government restricts protesters' capacity to hinder the lawful conduct of duck hunters.

⁶⁶ *Wildlife Act 1975* (Vic), s. 58c

⁶⁷ <https://www.gma.vic.gov.au/hunting/duck/hunting-methods/public-safety-on-wetlands>

⁶⁸ *Charter of Human Rights and Responsibilities Act 2006* (Vic), s. 16

⁶⁹ *Ibid.*, s. 7 (2)

Social and economic impact

Public opinion

The view that native bird hunting is an important political issue is the main reason for the Select Committee's investigation. The government presented no policy on duck hunting at the most recent state election (November 2022). On 17 March 2022, Premier Andrews made his last public remark regarding duck hunting before the 2022 election:

I know it's not everyone's cup of tea. Some of us play golf, like me; some people go shooting. That's a choice they're free to make. That's about finding a balance, and I'm not about telling people what should constitute their recreational activities.⁷⁰

A meeting between the relevant Minister and the leading shooting and hunting organisations on 25 October 2022 indicated that the government intended to continue with the IHM on the path towards an AHM. The Minister did not indicate that the government planned to investigate native bird hunting. Instead, the Minister wrote to the major Australian hunting and shooting organisations on 22 November 2022, outlining the steps the Andrews administration had previously taken to support duck and game hunting and shooting. According to Premier Andrews, the Andrews Labor Government has:

- Invested \$10.6 million in Sustainable Hunting Action Plans to support safe, responsible and sustainable hunting across the state.
- Funded more than 260 projects at Victorian shooting clubs through the Shooting Sports Facilities Program, totalling \$21.48 million of investment.
- Made improvements to ensure the duck and quail hunting season arrangements are science-based and sustainable.

I look forward to continuing to work with you, SSAA Victoria, the Australian Deer Association and Field & Game Australia under a re-elected Andrews Labor Government.⁷¹

While non-committal, that letter, released just forty-eight hours before the State Election, clearly signalled a retention of the status quo regarding duck hunting.

Various groups interested in duck hunting have regularly conducted opinion surveys. A 2017 Morgan poll conducted for the Coalition Against Duck Shooting reported 87% of public support for a ban on duck hunting.⁷² A 2021 uComms poll conducted for the Animal Justice Party reported 58.5% public support for a ban on duck hunting.⁷³ The lack of research on how a potential ban on duck hunting would affect voters' intentions in marginal electorates stands out among the available opinion surveys.

Community Engagement conducted a public opinion survey for SSAA Victoria in seven marginal (Labor-held) electorates.⁷⁴ This study was conducted via a touch-tone automated phone response survey between 21–26 February 2023. The surveys were conducted

⁷⁰ Hyland, J. (16 March 2022) "Victorian Premier Daniel Andrews causes outrage in his own party after saying controversial policy allowing duck shooting is like going to the footy or playing golf", Daily Mail Australia.

⁷¹ Letter from the Hon. Gayle Tierney, MP, to Jack Wegman, CEO, SSAA Victoria (22 November 2022)

⁷² Australian Deer Association (2 February 2021) "Animal Justice Party poll backfires badly – showing large shift in support towards duck hunting"

⁷³ Ilanbey, S. (2 February 2021) "One-third back moves to ban duck shooting, survey shows", The Age

⁷⁴ Community Engagement, "Hunting Opinions Victoria 21–26 February 2023"

between 5 pm and 8:20 pm on weekdays and between 10 am and 5:30 pm on Saturdays at the respondents' local time so as to not over-sample non-workers and people who stay at home. The study was conducted on a sample of 2,003 people from the Victoria State electorates of St Albans, Mill Park, Greenvale, Ripon, Bendigo East, Bass and Yan Yean. The respondents were aged 18 years and above from a population of 344,461. The telephone numbers were licensed from a commercial provider, including landline and mobile phone numbers. In this survey, 50.6% of respondents participated via mobile phone. After completing the surveys, the data was geographically balanced across the target areas and cell-weighted by gender and age to represent the percentages of the local population. The effective sample size after weighting is 954; therefore, the effective margin of error is $\pm 3.2\%$.

Bass

- In Bass, 48% of voters oppose a duck hunting ban, while only 25% support it.⁷⁵
- If the Labor government permanently banned duck hunting, 21% of voters in Bass would likely change their vote, and there is a slight chance that an additional 11% may change their vote (68% would not change).⁷⁶
- If the Labor government permanently banned duck hunting in Victoria, 28% of voters in Bass would change their vote to a minor party, and 27% would change their vote to the Liberal party.⁷⁷
- In Bass, 41% of voters would support new duck hunting rules to protect native species while allowing hunting to continue, 40% would not support this, and 18% were uncertain.⁷⁸

Yan Yean

- In Yan Yean, 47% of voters oppose a duck hunting ban, while 30% support it.⁷⁹
- If the Labor government permanently banned duck hunting, 26% of voters in Yan Yean would likely change their vote, and there is a slight chance of an additional 7% changing their vote (67% would not change).⁸⁰
- If the Labor government permanently banned duck hunting in Victoria, 32% of voters in Yan Yean would change their vote to the Liberal party, and an additional 23% would change their vote to another minor party.⁸¹
- In Yan Yean, 39% of voters would support new duck hunting rules to protect native species while allowing hunting to continue, 37% would not support this, and 24% were uncertain.⁸²

⁷⁵ Community Engagement, "Hunting Opinions Victoria 21–26 February 2023", p. 18

⁷⁶ *Ibid.*, p. 21

⁷⁷ *Ibid.*, p. 24

⁷⁸ *Ibid.*, p. 27

⁷⁹ *Ibid.*, p. 18

⁸⁰ *Ibid.*, p. 21

⁸¹ *Ibid.*, p. 24

⁸² *Ibid.*, p. 27

Greenvale

- In Greenvale, 45% of voters oppose a duck hunting ban, while 27% support it.⁸³
- If the Labor government permanently banned duck hunting, 29% of voters in Greenvale would likely change their vote, and there is a slight chance of an additional 11% changing their vote (60% would not change).⁸⁴
- If the Labor government permanently banned duck hunting in Victoria, 25% of voters in Greenvale would change their vote to the Liberal party, and 17% would change their vote to another minor party.⁸⁵
- In Greenvale, 47% of voters would support new duck hunting rules to protect native species while allowing hunting to continue, 33% would not support this, and 20% were uncertain.⁸⁶

Ripon

- In Ripon, 46% of voters oppose a duck hunting ban, while 35% support it.⁸⁷
- If the Labor government permanently banned duck hunting, 24% of voters in Ripon would likely change their vote, and there is a slight chance of an additional 20% changing their vote (65% would not change).⁸⁸
- If the Labor government permanently banned duck hunting in Victoria, 35% of voters in Ripon would change their vote to another minor party, and 27% would change their vote to the Liberal party.⁸⁹
- In Ripon, 44% of voters would support new duck hunting rules to protect native species while allowing hunting to continue, 39% would not support this, and 16% were uncertain.⁹⁰

St Albans

- In St Albans, 40% of voters oppose a duck hunting ban, while 25% support it.⁹¹
- If the Labor government permanently banned duck hunting, 18% of voters would likely change their vote, with a slight chance of an additional 18% change (63% would not change).⁹²
- If the Labor government permanently banned duck hunting, 24% of voters in St Albans would likely change their vote, and there is a slight chance of an additional 13% changing their vote (63% would not change).⁹³
- In St Albans, 45% of voters would support new duck hunting rules to protect native species while allowing hunting to continue, 29% would not support this, and 20% were uncertain.⁹⁴

⁸³ Ibid., p. 18

⁸⁴ Community Engagement, "Hunting Opinions Victoria 21–26 February 2023", p. 21

⁸⁵ Ibid., p. 24

⁸⁶ Ibid., p. 27

⁸⁷ Ibid., p. 18

⁸⁸ Ibid., p. 21

⁸⁹ Ibid., p. 24

⁹⁰ Ibid., p. 27

⁹¹ Ibid., p. 18

⁹² Ibid., p. 21

⁹³ Ibid., p. 21

⁹⁴ Ibid., p. 27

Bendigo East

- In Bendigo East, 42% of voters oppose a duck hunting ban, while 29% support it.⁹⁵
- If the Labor government permanently banned duck hunting, 18% of voters in Bendigo East would likely change their vote, and there is a slight chance of an additional 13% changing their vote (70% would not change).⁹⁶
- If the Labor government permanently banned duck hunting in Victoria, 35% of voters in Bendigo East would change their vote to the Liberal party, and 27% would change their vote to another minor party.⁹⁷
- In Bendigo East, 44% of voters would support new duck hunting rules to protect native species while allowing hunting to continue, 33% would not support this, and 23% were uncertain.⁹⁸

Mill Park

- In Mill Park, 47% of voters oppose a duck hunting ban, while 20% support it⁹⁹.
- If the Labor government permanently banned duck hunting, 20% of voters in Mill Park would likely change their vote, and there is a slight chance of an additional 8% changing their vote (71% would not change).¹⁰⁰
- If the Labor government permanently banned duck hunting in Victoria, 21% of voters would change their vote to the Liberal party, and 15% would change their vote to another minor party.¹⁰¹
- In Mill Park, 48% of voters would support new duck hunting rules to protect native species and allow hunting to continue, while 32% would not and 20% were uncertain.¹⁰²

Economics

Government-commissioned studies have shown the economic benefit of duck and quail hunting in Victoria.¹⁰³ The latest figures from 2019 demonstrated that duck hunting contributes \$65 million, and quail hunting adds \$22 million to the Victorian economy annually. Those studies are credible in their methodologies and conclusions. However, an issue is the tacking on of questions about the hypothetical ‘substitutability’ of hunting for other activities. The argument put out by those opposed to hunting is that if hunters did not go hunting, they would still spend their money on other things, and therefore that the actual economic benefits from hunting can be disregarded. Such hypothetical speculation is irrelevant. It is equivalent to determining what economic benefit beef farming has to the Victorian economy and then dismissing it because if beef wasn’t available, people could substitute lamb or pork.

Surveys conducted by anti-hunting groups may depict an opposing image from the official research. However, their methodology and conclusions cannot withstand scrutiny. They

⁹⁵ Ibid., p. 18

⁹⁶ Community Engagement, “Hunting Opinions Victoria 21–26 February 2023”, p. 21

⁹⁷ Ibid., p. 24

⁹⁸ Ibid., p. 27

⁹⁹ Ibid., p. 18

¹⁰⁰ Ibid., p. 21

¹⁰¹ Ibid., p. 24

¹⁰² Ibid., p. 27

¹⁰³ “June 2020 Economic contribution of recreational hunting in Victoria”, Final report for the Department of Jobs, Precincts and Regions

make assertions about the benefits of eco-tourism, which are speculative. Winton Wetlands demonstrate the misconception of expecting huge tourist interest in a wetland when hunting ceases. Many wetlands used for hunting can be visited for the other nine months of the year when hunting is prohibited, yet see very little visitation.

By delaying the duck season this year, when there was plenty of water and waterbirds in the ephemeral wetlands of northern Victoria, the Victorian government created the ideal test case for wetland eco-tourism. At a time when duck hunting would typically occur, the eco-tourists had the wetlands entirely to themselves, yet, they did not arrive.

The premise of choosing eco-tourism or hunting is erroneous. Both can coexist peacefully and benefit the local economy and community. For instance, hunters of ducks and quail are eco-tourists. Many of them hunt in rural locations while travelling from Melbourne. They purchase fuel, food, ammunition, sundry items, and accommodation there. Furthermore, hunting occurs in autumn and winter, off-peak tourism seasons.

Recommendation: The Select Committee should recommend that future economic reports remove speculative and irrelevant questions about substitutability. Alternatively, the committee could recommend that every government-sponsored industry's economic report include similarly framed questions about substitutability.

The social interaction of hunters with friends, family, and local communities is greatly enriched by duck hunting. Hunters hunt for many reasons. Every person is unique, and everyone has their own motivations and goals. However, common motivations for bird hunting include sourcing free-range game meat, physical exercise, maintaining a connection with nature, mental well-being and positive social interaction with friends and family.

According to statistics, hunters have better mental and physical health than non-hunters.¹⁰⁴ This is because hunters tend to have a tangible and genuine connection with nature. Most people say that connecting with nature is important to them. Hunters actually participate in nature, making their connection even stronger.

¹⁰⁴ September 2019 Final Report, "Economic and social impacts of recreational hunting and shooting"



Victoria's draft Waterfowl Wounding Reduction Action Plan

2022–2026



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MINISTER'S FOREWORD

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A MESSAGE FROM THE CHAIRPERSON



The Waterfowl Wounding Reduction Working Group comprised a range of members including from the duck hunting community, hunting industry, as well as animal welfare advocacy.

Accordingly, while there were very different perspectives in the working group regarding the practice of hunting itself, all the members were committed to the animal welfare and sustainability benefits of reducing wounding rates arising from duck hunting where it occurs. The working group held six formal meetings over the period of development of the Waterfowl Wounding Reduction Action Plan, as well as undertaking intersessional reviewing and background work. I would like to thank the members of the WWRAP working group for their dedication and commitment to the task, and believe that this final

document has benefited greatly from members' input and the background expertise of the bodies they represented. The Waterfowl Wounding Reduction Action Plan accordingly represents a structured and comprehensive set of actions to drive down wounding rates arising from hunting, and thus to enable improvements in animal welfare as a result.

Andrew Fisher
Chairperson
Waterfowl Wounding Reduction Working Group

A NOTE FROM THE WORLD LEADERS IN WOUNDING REDUCTION



Professor Jesper Madsen

In Denmark, hunting is a popular recreational activity enjoyed by more than 200,000 hunters.

In the early 1990s, we started x-raying live geese caught for marking and we discovered a high prevalence of birds carrying shotgun pellets in their tissues. As a result, a national plan to reduce wounding of game was launched by the Ministry of Environment, including a suite of initiatives such as awareness raising, training and sharpening of proficiency tests. The plan also included research to fill knowledge gaps in the understanding of causes and extent of wounding as well as monitoring of the progress in the fulfillment of objectives in the plan.

The plan was unanimously endorsed by the Danish Wildlife Council (stakeholder council advisory to the Minister of Environment), but putting emphasis on Danish hunters to improve. The Danish Hunters' Association immediately accepted the challenge and took a leading role in the implementation of the plan.

Since implementation in 1997, we have found evidence of improvements, with reduced wounding rates in geese. Wounding rates have continued to decline in geese and other game,

and this has been attributed to a change in hunting practises and behaviour of hunters. The Danish success to reduce wounding has been achieved by a strong science-based, decision-making process and implementation of a plan with clear messages. Adjusting tools and repeating awareness campaigns as new evidence became available were important to keep momentum. Most important was that Danish hunters took responsibility for reducing wounding.

I want to congratulate the Victorian Government for its proactive initiative to reduce waterfowl wounding by shotgun shooting. The new Victoria's Waterfowl Wounding Reduction Action Plan includes strong measures and a strong scientific component which is critical to understand the causes of wounding and monitoring success of the plan. The involvement of hunters is a key focus in the plan and this is the most important approach to achieve success.

Jesper Madsen

Professor
Aarhus University, Denmark



Niels Søndergaard

Hunters are solely responsible for ethical, safe and sustainable hunting.

Therefore, it is hunters who must take responsibility when issues arise that are objectionable and not sustainable. The social acceptance of hunting is essential for the future of hunting. If hunters do not have the acceptance of their communities, it is difficult to justify recreational hunting.

In 1996, Danish hunters were facing unacceptably high levels of shotgun pellets in game from shotgun hunting. Our research found that one-third of older Pink-footed Geese and Eider ducks carried pellets, which meant that for every bird shot, one was wounded. From both an animal welfare and a hunting perspective, this was unacceptable. If hunting results in high levels of wounding, this diminishes the rewards associated with being a skilled hunter and using the meat as food poses a risk to human health. It is crucial that hunters hunt in a sustainable way, with consideration for animal welfare, and that they can use game meat for consumption.

The Danish Hunters' Association faced the problem with wounding and took a leadership role to reduce it. We did not question the issue of wounding, and we accepted the fact that we had a problem and needed to change.

We participated in mapping the key factors that were contributing to wounding: poor shooting, poor distance assessment, shooting beyond personal ability and unsuitable equipment and ammunition choices.

After recognizing the extent of wounding, we identified the best ways to solve the problem:

1. take ownership and recognize that wounding is every hunters' problem
2. build confidence in the available shotgun shells, emphasising that wounding is not a matter of the capability of the equipment
3. achieve ownership; we recognised that without ownership of the problem, there would be no real will to change behavior
4. develop simple guidelines and best practice standards to reduce wounding
 - › good co-operation with researchers, authorities and manufacturers of ammunition.

Self-regulation among hunters is probably the key to efficiently solving the challenges associated with wounding. There must also be full transparency and wounding levels must be closely monitored.

On behalf of the Danish hunters, I would like to congratulate the hunters in Victoria and the Victorian Government for this very important and proactive action towards reducing wounding of waterfowl. Best of luck, and we are always interested in sharing knowledge with fellow hunters. We look forward to following the implementation of the action plan and the associated initiatives, to learn from your future experiences.

Niels Søndergaard

Director of Advice and Education
Danish Hunters' Association



INTRODUCTION

Waterfowl wounding is a hunting-related problem and one that hunters in partnership with government have the ability to address and reduce. By requiring a minimum standard of hunter skill, raising awareness of the causes of wounding and educating and training hunters on solutions, significant reductions in waterfowl wounding can be made. This will reduce negative animal welfare outcomes, reduce waste, contribute to sustainability and give the community confidence that duck hunting is conducted responsibly.

In Victoria, hunting is permitted for a number of game species, including deer, ducks and quail.

Eight species of native waterfowl are declared to be game and may be hunted during a prescribed season according to daily bag limits and hunting methods. As of 2022, Victoria has almost 24,000 licensed duck hunters who harvest approximately 325,000¹ ducks each year.

Wounding is an unintended consequence of hunting. It is important to reduce wounding to improve animal welfare outcomes, reduce waste, and ensure duck hunting in Victoria remains sustainable and responsible.

¹ Average harvest between 2009–2021. Includes 2020 and 2021 where hunting participation was restricted due to movement restrictions caused by the COVID-19 pandemic. Between 2009–2019 (pre-COVID-19), the average annual harvest of game ducks was approximately 373,000.

VICTORIA'S WATERFOWL WOUNDING REDUCTION ACTION PLAN

Victoria's Sustainable Hunting Action Plan 2021–2024 commits to improve animal welfare with respect to duck hunting by establishing a Waterfowl Wounding Reduction Action Plan Working Group (WWRAP working group) responsible for developing and implementing a wounding reduction action plan for waterfowl and quail in Victoria (recommendation 1.4). It also commits to implementing a monitoring program to measure the success of the Waterfowl Wounding Reduction Action Plan (action plan) (recommendation 3.1).

The Victorian Government in consultation with the working group has developed this action plan. This action plan contains a vision, goal and six action areas, each with a series of actions considered necessary to reduce the level of wounding associated with duck hunting. Program evaluation, review and revision is also included.

The action plan builds on previous efforts between the hunting community and government to reduce wounding (see information box). It adopts an incremental improvement strategy to achieve a trend of continual reduction in wounding rates and is similar to the successful strategy employed in Denmark. It has been shown that incremental improvement strategies are more likely to be successful in achieving behavioural change².

VICTORIA'S PAST APPROACH TO WOUNDING REDUCTION

Victoria has a highly regarded education program, which has been in place since 2006, to raise hunter awareness and provide advice on techniques and behaviours to improve hunter performance and reduce wounding. Developed in consultation with the Cooperative North American Shotgun Education Program (CONSEP), Field and Game Australia (FGA) and Sporting Shooters Association of Australia (Victoria) (SSAA), theoretical written materials (e.g. **Be a better gamebird hunter**) have been produced. Some have been mailed directly to hunters and are available on the Game Management Authority website or on DVD (e.g. *Duck WISE* DVD). A voluntary, practical in-field training program (known as the Gamebird Hunting Essentials Masterclass) was developed and implemented in 2015. A number of trainers from FGA and SSAA were trained by US ballistics expert Dr Tom Roster of CONSEP to deliver the Masterclass. The theoretical materials and practical programs came under the banner of Victoria's Shotgun Education Program.

² Mellor and Stafford 2001; Mellor *et al.* 2008.

Victoria's Waterfowl Wounding Reduction Action Plan will be delivered collaboratively by key stakeholders, including hunting and animal welfare organisations and government, with Victoria's duck hunting community taking responsibility for establishing a culture of no tolerance for engaging in wounding-type behaviours.

The goal for all animal welfare initiatives is to minimise any unnecessary adverse impacts as far as practicable. International experience has shown that significant reductions in waterfowl wounding caused by hunting can be achieved with a mix of practical and theoretical actions³ (see case study), ensuring that duck hunting remains a sustainable activity, while minimising adverse animal welfare outcomes.

Definition of wounding

In duck hunting, birds can be hit by pellets and not retrieved by the hunter. This is the definition of 'wounding' (i.e. wounded = struck but not retrieved). Many terms have been used to describe wounding (e.g. crippling) but all mean birds that have been struck and not recovered, or 'bagged', by the hunter.

The wounding issue

Wounding causes unnecessary pain and suffering to injured birds and affects individual survival rates. Sub-lethally injured birds will survive whereas severely wounded birds will die, either due to the injuries suffered or the impact on their ability to feed, avoid predators or thermoregulate (maintain body temperature at the required level).⁴ It has been estimated that the majority of wounded waterfowl will ultimately die (see **Appendix 1**).⁵

While wounding is an obvious animal welfare issue, it is also a sustainability issue as wounding losses are not currently incorporated into estimates of the total mortalities of game ducks caused by hunting.⁶ Also, wounded birds are not collected and utilised by hunters and are, in effect, wasted.

The extent of wounding

Waterfowl wounding studies have been conducted in North America and Europe since the 1950s⁷. Wounding was researched during the 1970s and 80s in Australia as part of harvest monitoring (see **Appendix 3**), however, there has been little research into the issue since then.

Determining the extent of wounding is difficult and there is no perfect method for quantifying wounding rates (see **Appendix 2**). Estimates of wounding vary between studies, with hunter-reported studies generally recording lower rates and trained observer studies (considered more accurate) higher⁸.

Internationally, hunting-related wounding estimates have ranged between approximately 10–60 per cent⁹. In Australia, historic wounding rates have varied between different reporting methods, ranging from 6–40 per cent. Depending on the scale of the annual harvest, this can translate into tens of thousands of birds in a season. There is an obvious need to undertake research today to determine the current rate of wounding and implement a monitoring program to track changes in wounding levels in response to management actions.

³ Noer *et al.* 2007; Clausen *et al.* 2017

⁴ Kirby *et al.* 1981; Van Dyke 1981

⁵ Kirby *et al.* 1981; Van Dyke 1981

⁶ Norton and Thomas 1994

⁷ E.g. See Bellrose 1953

⁸ Norton and Thomas 1994

⁹ Examples include Bellrose 1953; Norman 1976; Anderson and Sanderson 1979; Humburg *et al.* 1982; Briggs *et al.* 1985; Nieman *et al.* 1987; Noer and Madsen 1996; Noer *et al.* 2007

Case study – Denmark: a world-leader in wounding reduction

A number of overseas countries have implemented programs to raise hunter awareness and improve hunting effectiveness in order to reduce wounding in duck hunting (e.g. the Cooperative North American Shotgun Education Program in USA and Respect for Quarry in Britain). One of the most successful programs has been implemented in Denmark and has achieved significant, measurable reductions in waterfowl wounding.

Denmark provides an example of how a combination of targeted interventions can modify hunter behaviour, improve skills and performance and significantly reduce waterfowl wounding associated with hunting.

Danish x-ray investigations in the 1990s detected shotgun pellets in 36 per cent of wild-trapped pink-footed geese and 34 per cent in the common eider.¹⁰ It was extrapolated that almost one pink-footed goose was wounded for every bird bagged.¹¹ These results were considered unacceptable by the Danish government, hunting community and the broader Danish community, and a national wounding action plan was developed in 1997 by the Danish Wildlife Management Council (an advisory body to government).

The action plan included elements of targeted awareness and education, training hunters to estimate distances, mandatory testing (written and practical), encouragement to practice shooting under realistic conditions, the mandatory use of retrieving dogs, encouraging the use of more effective hunting practices (e.g. decoys and calls to bring birds within effective range), the retrieval of downed birds and introduction of a code of ethics. These actions promoted shooting at shorter distances, safer and more accurate shots and hence better chances of harvesting birds without wounding. Messaging to the hunting community was clear and to-the-point.¹²

Hunters took ownership of this issue and used peer pressure, cultural change and standards of behaviour to ensure that hunters self-regulated and adhered to the requirements of the action plan and good hunting practice. Importantly, an ongoing wounding monitoring program was introduced to measure the success of the management interventions.

Since the wounding problem was identified in the mid-1990s and the action plan was put in place, substantial progress has been made, with both duck and goose wounding rates declining significantly over time. The crippling (wounding) ratio (number of geese wounded for each goose bagged) of juvenile birds dropped from 1.00 in 1992 to 0.11 in 2016, corresponding to an 89 per cent reduction in wounding. Among adult birds (that may have accumulated pellets over multiple seasons), the ratio dropped from 9.75 in 1992 to 1.99 in 2016, a reduction of 80 per cent.¹³

The Danes consider that there is still room for improvement in continuing to lower the wounding rates and they continue to reassess the action plan, promote a responsible hunting culture, raise awareness and provide training courses for hunters.¹⁴ The Danish experience has shown that monitoring the outcome of this management program is an important element in ensuring the measures introduced to manage waterfowl hunting are socially defensible and the policies and programs in place are having the desired effect.

¹⁰ Noer and Madsen 1996; Holm and Haugaard 2013; Holm *et al.* 2017

¹¹ Madsen and Noer 1996; Noer *et al.* 2007

¹² Holm *et al.* 2017

¹³ Clausen *et al.* 2017

¹⁴ Holm *et al.* 2017



Causes of wounding

Wounding can be caused by a number of factors, including:

- › poor shooting skills
- › shooting at birds at long distances (i.e. in excess of 30 metres)
- › hunters shooting beyond their maximum shooting skills distance or capability of technology (e.g. firearms and technology)
- › use of suboptimal load and choke choices for the species being hunted
- › shooting into flocks and sub-lethally striking non-target birds
- › dropping birds in heavy cover where they can't be retrieved
- › failure to have an effective retrieval strategy in place, including the use of a well-trained retriever dog¹⁵.

All of these factors relate to hunter behaviours or capabilities.

Obligations

The *Wildlife Act 1975*, *Prevention of Cruelty to Animals Act 1986*, *Game Management Authority Act 2014* and Victoria's Animal Welfare Action Plan require that wounding in waterfowl hunting is minimised.

Victoria currently addresses wounding through its voluntary Shotgunning Education Program, which aims to raise awareness, improve hunter performance and reduce the level of wounding associated with duck hunting. However, the government recognises that a more proactive approach is required and should contain a mix of regulatory and non-regulatory actions to continually reduce wounding. This action plan seeks to achieve this.

¹⁵ Mikula *et al.* 1977; Roster 1998a; Roster 1998b; Mondain-Monval *et al.* 2015; AEWa 2016; GMA 2016; Clausen *et al.* 2017

VISION, GOAL AND ACTION AREAS

Vision

Licensed duck hunters are skilled, knowledgeable and employ good hunting practices to minimise waterfowl wounding and improve animal welfare outcomes, reduce waste, contribute to sustainability and give the community confidence that duck hunting is conducted responsibly.

Goal

There is a continuing decline in the monitored level of wounding in duck hunting in Victoria.

Action areas

To achieve the vision and goal, the action plan identifies six action areas to reduce waterfowl wounding:

- › Leadership and culture
- › Raising hunter awareness
- › Ensuring hunter knowledge and proficiency
- › Sustainability – Accounting for wounding losses in harvest arrangements
- › Monitoring wounding
- › Evaluation and revision

Each action area sets out actions to reduce waterfowl wounding and continue the good work already undertaken by the hunting community in partnership with government. The individual action areas are not intended to operate in isolation: in combination they will help to achieve a continuing decline in the monitored level of wounding in duck hunting.

Timing

This action plan will be in place for five years (2022–2026). Towards the end of this period, progress in delivering the actions and achieving a decline in waterfowl wounding will be assessed and the plan revised as required. It may take a period of time to see a significant reduction in wounding rates as occurred in Denmark, however, progress is expected during the life of this action plan. Denmark already had a well-established mandatory program of testing and training which was revised to incorporate elements on wounding reduction.

This action plan will become part of the ongoing management program to ensure responsibility and sustainability in duck hunting¹⁶.

¹⁶ When such programs ceased in Denmark after their initial introduction in 1997–2005, a slight increase in wounding rates of pink-footed geese during 2009–2011 triggered the need for recommencing these initiatives and a second round of now ongoing campaigns was introduced in 2012.

ACTIONS AREAS TO ACHIEVE THE GOAL

1. Leadership and culture

Outcome: A strong culture of leadership and no tolerance for engaging in wounding-type behaviours and practices across Victoria's duck hunting community

Waterfowl wounding is a hunting problem which can be addressed by the hunting community, with the support of government. For this action plan to be successful, the hunting community accepts there is a need for action, will take a leadership role in embracing and driving change and foster a culture of no tolerance for engaging in wounding-type behaviours and practices.

International research¹⁷ suggests that wounding can result from personality characteristics of individual hunters, including a lack of concern for animal welfare or laziness. Alternatively, it has been suggested that it may be more a function of situational factors and social influence¹⁸. High hunter density, competition with other hunters, a lack of use of retriever dogs, hunting behaviours and practices that make birds fly higher, and hunters mimicking long-distance shooting by others can all cause hunters to shoot at excessive ranges that are likely to elevate wounding¹⁹. If the majority of hunters collectively operate to a higher standard and don't engage in wounding-type behaviours and practices, those around them are likely to also.

Other factors, such as a lack of concentration, fatigue and environmental conditions (e.g. hunting in strong winds making accurate shooting and retrieval difficult) can also affect hunter efficiency leading to high numbers of shots expended to bag birds and, consequently, higher wounding rates²⁰. Distractions from animal activists may cause hunters to rush shots, lose concentration or hinder recovery which can contribute to wounding.

Hunting organisations and leaders in the hunting community have the greatest influence in establishing a culture of no tolerance for wounding behaviours. Behaviours and practices of peers in the field, conversations around the campfire and at hunting organisation meetings and writings in the popular hunting literature will be critical in influencing the culture, standards of behaviour and hunter etiquette and conventions. While education and training programs can teach the necessary theoretical and practical skills to reduce wounding, social norms and standards of behaviour will dictate whether they are practised in the field.

Hunters who show restraint by not taking long shots, let birds come within a 30-metre range, use decoys and callers, pass-up risky shots, don't fire "in hope" or who call out those who engage in wounding behaviours and practices should be respected. Hunters should consider whether taking a shot is more likely to result in a bagged bird or a wounded one. Hunters who employ good hunting practices will fire fewer shots, bag more birds and wound less²¹.

This action plan sets the standards and expectations for the duck hunting community in addressing waterfowl wounding. As the lead regulator of duck hunting, the GMA will promote these standards and report on progress in achieving the action plan's goal.

¹⁷ Causey 1989

¹⁸ Kuentzel and Heberlein 1998; Wheeler and Hunt 1994

¹⁹ Kuentzel and Heberlein 1998

²⁰ Mondain-Monval *et al.* 2015

²¹ Noer *et al.* 2006; GMA 2016



ACTION		WHO	TIMEFRAME
1.1	Hunting organisations and government promote the release of this action plan through their communications channels (e.g. social media, websites, magazines, newsletters) to raise awareness and institute a culture of non-acceptance of wounding behaviours and continuous improvement.	Key duck hunting organisations, industry, broader hunting community, GMA	2022 and ongoing
1.2	Develop a code of ethics for duck hunters which focusses on continuous improvement and committing to practice behaviours that reduce the chances of wounding ²² .	WWRAP working group	2022
1.3	The code of ethics should be incorporated into codes of conduct of all duck hunting organisations.	Duck hunting organisations	2023
1.4	Acknowledge good hunting practice in the field through peer recognition and reward.	Hunting organisations, general duck hunting community	2022 and ongoing
1.5	Conduct social research into the attitudes, perceptions and behaviours of Victorian duck hunters to identify factors that may contribute to wounding.	GMA	2023
1.6	Promote the standards required to achieve the action plan's goal.	GMA	2022 and ongoing

22 Loyn 1989, BASC 2010 and Madsen *et al.* 2015 provide useful guides.

2. Raising hunter awareness

Outcome: Hunters are aware of the causes, solutions and scale of wounding and have access to quality education materials

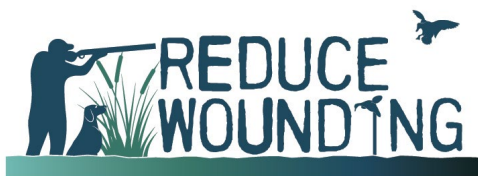
Information and education campaigns have been critical in achieving reduced waterfowl wounding rates elsewhere in the world.²³ Many hunters are unaware of the scale and causes of wounding, that their actions could cause wounding, whether wounding has occurred, the consequences of wounding and the actions required to address it. Education and testing initiatives will address these knowledge gaps and promote an increased sense of moral responsibility. If aware of the impact and implications, hunters will be more receptive to change and less likely to make unethical decisions.²⁴

Victoria's current education program provides a wealth of detailed material. For example, the *Be a Better Gamebird Hunter* booklet is an excellent resource for hunters developed in collaboration between the hunting community and government and provides a lot of information on the how to address the causes of wounding. However, there is a need for more succinct and targeted key messages that highlight the causes of wounding and key actions that hunters can take to reduce it. For example, in Denmark, simple messaging focusses primarily on reducing the distance of shot to 30 metres for ducks.²⁵ Simplicity in the messages and focussing on addressing key factors that cause wounding will be important to raise awareness, alter hunter behaviour and change attitudes towards wounding.

23 Noer *et al.* 2007 and Clausen *et al.* 2017

24 Norton and Thomas 1994

25 The experience in Denmark (e.g. Noer *et al.* 2006; Noer *et al.* 2007) and in studies in the USA in the 1970s and 80s to compare the performance of lead shot vs steel have shown that the overall proportion of geese or ducks hit to those killed decreases with increasing range (e.g. Mikula *et al.* 1977; Anderson and Sanderson 1979; Humburg *et al.* 1982). A study on common eider hunting showed that the probability of instantly killing a bird decreased with range, to almost zero for ranges above 40 metres (Noer *et al.* 2006 cited in Noer *et al.* 2007). A key factor for success in Denmark has been the very strong message to reduce the distance that birds are shot at (Noer *et al.* 2007; Clausen *et al.* 2017).



ACTION		WHO	TIMEFRAME
2.1	Review current educational materials and identify any gaps.	WWRAP working group	2022
2.2	Develop simple, direct and targeted communication and education tools for hunters to raise awareness and encourage behaviour change to address the key causes of wounding.	WWRAP working group	2022–23
2.3	Review and promote the dispatch guide to raise awareness of how to humanely destroy recovered birds.	WWRAP working group	2023
2.4	Authorised officers actively enforce game hunting regulations which require hunters to immediately recover downed birds before continuing to hunt.	Government Authorised Officers	2023 and ongoing
2.5	Regularly promote consistent and simple key messages on how to reduce wounding through various communications and marketing channels.	Industry, hunting organisations, GMA	2022 and ongoing



3. Ensuring hunter knowledge and proficiency

Outcome: A skilled and knowledgeable duck hunting community reduces wounding

To reduce wounding losses, hunters must achieve and maintain a minimum level of shooting skill and understand good hunting practice. Attaining these skills and knowledge should be

a prerequisite to obtaining a hunting licence.²⁶ Research has shown that wounding decreases with relevant training, practice and experience.²⁷

CAUSES OF WOUNDING

Wounding can be caused by a number of factors, including:

- › poor shooting skills
- › shooting at birds at too long ranges (shooting at no more than 30 metres recommended for ducks)
- › hunters shooting beyond their maximum shooting skills distance
- › use of suboptimal load and choke choices for the species being hunted
- › shooting into flocks and sub-lethally striking non-target birds
- › dropping birds in heavy cover where they can't be retrieved
- › failure to have in place an effective retrieval strategy, including the use of a retriever dog²⁸.

²⁶ Norton and Thomas 1994

²⁷ Nieman *et al.* 1987, Noer *et al.* 2007, Mondain-Monval *et al.* 2015 and Clausen *et al.* 2017 for waterfowl hunting and Aebischer *et al.* 2014 and Hampton *et al.* 2022 for deer hunting/culling.

²⁸ Roster 1998a; Roster 1998b; Mondain-Monval *et al.* 2015; AEW 2016; GMA 2016; Clausen *et al.* 2017



HUNTER ACTIONS TO AVOID WOUNDING

Proficient hunters avoid wounding by:

- › regularly practicing shooting at clay targets that simulate flight speeds and angles of ducks (e.g. skeet or bespoke layouts, simulated field/sporting clays) to attain and maintain a minimum standard of skills
- › practicing estimating distance under field-type conditions
- › selecting the right choke and load combinations for the species and distances being hunted
- › only shooting at ducks within the recommended 30 metre distance and never into flocks
- › effectively using decoys and callers to bring ducks within range
- › implementing an effective retrieval strategy, including the use of a well-trained retriever dog
- › avoiding hunting in areas where retrieval is difficult
- › consider environmental conditions (e.g. high winds, fog) and modify hunting practices accordingly²⁹.

All of these factors relate to hunting behaviours or capabilities. Education, training and testing programs should cover these topics.

Many countries throughout the world require mandatory knowledge and proficiency testing before being allowed to participate in hunting³⁰. In Australia, New South Wales (NSW) requires deer and pest animal hunters to pass a knowledge test before being allowed to hunt these species on public land. NSW, Victoria, South Australia and Tasmanian require hunters pass a waterfowl identification test before being allowed to hunt ducks, however, this test does not extend to awareness of hunting laws or hunting practices.

Required testing may be seen by some in the hunting community as negative and a barrier to entry which could drive hunter numbers down. While testing does require prospective hunters to pay a fee and invest time to practice, prepare, learn and attend testing, the positives are often overlooked. Those who successfully complete necessary training and testing are more aware of their legal requirements, which protects them

against inadvertent non-compliance, and they are more proficient and successful hunters and have at least a basic understanding of hunting methods and effective practices and strategies³¹ (see information box).

Demonstrating to the public that hunters have these skills and knowledge gives the community greater confidence that game hunting can be conducted safely and sustainably and minimises adverse outcomes for animal welfare.

²⁹ Roster 1998a; Roster 1998b; Mondain-Monval *et al.* 2015; AEW 2016; GMA 2016; Clausen *et al.* 2017

³⁰ Deer Commission for Scotland 2008

³¹ Nieman *et al.* 1987, Noer *et al.* 2007, Mondain-Monval *et al.* 2015 and Clausen *et al.* 2017 for waterfowl hunting and Aebischer *et al.* 2014 and Hampton *et al.* 2022 for deer hunting

TASMANIAN EXPERIENCE

In 2008 and 2012 as part of Victoria's Shotgunning Education Program, representatives from Field and Game Australia and Sporting Shooters Association of Australia were selected and trained to be instructors to deliver theoretical and practical training to hunters to improve their hunting skills and knowledge in order to reduce wounding. Trainees were taken to a free-range game bird farm in Tasmania where they undertook intensive training by US ballistics expert Dr Tom Roster over a period of six days. Training included theory classes, a four-hour written exam, many hours of shooting training and pattern testing and a field-based shooting test. Prior to training, trainees were required to hunt an introduced gamebird to determine their level of wounding using trained field observers. They recorded 29 per cent and 33 per cent wounding rates respectively (average 31 per cent). Following training and testing, wounding rates were reduced to five per cent and seven per cent respectively (average 6 per cent). This showed that with targeted theoretical and practical training and testing, substantially reduced wounding rates can be achieved.

Theoretical knowledge

To ensure hunters have a minimum level of knowledge of game hunting laws and good hunting practice, including ways to reducing wounding, it is intended to introduce a once-off Game Licence test for all game hunters, including duck hunters. Existing education materials will be reviewed to ensure they are adequate, and testing will be conducted online. The test will be developed in consultation with hunting organisations and regulatory reform will be required to introduce the test.

Practical proficiency

Hunter skills and behaviours also need to be modified and, with a level of self-restraint in the field (e.g. no shooting beyond 30-metres, allowing birds to come within range and using decoys and callers effectively), significant reductions in wounding can be achieved³². To ensure new duck hunters have the skills necessary to reduce wounding, it is intended to introduce a once-off proficiency test for all prospective duck hunters. The test must be passed as a precondition to

applying for a Game Licence to hunt game ducks in Victoria³³. Consideration will be given as to whether provisional Game Licence holders and visitors from interstate and overseas should have to pass the test or hunt under the direct supervision of an adult who has.

Testing will be conducted by third-party providers and the timing of introduction will be such to allow the market time to respond in securing access to shooting ranges and recruiting and training staff. The test will need to be developed, administrative processes put in place and functionality built in to the Game Licensing System to accommodate the changes.

The GMA will accredit and conduct performance audits of providers and will publish annual performance information (e.g. the number of participants and the percentage who pass) for each accredited provider on the GMA website.

Regulatory reform will be required to introduce proficiency test requirements and the test will be designed in consultation with key stakeholders. Important elements will include hunters being able to hit a minimum number of clay targets simulating the flight angles and speed of ducks

³² Noer et al. 2007, Clausen et al. 2017

³³ In an average year, there are approximately 1,000 new applications for Game Licences to hunt ducks, however, this can fluctuate with seasonal conditions and annual hunting arrangements.

commonly experienced in the field. Hunters will also be required to show they can correctly estimate distance and whether silhouettes of different sized game ducks are within or outside the recommended 30-metre range for ducks.

The introduction of knowledge and proficiency testing creates opportunities for hunting organisations and other third-party providers to develop training programs to educate hunters in how they can improve their shotgunning skills, develop retrieval and dispatch strategies, accurately estimate distances and how to select effective choke and load combinations suited for different hunting situations in addition to attaining the necessary level of skills to pass the proficiency test.

The introduction of mandatory training has also been advocated by some key stakeholder groups to complement testing and further improve hunter knowledge and skills to prevent wounding. Such an approach could be introduced in the future if the measures in this action plan are failing to achieve the desired results. This should be considered during the review of the action plan at the end of its five-year life.

Incentives to undertake proficiency testing

Proficiency testing will apply to all prospective duck hunters as a precondition to receiving a Game Licence. Existing licence holders will not be required to pass the test. This is due to the capacity constraints in the number of venues where testing can occur and the availability of suitably qualified testing instructors.

While only prospective duck hunters will be required to successfully complete the proficiency test, it is desirable for as many existing licensed hunters as possible to also complete the testing. Incentives will be introduced to encourage licensed hunters to successfully pass the test. For example, these could include access to hunting opportunities (in time and space) not available to hunters who have not passed the test. Incentives will be developed in consultation with the hunting community.

As capacity in the testing system increases, the requirement for only prospective hunters to undertake proficiency testing should be reviewed. This should be done as part of the review of this action plan at the end of its five-year period, if not earlier depending on the progress of establishing the system.

The use of gundogs

The use of a well-trained gundog can increase recovery rates for downed game birds and reduce wounding losses³⁴. Conversely, the use of a poorly trained dog can cause distraction to the handler and other hunters and could contribute to wounding losses.

Providing easily accessible and expert training for gundogs and their handlers with incentives to attend could increase the number of dogs in the field with good obedience and retrieval skills and help to reduce wounding.



34 Roster 1998b

ACTION	WHO	TIMEFRAME
3.1 Introduce a once-off, online theory Game Licence Test for prospective and existing duck hunters which includes questions on the causes and how to reduce wounding. Note: regulations are required.	Responsible Ministers, DJPR, DELWP, GMA	2024
3.2 Review existing education materials to ensure they are adequate to assist hunters to pass the theory test. Develop new materials as required.	WWRAP working group, hunting organisations, GMA	2023
3.3 Require all prospective duck hunters (and supervisors) to pass a once-off proficiency test. Note: regulations are required.	Responsible Ministers, DJPR, DELWP, GMA	2024
3.4 Establish an accreditation and audit system for third-party proficiency test providers. Publish provider performance information on the GMA website.	GMA	2023
3.5 Involve key stakeholders in the development of the theory and proficiency tests.	GMA, WWRAP working group	2023
3.6 Hunting organisations with shooting ranges should make them easily accessible, including to non-members, and establish pattern testing facilities and realistic clay target shooting opportunities that represent flight angles and speeds of ducks to simulate field situations, and distance estimation training facilities.	Hunting organisations with shooting ranges	2023
3.7 Hunting organisations and third-party providers to develop and provide easily accessible retriever training programs for gundogs.	Hunting organisations, gundog training providers	2023
3.8 Hunting and dog training clubs could offer the services of trained gundogs to accompany hunters in the field to increased recovery rates of downed birds and provide field experience for gundogs.	Hunting organisations, gundog training providers	2023
3.9 Work with the hunting community to identify appropriate incentives for existing licensed hunters to participate in proficiency testing and gundog training.	GMA, DELWP, DJPR, Parks Victoria, FGA, SSAA	2023

4. Sustainability - Accounting for wounding losses in harvest arrangements

Outcome: Wounding rates are determined and factored into setting sustainable hunting season arrangements

Data collected in Australia in the 1960s–80s reported wounding rates of anywhere between 10–40 per cent and varied significantly depending on the monitoring technique employed (e.g. fluoroscope, hunter-reported) (see **Appendix 3**).

Since that time, there have been advances in hunting equipment technology and changes in regulatory requirements in Victoria (e.g. a prohibition on the use of semi-automatic shotguns and firearms with large magazine capacity) which may have had an impact on wounding levels, the extent to which is unknown. Wounding rates in the 20–40 per cent range continue to appear

in the contemporary literature elsewhere in the world where similar technological and regulatory changes have occurred³⁵.

In Victoria, wounding losses are not factored into determining harvest arrangements for duck hunting. In order to do this, contemporary data on wounding levels in Victoria are required. Improving our understanding of the extent of wounding and the contribution it makes to total losses caused by duck hunting will allow them to be factored in when establishing sustainable harvest setting arrangements (also see **section 5** regarding crippling ratio).

ACTION		WHO	TIMEFRAME
4.1	Determine in consultation with experts appropriate experimental designs to measure wounding rates.	GMA	2023
4.2	Implement research to determine the current wounding rate.	GMA	2024 and periodically
4.3	In conjunction with the move to adaptive harvest management for waterfowl harvest setting, incorporate wounding losses in order to determine the total annual harvest level and subsequent hunting arrangements.	GMA	2026

35 For example, Noer and Madsen 1996, CONSEP 2002

5. Monitoring wounding

Outcome: The success of the action plan in reducing wounding can be assessed

A strong-evidence base will help to ensure informed community dialogue on waterfowl wounding, guide management actions and allow the success of this action plan to be reviewed. An ongoing wounding monitoring program will be introduced to allow this to occur.

Denmark has instituted a program to monitor wounding by x-raying live trapped birds to identify the proportion carrying embedded shot. Such a program was also conducted in Victoria between 1957 – 1973³⁶. While this approach cannot be used to determine actual wounding rates, it can be used as a proxy measure to monitor trends in the rates of wounding³⁷ in a less resource intensive way than some other forms of monitoring (e.g. direct observations of active hunters in the field).

This approach will again be employed in Victoria. Ducks will be trapped and x-rayed to measure the proportion of birds carrying embedded shotgun pellets. First-year birds will be the focus as they provide a more accurate measure of the incidence of wounding compared to adult birds that can accumulate pellets over several hunting seasons³⁸.

To raise awareness, ensure transparency and motivate hunters to act, findings will be published annually on the Game Management Authority's website and will be an important tool to assist in program evaluation.

To fully understand the extent of the wounding problem, it is necessary to also have knowledge of total game duck harvest and total population size to determine the wounding ratio (number of birds wounded for each bird bagged). Wounding levels are usually reported as a 'wounding rate', defined as the percentage of birds x-rayed with embedded shotgun pellets³⁹. While this measure is a valid proxy for the level of wounding, it is also very sensitive to changes in the harvest rate (declared harvest / population size prior to harvest). A rise in the proportion of a population being shot given an unchanged frequency of wounding will lead to an increase in the wounding rate⁴⁰. Therefore, wounding rate cannot be used as a direct measure of hunter performance.

In order to assess hunter performance in a way that accounts for changes in harvest rate, "crippling ratio" can be used. The crippling (or wounding) ratio is expressed as wounding rate / harvest rate. This will allow hunter performance to be evaluated in a way that accounts for differences in population size and harvest pressure and which can therefore be used to evaluate initiatives introduced to reduce wounding⁴¹. Victoria has good data on harvest levels and, with the introduction of adaptive harvest management, will be able to estimate the total population size of important game duck species.

36 Norman 1976

37 Clausen *et al.* 2017

38 Norman 1976, Noer and Madsen 1996

39 Clausen *et al.* 2017

40 Clausen *et al.* 2017

41 Clausen *et al.* 2017

ACTION	WHO	TIMEFRAME
5.1 Introduce a wounding monitoring program which uses x-ray to measure pellet infliction (embedded pellet) rates.	GMA	2022 ongoing
5.2 Explore other approaches to wounding monitoring, such as hunter surveys or machine learning.	GMA	2022
5.3 Following the introduction of adaptive harvest management for game ducks, determine the "crippling (wounding) ratio" as a measure of the effectiveness of interventions in this action plan.	GMA	2025
5.4 Annually publish the results of wounding monitoring programs on the GMA website and other communication platforms as appropriate.	GMA	2022 ongoing



6. Evaluation and revision

Outcome: Management actions are targeted and effective in reducing wounding

It is important to track the effectiveness of this action plan to ensure it is achieving a reduction in waterfowl wounding. A working group will be established with key stakeholder groups to:

- › assist in the development of this plan
- › further develop and implement actions identified in this action plan
- › monitor the timeliness of delivery
- › review all elements of the action plan for effectiveness
- › provide advice to the Game Management Authority on progress and areas for improvement.

It is proposed that the working group consist of representatives from the following:

- › Sporting Shooters Association of Australia (Vic)

- › Field and Game Australia
- › Birdlife Australia
- › RSPCA
- › A representative from the Shotgun Education Program trained trainers
- › A representative from the firearms and ammunition industry

Representatives from the Game Management Authority, Department of Jobs, Precincts and Regions and Department of Environment, Land, Water and Planning will attend working group meetings in an advisory capacity.

The working group should be chaired by a suitably qualified and independent person appointed by the Game Management Authority. The GMA will provide secretarial assistance to the working group.

ACTION		WHO	TIMEFRAME
6.1	Establish a Waterfowl Wounding Reduction Action Plan working group consisting of relevant stakeholders and an independent chair to further develop aspects of the action plan, monitor its effectiveness and provide advice to the GMA on progress towards achieving the action plan vision and goal.	Identified key stakeholders	Commence 2022
6.2	The working group should meet every six months during the life of the action plan and at other times as required.	WWRAP working group	During the life of the plan
6.3	Review the action plan at the end of its five-year period and provide advice to the GMA on performance, achievements and areas for improvement	WWRAP working group	2026-27

ACTION PLAN TIMELINE

The following diagram summarises the action plan actions and time frame for commencement.



LIST OF ACRONYMS

- CONSEP** Cooperative North American
Shotgunning Education Program
- DELWP** Department of Environment, Land,
Water and Planning
- DJPR** Department of Jobs, Precincts
and Regions
- FGA** Field and Game Australia
- GMA** Game Management Authority
- RSPCA** Royal Society for the Prevention of
Cruelty to Animals
- SSAA** Sporting Shooters Association of
Australia
- WWRAP** Waterfowl Wounding Reduction
Action Plan

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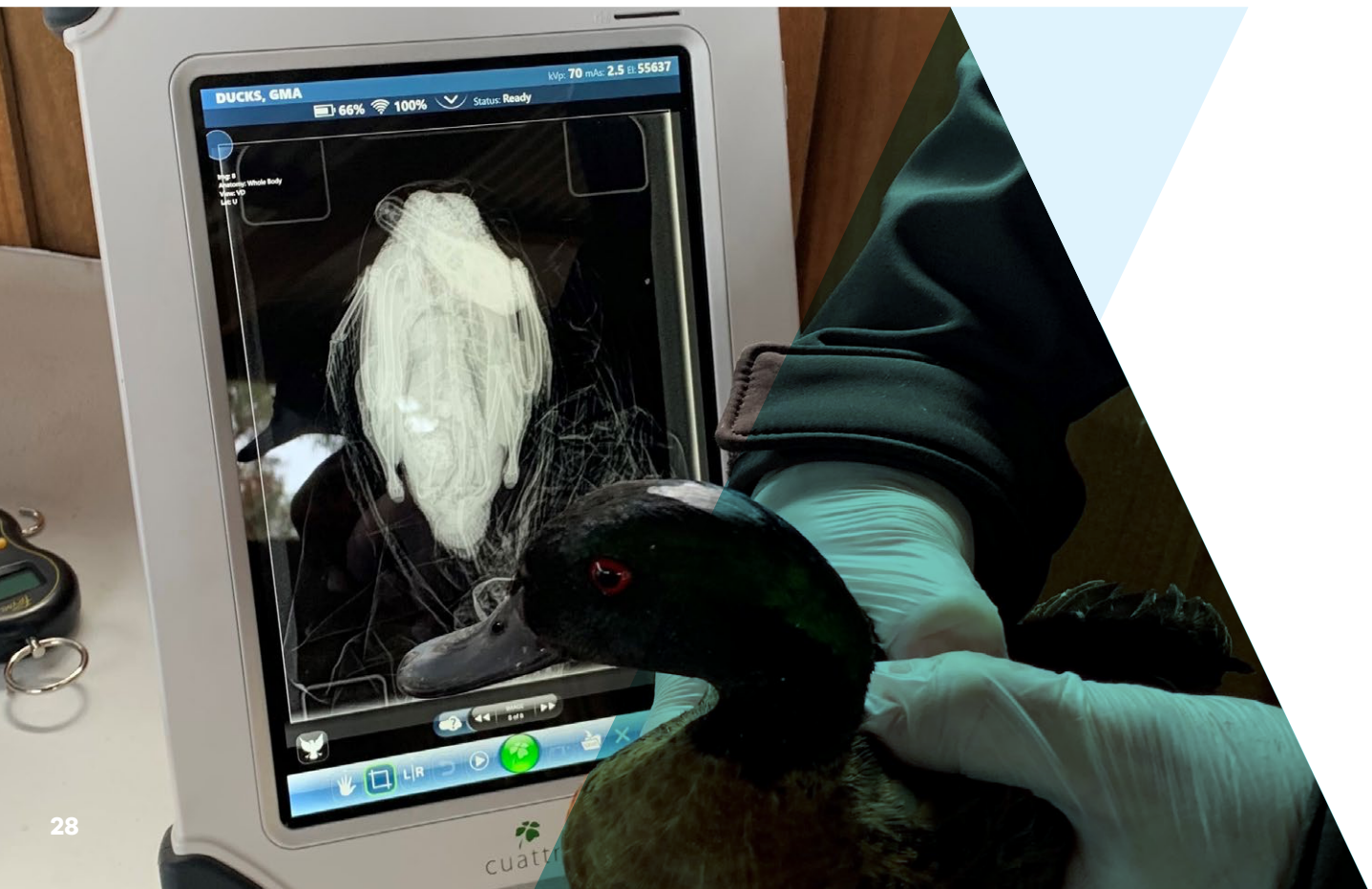
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APPENDIX 1 – MORTALITY IN WOUNDED BIRDS

There are few data on the proportion of downed, unretrieved birds that survive being wounded (Kirby *et al.* 1981; Noer *et al.* 2007). While Bellrose (1953) estimated that only 10–20 per cent of wounded waterfowl would recover in the field, at that time, the survival of wounded ducks in the field had not been directly investigated (Van Dyke 1981). Bellrose (1953) showed that the most common injury sustained by waterfowl during duck hunting was a broken wing. In light of this, Van Dyke (1981) followed the fate of radio tagged mallards with experimentally broken wings to determine their rate of survival under field conditions. He showed that only three per cent of these birds survived with death caused by starvation (i.e. weight loss), predation by avian or

mammalian predators or exposure to freezing winter conditions. Similarly, Kirby *et al.* (1981), as part of a wider telemetry study, observed the fate of struck and unretrieved radio-tagged waterfowl. Of those birds that were not killed outright, 73 per cent ultimately died and 27 per cent survived. Of those that died, the cause of death was attributed to emaciation or increased vulnerability to predation. Both of these studies tracked the fate of radio-tagged wounded waterfowl and showed that the vast majority died (73–97 per cent), not necessarily directly from gunshot wounds but from the indirect consequences of their injuries, which saw them succumb to starvation, predation or extreme cold weather conditions.



APPENDIX 2 – MEASURING THE EXTENT OF WOUNDING

Measuring the actual extent of wounding is difficult and a range of methods have been employed to attempt to do so. All may provide reliable metrics that are indicative of wounding trends, but they are likely to under-estimate the true extent of wounding.

Hunter reporting

Many studies have relied on hunters self-reporting via interviews, surveys or questionnaires. Self-reporting methods can be unreliable due to the embarrassment of having to report wounded birds, recall bias, intentionally under-reporting, not being able to recognise the signs of wounding or hunters being unaware that birds had been struck, particularly as a consequence of recoil following a shot (Nieman *et al.* 1987; Alison 2001). While obvious signs include laboured or changed flight characteristics, erratic gliding, hanging legs, drifting feathers or birds falling from the sky, other injuries may not be readily observable or immediately debilitating (e.g. pellets that do not break bones or penetrate internal organs) but may nevertheless result in death (Alison 2001). For these reasons, hunter estimates of the frequency of wounding are considered to under-estimate actual wounding rates. Nieman *et al.* (1987) conducted a study which simultaneously compared hunter-reported wounding rates versus those of field observers and showed that hunters “grossly under-estimated or were reluctant to report actual losses.” Hunters reported wounding rates of 6-18 per cent, whereas observations of hunters recorded estimates of 20-45 per cent. Nieman *et al.* (1987) concluded that hunter interviews were not accurate enough for use in assessing waterfowl hunting mortality. A similar study by Hopper *et al.* (1975) showed hunter-reported wounding of 11–16 per cent while observers recorded a 9–23 per cent wounding rate.

Field observers

As an alternative to self-reporting, trained field observers have been used to monitor hunters and record data parameters such as distance of shot, species of birds encountered, numbers of birds bagged or wounded, hunting methods and breaches of the laws. These observers, sometimes referred to as “spy-blind” observers, either played the role of hunters, remaining concealed until hunting concluded or accompanied hunters in their hunting locations (e.g. Nieman *et al.* 1987; Humburg *et al.* 1982). This method has also been applied to upland game bird species such as mourning doves (*Zenaida macroura*) in the USA (Pierce *et al.* 2015). In many of these studies, observers undertook significant training in recognising the signs that birds had been wounded (e.g. Humburg *et al.* 1982, Pierce *et al.* 2015).

Nieman *et al.* (1987) compared methods of direct observation with hunter self-reporting. Hunters reported unretrieved losses of 6–18 per cent in interviews compared to direct observation of those hunters’ behaviour estimated wounding losses of 20–45 per cent of all birds shot. Carney and Smart (1964) used field observers to record wounding and then immediately interviewed hunters following the hunt to record their perceived level of wounding. Hunters reported a wounding rate of 26 per cent compared with the field observers ratio of 0.47 wounded bird per bagged bird, or 47 per cent.

While considered more accurate than hunter-reporting, direct observation of hunters may still underestimate wounding rates. Such observations are necessarily subjective and can underestimate the actual frequency of wounding because, without after-the-fact necropsy, many types of subtle wounding cannot be determined (Alison 2001). However, in an unpublished study on this issue, Roster (pers. comm.) in a Cooperative North American Shotgunning Education Program (CONSEP) study used flighted farm mallards (*Anas platyrhynchos*) shot at by hunters to measure wounding rates. Each bird was banded and it was known which bird was shot at by which hunter and which trained observer was recording the result. All birds were recovered after shooting (either shot and recovered or returned to the farm barn) and examined. It was shown that trained observers did not see (or missed) 10–15 per cent of actual wounding (Roster pers. comm.; Theede 2005). Nonetheless, field observation of hunters provides some indication of a minimum frequency of wounding (Alison 2001).

X-ray / fluoroscope

Evaluating the extent of wounding among waterfowl species (and other hunted wildlife) can also be done by x-raying (radiography) or fluoroscoping individual birds to identify shotgun pellets embedded in their bodies (**Figure 1**) (e.g. Elder 1950, 1955a, b; Grieb 1970; Jönsson *et al.* 1985; Noer and Madsen 1996; Norman 1976; Holm and Madsen 2013).

These birds represent those that are non-lethally wounded and survive being shot, and do not include the following categories: a) birds that are killed outright but not collected by hunters, b) birds that die directly as a result of their injuries soon after being struck, c) birds that die indirectly as a result of their injuries long after being struck (Noer *et al.* 2007), and birds that are non-fatally struck but where pellets “pass-through” instead of embedding in tissues. Therefore, studies using x-ray / fluoroscope to detect birds with embedded shot and the percentage of inflicted birds identified vastly underestimate the real extent of wounding (Norman 1976; Loyn 1989; Noer

and Madsen 1996; Noer *et al.* 2007; Clausen *et al.* 2017) as this method is only able to detect a small sub-set of wounding outcomes. For example, Noer and Madsen (1996) identified 25 per cent and 36 per cent of first-year and adult pink-footed geese *Anser brachyrhynchus* respectively carrying embedded shot and Madsen and Noer (1996) estimated that equated to one bird being wounded for every bird bagged (Noer *et al.* 2007). While x-ray / fluoroscope cannot be used to determine actual wounding rates, they can be used as a proxy measure to monitor trends in the rates of wounding (Clausen *et al.* 2017).

Figure 1. Pink-footed goose being x-rayed to identify the presence of embedded shot. The image on the bottom shows a bird wounded with 12 shotgun pellets (x-rayed April 30, 2016, Nord-Trøndelag, Norway). A steel leg band can also be seen on one leg. Photos: Department of Bioscience, Aarhus University, Denmark.



Wetland searches

Searches of wetlands for wounded birds after active hunting has ceased has also been conducted in parts of Australia, including Victoria and South Australia (Loyn 1989; Stokes 1990; Purdey and Menkhorst 2015) and has been proposed to provide inference regarding the frequency of wounding. These birds represent only those birds that that are: a) non-lethally wounded, b) immediately incapacitated, and c) move to wetland fringes. It does not include the following categories: a) birds that are killed outright but not collected by hunters, b) birds that are non-fatally wounded and immediately incapacitated but that do not move to wetland fringes, and c) all non-fatally wounded birds that maintain the ability to fly (Noer *et al.* 2007). Wetland searches in Australia have either been conducted by government agency staff or volunteers (Loyn 1989; Stokes 1990) and can be labour-intensive. Search effort can be variable depending on resource availability and is often a low priority for agency staff given other management and enforcement demands. Wounded birds can be difficult to locate as they seek seclusion and heavy cover (Van Dyke 1981; Loyn 1989) and many wounded birds will fly from the wetland where they were struck. Given these challenges, wetland searches do not provide cost-effective or reliable estimates or indicators of the extent of wounding.

Mathematical modelling

There has been limited use of mathematical modelling to estimate wounding rates. Russell (1994) using shotgun characteristics, waterfowl morphology, and ballistic data, ran computer simulations that estimated, based on assumptions, probability and shot pellet characteristics, that 33–66 per cent of all ducks shot are wounded. Noer and Madsen (1996) applied a simple theoretical model using frequencies of pellet carriers in different age classes, adult survival and the annual rate at which pellets are inflicted upon pink-footed geese in Denmark. While recognising the limitations of the model and using different parameters, Noer and Madsen (1996) estimated that the minimum ratio of wounded to bagged birds was likely to be higher than 0.5 and closer to 1:1 (Madsen and Noer 1996).



APPENDIX 3 – THE EXTENT OF WOUNDING IN AUSTRALIA – A HISTORICAL PERSPECTIVE

As discussed in **Appendix 1**, there is no gold-standard method for estimating the frequency of wounding that is considered to allow accurate quantification. As such, there is considerable uncertainty attached to any estimate derived from imperfect detection methods. Nonetheless, evidence from around the world shows that substantial numbers of waterfowl are wounded by hunting at some time during their lifespan (Noer *et al.* 2007). Estimates of wounding vary between studies, with hunter-reported studies generally recording lower rates and trained observer studies (considered more accurate) higher (Norton and Thomas 1994). Estimates have ranged between approximately 10–60 per cent (e.g. Bellrose 1953; Norman 1976; Anderson and Sanderson 1979; Humburg *et al.* 1982; Briggs *et al.* 1985; Nieman *et al.* 1987; Noer and Madsen 1996; Noer *et al.* 2007).

For those studies recording the incidence of embedded shot detected using x-ray / fluoroscope techniques, 28–62 per cent of x-rayed geese have been found to contain embedded shot, while for sea and other duck species, proportions of 25–35 per cent have been reported (see Noer *et al.* 2007 for references).

Wounding in south-eastern Australia

Studies on wounding were conducted in Australia in the 1970s–1980s, but there has been little research into this issue since. Methods for estimating wounding have varied between face-to-face interviews or mail surveys of hunters, fluoroscope examination, field observations and shoreline searches of wetlands. Reported wounding rates have varied between the methods and sites.

HUNTER-REPORTED WOUNDING RATES

Between 1972–1981, Braithwaite and Norman (1974, 1976, 1977 and 1981) and Norman *et al.* (1984) conducted face-to-face in-field interviews of south-eastern Australian hunters [Victoria, New South Wales and South Australia (South Australia 1972–1978 only)] and asked them to provide information on their retrieved harvest (bagged) and shot but unretrieved losses. A summary of this information is included in **Table 1**.

For 1972–1978 in Victoria, New South Wales and South Australia, on average, hunters reportedly wounded 0.3 birds for every bird bagged. In other words, for every 10 birds brought to bag (recovered), three birds were struck but not retrieved, a wounding rate of 30 per cent.

For 1979–1981 in Victoria and New South Wales, on average, hunters reportedly wounded 0.2 birds for every bird bagged. In other words, for every 10 birds brought to bag, two birds were struck but not retrieved, a wounding rate of 20 per cent.



Table 1. Hunter-reported (interview) wounding ratios for duck hunting in south-eastern Australia (Victoria, New South Wales and South Australia) 1972–1981 (Braithwaite and Norman 1974, 1976, 1977, 1981; Norman *et al.* 1984).

REFERENCE	YEAR	STATE	MEAN BAG SIZE (RETRIEVED)	MEAN WOUNDING LOSS (UNRETRIEVED)	RATIO OF BAGGED TO WOUNDED
Braithwaite and Norman 1974	1972	Vic, NSW, SA	3.1	1.3	1:0.4
Braithwaite and Norman 1976	1973	Vic, NSW, SA	2.5	0.8	1:0.3
	1974	Vic, NSW, SA	2.9	0.9	1:0.3
Braithwaite and Norman 1977	1975	Vic, NSW, SA	8.6	2.7	1:0.3
	1976	Vic, NSW, SA	2.9	0.8	1:0.3
Braithwaite and Norman 1981	1977	Vic, NSW, SA	6.12	1.24	1:0.2
	1978	Vic, NSW, SA	4.88	1.15	1:0.2
		Average	4.43	1.27	1:0.3
		Range	2.5–6.12	0.8–2.7	1:0.2 – 1:0.4
Norman <i>et al.</i> 1984	1979	Vic	2.2	0.2	1:0.1
		NSW	6.4	1.8	1:0.3
	1980	Vic	4.6	1.0	1:0.2
		NSW	5.6	1.0	1:0.2
	1981	Vic	3.2	0.7	1:0.2
		NSW	4.7	0.8	1:0.2
		Average	4.45	1.0	1:0.2
		Range	2.2–6.4	0.8–1.8	1:0.1–1:0.3

Norman and Powell (1981) reviewed Victorian waterfowl harvests between 1972–1977 and recorded a hunter-reported average wounding ratio of 0.2 birds for every bird bagged (see **Table 2**). Therefore, for every 10 birds brought to bag, two birds were struck but not retrieved, a wounding rate of 20 per cent.

Table 2. Hunter-reported (interview) wounding ratios for duck hunting in Victoria 1972–1977 (Norman and Powell 1981).

REFERENCE	YEAR	STATE	MEAN BAG SIZE (RETRIEVED)	MEAN WOUNDING LOSS (UNRETRIEVED)	RATIO OF BAGGED TO WOUNDED (ROUNDED)
Norman and Powell 1981	1972	Victoria	1.71	0.58	1:0.3
	1973	Victoria	1.08	0.18	1:0.2
	1974	Victoria	2.06	0.50	1:0.2
	1975	Victoria	6.62	0.95	1:0.1
	1976	Victoria	1.95	0.53	1:0.3
	1977	Victoria	4.32	0.86	1:0.2
		Average	2.96	0.60	1:0.2
		Range	1.08–6.62	0.18–0.86	1:0.1–1:0.3



Briggs *et al.* (1985) reviewed waterfowl harvests in New South Wales between 1977–1982, including wounding rates. No detailed breakdown of average bag to wounding losses was provided, however, the total recorded hunter-reported wounding rate over the six-year period was 10 per cent. This equates to 0.1 bird struck but not retrieved for every bird bagged, or one bird wounded for every 10 birds bagged. Briggs *et al.* (1985) noted that this wounding rate constituted a smaller percentage than reported by Braithwaite and Norman (1974, 1976, 1977, 1981) and Norman *et al.* (1984) (see **Table 1**) and may have been caused by the difference in survey method. Briggs *et al.* (1985) used pre-paid mail survey cards which were provided to hunters when they purchased their licences and then voluntarily returned at a later date while Braithwaite and Norman (1974, 1976, 1977, 1981) and Norman *et al.* (1984) used face-to-face interviews in the field on the day of hunting. Briggs *et al.* (1985) considered that interviews may have been a more accurate method of data collection than mail surveys. Despite the difference in hunter-reported wounding rates, Briggs *et al.* (1985) stated that “all data suggests that cripple loss is a component of the waterfowl harvest which should not be ignored by managers.”

In a 1990 review of duck hunting in South Australia, Stokes (1990) reported that hunter interviews from 1982–1988 showed a level of 1.5–2 ducks wounded for every 10 ducks bagged (15–20 per cent wounding rate), with this declining to one duck

wounded for every 10 bagged (10 per cent) in 1988. Stokes combined this data with that collected by Braithwaite and Norman (1974, 1977) for the years 1972, 1975 and 1976 to show a decline in the wounding rate from 1972–1988. However, Stokes (1990) noted that increased public scrutiny of duck hunting in the 1980s may have biased downwards the level of wounding reported by hunters, but still considered there to be a decline over time. Stokes (1990) concluded that the lower level of wounding that could be achieved by duck hunters would be in the vicinity of two birds for every 10 birds bagged (20 per cent).

Loyn (1989) in a review of duck hunting in Victoria in 1989 also noted the difficulty in interpreting hunter-reported wounding rates, including under or over-reporting and hunters who include picked-up birds that had been shot by others and not retrieved.

In summary, approaches to estimating hunter-reported wounding rates have used face-to-face in-field interviews or mail surveys. In-field interviews typically recorded higher rates of wounding compared to mail surveys. Hunter-reported wounding rates for south-eastern Australian states (Victoria, New South Wales and South Australia) ranged from approximately 10–30 per cent, with an average of 20 per cent (see **Table 3**). When considering these figures, it should be remembered that hunter-reported wounding rates are considered to underestimate the actual level of wounding.

Table 3. Summary of hunter-reported wounding ratios for duck hunting in south-eastern Australia 1972–1982.

REFERENCE*	YEAR	STATE	EST. WOUNDING RATE
Braithwaite and Norman 1974, 1976, 1977, 1981	1972–1978	Vic, NSW, SA	30%
Norman and Powell 1981	1972–1977	Vic	20%
Norman <i>et al.</i> 1984	1979–1981	Vic, NSW	20%
Briggs <i>et al.</i> 1985	1977–1982	NSW	10%

* Stokes excluded due to a lack of detail but reported a range of 10–20 per cent.

FLUOROSCOPIC DETECTION OF EMBEDDED SHOT

A study by Norman (1976) in Victoria fluoroscoped over 45,000 live-trapped game ducks between 1957–1973 and found between 6–19 per cent of birds were carrying embedded shot. Smaller birds (chestnut teal, grey teal; 6–9 per cent) were found to show lower levels of infliction when compared to medium (hardhead, wood duck, black duck; 11–14 per cent) and larger birds (mountain duck; 19 per cent). Of the 45,210 black duck, chestnut teal, grey teal, hardhead, mountain duck and wood duck sampled, approximately 4,180 (9 per cent) were found to be carrying embedded shot.

Harper and Storr (unpublished, cited in Stokes 1990) fluoroscoped 727 ducks caught at Bool Lagoon, South Australia, in 1987 and found that, on average, 12 per cent of birds were carrying embedded shot (range 8–17 per cent). Stokes (1990) cites a study by Norman (1971) at Yalkuri, South Australia, in 1961 where 575 black duck and grey teal were fluoroscoped. A combined average of eight per cent of birds carried embedded shot (11 per cent and five per cent, respectively).

When comparing these three studies, Stokes (1990) observed a consistent percentage of birds within a species carrying pellets regardless of locality and date and that the percentage of birds carrying pellets increased from the smaller to larger species. It would seem that larger species are more likely to survive being shot than smaller species (Loyn 1989).

FIELD OBSERVER WOUNDING RATES

A small-scale informal study conducted by the Victorian Department of Sustainability and Environment in Tasmania in 2008 and 2012 using trained field observers showed that hunters wounded chukar partridge (being used as a proxy for waterfowl) at 29 per cent and 33 per cent respectively (average 31 per cent) (unpublished data). This level of wounding is consistent with the findings of other international field observer studies for waterfowl. CONSEP (2002) stated that “Numerous U.S. and Canadian research studies have been published involving trained observers witnessing and recording the harvest efficiency of thousands of duck hunters in the field. These studies repeatedly document wounding loss rates of over 30 per cent on ducks” (CONSEP 2002).



Summary – South-eastern Australian recorded wounding rates

In Australia, wounding rates have varied between different reporting methods, ranging from 6–31 per cent. Understandably, fluoroscopic examinations generally recorded the lowest level of wounding, followed by hunter-reported and then field observer rates. Fluoroscopic examination can only detect the evidence of wounding (embedded pellets) in the proportion of waterfowl that survive being wounded and in which pellets embed (Kirby *et al.* 1981; Van Dyke 1981; Noer *et al.* 2007). Therefore, fluoroscopic examination has its greatest value in monitoring trends in embedded shot infliction rates (Clausen *et al.* 2017). Hunter-reported wounding rates range from 10 per cent to 40 per cent (average 20 per cent) and the limited field observer studies recorded wounding rates of approximately 30 per cent.

With the exception of the observer reports in 2008 and 2012, reported wounding rates in Australia are historical and date back to the 1970–80s. Some may argue that circumstances have changed with improved technologies and prohibition on the use of semi-automatic shotguns for duck hunting. However, wounding rates in the 20–40 per cent range continue to appear in the contemporary literature elsewhere in the world where similar technological and regulatory changes have occurred. Denmark is a case in point where waterfowl wounding has been intensively studied since the 1990s. There, hunters have a maximum firearm capacity of two shots, only non-toxic shot is permitted for waterfowl hunting (as is the case in Victoria) and new ammunition and firearms technology is continuously becoming available. However, wounding rates (before the introduction of a wounding action plan in 1997) were consistent with those reported from previous decades and numerous authors. CONSEP, in a ‘problem statement’ on waterfowl wounding, stated that the hunter-reported wounding “rate has gone virtually unchanged for nearly seventy years regardless of the shot type and shotgun or shotshell technology brought to the field” (CONSEP 2002).







