

### Core message

The Game Management Authority (the GMA) seeks to provide a recommendation to the Minister around the 2022 duck hunting season. The recommendation is based upon the best available science, including Bureau of Meteorology (BOM) published climate data including rainfall, temperature, stream flow (observations and outlooks), pasture conditions, run off and water storage levels, Eastern Australian Waterbird Survey (EAWS), the Victorian Game Duck Abundance Survey, NSW Department of Primary Industry Annual Waterfowl Quotas, South Australian Department of Environment and Water Duck Season Considerations data and previous season's Victorian Harvest Surveys. This data was shared with a range of hunting, environmental and animal welfare stakeholders who were invited to make submissions for GMA consideration. Stakeholder recommendations were polarised with animal welfare groups recommending a closed season and hunting groups recommending a full (10 birds or more) season. Stakeholder submissions are provided.

This year we have two new data sets available for this briefing: *Relationships Among Duck Populations and Abiotic Drivers to Guide Annual Duck Harvest Management*, Professors Klaassen and Kingsford (KKM); and the *Victorian Game Duck Abundance Survey*. These additional data sets are important inputs into the GMA Board's considerations and add to the scientific rigour of the decision process.

The EAWS shows overall low game duck abundance, habitat availability and breeding for eastern Australia, however, there are signs of improvement driven by current La Niña conditions. Habitat extent is improving but is distributed unevenly throughout eastern Australia and yet to return to average levels (61% of the long-term average). There are some areas that continue to suffer from the cumulative impacts of extended dry conditions. Game duck populations throughout eastern Australia are reduced (25% of the long-term EAWS average) following protracted dry periods but have been shown to respond positively in areas where habitat conditions are favourable (e.g. NSW Riverina 44% above the average).

Over 2020 and 2021 annual BOM data for eastern Australia demonstrates improvement in rainfall compared to the drought conditions that prevailed across eastern Australia in the preceding three years 2017/18/19. Parts of south-eastern Australia have received above to very much above average rainfall over the past two years, particularly parts of the Murray Darling basin so important to large-scale waterfowl breeding in eastern Australia. Parts of north-west Victoria and South Australia remain relatively dry. In 2021, Australia experienced its wettest November rainfall on record. La Niña conditions are forecast to continue during summer 2022 presenting an opportunity for game duck populations to recover.

The KKM recommends a full-length season with a bag limit of four birds per day. The Victorian Game Duck Abundance Survey preliminary findings indicate an overall increase in wetland habitat and 20% in abundance to 2,938,500. We do treat this estimate cautiously however, as streams and sewage ponds were added to the 2021 survey.

### Due Diligence Assessment

The GMA Board took a comprehensive, due diligence approach and considered all data and submissions separately and as a whole and believes that there is no substantive basis to deviate from the KKM output. GMA believes this to be a sustainable and responsible set of arrangements for the 2022 duck season.

The GMA also considered the recent listing of the Blue-winged Shoveler and Hardhead as threatened species by the Victorian Government and the use of a mid-week start and later opening weekend times for the duck season as tools to manage compliance and public safety.

### Recommendation

The GMA Board recommends the arrangements for the 2022 duck season should be as follows:

- the daily bag limit should be four (4) birds

- the season should be full length with a slight extension to accommodate a mid-week opening, commencing on Wednesday 16 March and ending on Monday 13 June 2022, inclusive
- hunting start times should be delayed to 08:00 from Wednesday 16 March to – Sunday 20 March, inclusive
- prohibiting the hunting of the Blue-winged Shoveler and Hardhead for the 2022 duck season.

Due	As soon as possible
Explanation	To allow industry, the hunting community and government agencies to make arrangements.

### Recommendation


That you:

1. approve the GMA recommendation to modify the 2022 duck season by reducing the daily bag limit to four birds, implementing a mid-week opening commencing on Wednesday 16 March and ending on Monday 13 June 2022, inclusive, hunting start times should be delayed to 08:00 from Wednesday 16 March to – Sunday 20 March, inclusive, and prohibiting the hunting of the Blue-winged Shoveler and Hardhead for 2022.
2. note that if this recommendation is accepted, GMA will inform the community on the changes and conduct compliance operations together with its partner agencies.

### Minister's Comments

Signed	Mary-Anne Thomas MLA Minister for Agriculture	Date
--------	--	------

Approved by		Date	18 January 2022
-------------	---	------	-----------------

Brian Hine, Chair Game Management Authority ☎ 

Endorsed by: Graeme Ford, CEO Game Management Authority ☎ 

Prepared by: , Game Management Authority ☎ 

<b>From</b>	GAME MANAGEMENT AUTHORITY	<b>Ref</b>
<b>Title</b>	RECOMMENDATIONS FOR THE 2022 DUCK SEASON ARRANGEMENTS	<b>File</b>
		<b>Due</b> As soon as possible

## 1. Key Information

### Sustainable duck hunting in Victoria

To ensure that duck hunting remains sustainable, a number of environmental and game duck population variables are monitored and reviewed annually. These include the abundance, distribution and extent of breeding of game ducks, the distribution and extent of waterfowl habitat and the current and forecast climatic conditions affecting waterfowl populations. All of eastern Australia, and not just Victoria, is considered in recognition of the highly mobile nature of many game duck species and their ability to move large distances in short periods of time.

### Summary of conditions

The document *Considerations for the 2022 Duck Season as at 17 December 2021* (see Attachment 1) provides a summary of a range of information collected from multiple sources relating to the status of game duck populations and their habitats across eastern Australia. Additional data provided in confidence by [REDACTED] was also considered. The below provides a summary of all information.

#### Habitat availability

Habitat availability for game ducks has improved recently following a long period of dry conditions. Much of eastern Australia received below average rainfall between 2017 to 2019 with large parts of eastern Australia experiencing extreme drought conditions. A weak La Nina event in 2020 led to some minor improvement in habitat from previous years.

La Nina conditions continued for 2021 and have resulted in improvements in rainfall throughout parts of eastern Australia. New South Wales and large parts of the Murray-Darling Basin (MDB), a key waterfowl production area, in particular have benefitted. November 2021 was Australia's, New South Wales' (NSW), South Australia's and the MDB's wettest November on record. It was also Australia's wettest spring since the La Nina of 2010 and the tenth wettest since records began in 1900. Serious rainfall deficiencies were cleared from Queensland (QLD) following very much above average rainfall during November and rapid filling of storages continued in the northern MDB during spring. Game duck abundance surveys in Victoria estimated a 13% increase in water surface area across the sampled habitat types.

Despite these improvements, the EAWS wetland area index is at 61% of the long-term average. Waterbird habitat is patchy with areas including south-eastern South Australia, northern Victoria, western QLD and far western NSW experiencing accumulated rainfall deficiencies and reduced waterbird habitat. The majority of waterbird habitat surveyed occurred in southern and central NSW and central Queensland. This is reflected in the increased wetland area in the MDB. 48% of surveyed wetlands (including dry wetlands) held no waterbirds reflecting the patchy distribution of habitat and low abundance of game ducks.

#### Game duck abundance

Across eastern Australia, the EAWS game duck abundance index decreased by 58% from 2020, was the third lowest recorded in 39 years of survey and is at 25% of the long-term average. Overall, EAWS game duck abundance declined in Victoria.

Victorian aerial and ground counts conducted separately to the EAWS counts and process estimated that there were 2.94 million game ducks in Victoria. This is compared to 2.42 million game ducks in 2020, a 20% increase, however much of this could be attributed to the inclusion of estimates for rivers/streams and sewage treatment ponds, which were not included in the pilot survey in 2020.

Using helicopter, ground and drone counts, the NSW Department of Primary Industries estimated an increase of approximately 250% in game ducks in the NSW Riverina region from the previous year, from 463,040 to 1,149,395, reflecting the improved conditions in this part of the MDB. The estimated total abundance was 44% higher than the 2015-2021 average and numbers of game ducks are recovering towards 2016 levels following a decline through the drought years of 2017-2019.

#### *Game duck distribution*

According to the EAWS, game ducks were again widely dispersed throughout eastern Australia (similar to 2020) and in low densities, reflecting an increase in habitat availability. Surveyed waterbirds were most abundant in northern Victoria, southern and northern NSW and southern and northern QLD. The fact that birds were not concentrated in areas where hunting occurs provides some protection from overharvesting. Only two wetlands supported more than 5,000 waterbirds and 48% of surveyed wetlands supported no waterbirds, which includes wetlands that were dry.

#### *Waterbird breeding*

The EAWS total breeding index (all species combined) increased considerably from the previous year but was still below the long-term average (approx. 50%). EAWS breeding species richness (i.e., the number of different species observed breeding) also increased from last year but was below the long-term average and the ninth lowest on record. Ibis made up 83% of the total breeding records. Most breeding occurred in southern Victoria and southern NSW.

#### *Long-term trends*

EAWS waterbird abundance, breeding and habitat availability are all showing long-term declines over the last four decades. Previous research has shown this is due to modification to river flows, including competition for water resources. A drying climate is also having an impact.

#### *Climate outlook*

The Bureau of Meteorology predicts that January to March rainfall is likely to be above median for eastern QLD, east coast of NSW, eastern Victoria, areas near the NSW-Victoria border, and north-east Tasmania. The rest of Australia has roughly equal chances of above or below median rainfall (chance of exceeding the median is close to 50%). There is an increased chance of unusually high rainfall (in the top 20% of historical records) for January to March in eastern QLD, through parts of eastern NSW and eastern Victoria, and in small patches of western QLD and western NSW (1.5 to 2.5 times the usual chance).

#### **Due diligence**

The KKM (see Attachment 2) represents the best science presently available to assist with objective decision-making on annual duck season arrangements. The authors of the KKM recommended that due diligence should be applied when using the model output to inform decisions on duck season arrangements and that other data sources should be considered to provide context and checks and balances to decision-making. In doing so, the GMA considered a broad range of evidence on habitat extent, recent and antecedent rainfall, waterbird/game duck abundance, waterbird breeding and the distribution of game ducks with a focus on “clumping” or concentrating of birds in areas where harvesting occurs.

Data shows an overall improvement in the extent of habitat for game ducks which is patchily distributed throughout eastern Australia but is yet to return to average levels. Some areas continue to be suffering from the cumulative impacts of extended dry conditions. Game duck populations are reduced following protracted periods of dry conditions but have responded positively in areas where habitat conditions have been favourable for some time (e.g., the NSW Riverina). The improving extent of habitat is being driven by La Nina conditions which are forecast to continue during summer 2022 and this presents an opportunity for game



duck populations to continue to recover. Under these circumstances some modification to the prescribed arrangements is considered appropriate.

### **Other management considerations**

#### *Mid-week opening with later start times*

The Board has previously recommended government implement a mid-week (Wednesday) season opening in an effort to reduce the focus on opening weekend to achieve better compliance, safety and sustainability outcomes. To support a mid-week opening, it was also recommended to apply a later start time of 08:00 hours for from the Wednesday – Sunday, inclusive, of the first week of the season. The GMA again recommends that this be adopted for the 2022 duck season. It is recommended that the season opening day should be Wednesday 16 March, which is three days prior to when the season would normally open under the regulations (i.e. Saturday 19 March), meaning a slight lengthening of the season by three days.

#### *Prohibiting hunting of the Blue-winged Shoveler (BWS) and Hardhead*

The Blue-winged Shoveler and Hardhead have both recently been listed as threatened species (vulnerable) under the Victorian *Flora and Fauna Guarantee Act 1988* by the Victorian Government. With the recent listing and concern over the conservation status of these species in Victoria, it is considered responsible to prohibit the species from hunting in 2022.

### **Social and economic impact**

The recommendation for a mid-week opening commencing on 16 March increases the season length by three days over the currently prescribed season length. The GMA does not believe that this will materially change hunter participation rates but rather spreads opening weekend participation over a longer period. Therefore, it is not considered to create any potential social or economic gains or losses, except in an anticipated improved compliance outcomes.

With respect to the proposed reduced daily bag limit, GMA published data shows that only a minority of hunters can achieve a daily take of greater than four ducks per day which has been the annual average since 2009. Therefore, it is unlikely that a four-bird bag limit will act as a disincentive for the majority of hunters.

In 2010, Victoria had a 5-bird bag per day (plus an additional 3 wood duck per day) 72-day long season with an annual harvest estimate of 270,574. In 2016 Victoria had a 4-bird bag per day (with an 8-birds bag per day allowed on opening weekend) 87-day long season with an estimated annual harvest estimate of 271,567.

### **COVID-19 considerations**

The 2020 and 2021 duck seasons were impacted by COVID-related management restrictions that sought to minimise the gathering of significant numbers of people and reduce people movement. The annual harvest estimates were 60,403 and 52,456 ducks for 2020/21 respectively. These restrictions have been eased since achieving vaccination targets, although some restrictions still apply. Circumstances change frequently in response to infection status. COVID-related management actions put in place by government govern how people may participate in hunting and over-ride any seasonal arrangements. GMA compliance staff work with a number of partner agencies in enforcing duck hunting and each agency has its own COVID-19 safety protocols that are consistent government directions to ensure the safety of their staff and the community. The GMA also assists government in communicating COVID-19 requirements directly with hunters through its communications channels.

## **2. Context**

---

### **Duck hunting in Victoria**

Duck hunting is permitted under the *Wildlife Act 1975*. The season length, species composition, bag limits and hunting methods are prescribed under the Wildlife (Game) Regulations 2012. Under these regulations, a duck hunting season occurs annually, commencing on the third Saturday in March and concluding on the second Monday in June. Eight duck species may be hunted, and the daily bag limit is set at ten game ducks per day, which includes a maximum of two Blue-winged Shoveler.

There are approximately 25,000 licensed duck hunters who regularly harvest in excess of 300,000 game ducks annually.

### **Modifying a duck hunting season**

Under section 86 of the *Wildlife Act 1975*, the Minister, by notice in the Government Gazette, may further regulate the duck hunting season where there is a need to alter the prescribed seasonal arrangements.

Under the Administration of Acts General Order dated 29 November 2018, section 86 of the *Wildlife Act 1975* is jointly administered by you, as Minister for Agriculture, and the Minister for Energy, Environment and Climate Change. Any modification to the prescribed duck hunting season must be agreed to by both Ministers.

### **Role of the Game Management Authority in setting duck season arrangements**

Under section 5(a) of the *Game Management Authority Act 2014* (GMA Act), an objective of the Game Management Authority (GMA) is to ‘promote sustainability and responsibility in game hunting in Victoria.’

Under section 6(h), the GMA is to ‘monitor, conduct research and analyse the environmental, social and economic impacts of game hunting and game management’ and under section 6(i), the GMA may make recommendations to relevant Ministers in relation to:

- (i) game hunting and game management, and
- (iii) open and closed seasons and bag limits.

Also, section 8A ‘Guiding principles’ requires the GMA to have regard to the following relevant principles when exercising its powers or performing its functions:

- (b) the principle of triple bottom-line assessment, which means an assessment of all the economic, social and environmental costs and benefits, taking into account externalities;
- (d) the principle of an evidence-based approach, which means considering the best available information when making decisions.

### **Communication strategy**

The GMA will maintain a considered communication strategy via appropriate social and traditional platforms to communicate the approved 2022 duck season arrangements along with any prohibitions and COVID-19 considerations.

## **3. Consultation**

---

On 17 December 2021, the GMA provided information to stakeholders on current and predicted environmental conditions, waterbird habitat extent and distribution and waterfowl distribution and abundance indices throughout eastern Australia. The GMA also provided the KKM Report to stakeholders on 23 December 2021 and all information was posted on the GMA website.

The following stakeholders were invited to make comments on any of the documents provided, including the interim harvest model recommendation, whether they had any additional information or data relevant to decision-making and their views on what the arrangements for the 2022 duck season should be:

- BirdLife Australia
- Field and Game Australia
- Sporting Shooters’ Association of Australia (Vic)
- RSPCA
- Animals Australia
- Shooting Sports Council of Victoria
- Victorian Duck Hunters Association
- Coalition Against Duck Shooting
- Regional Victorians Opposed to Duck Shooting

Eight submissions (five solicited, three unsolicited) were received and considered. Stakeholders provided their interpretation of the data and very little new evidence on conditions was provided. A summary of stakeholders' positions regarding possible hunting arrangements for the 2022 duck season is included below. A more detailed summary is included at Attachment 3 and the full submissions are included at Attachment 4.

Organisation	Position
BirdLife Australia	No response received
Field and Game Australia (FGA)	Support a duck season but provide no specific details on arrangements
Sporting Shooters' Association of Australia (Vic)	No response received
Shooting Sports Council of Victoria	No response received
Victorian Duck Hunters' Association	No response received
*Honker Hunters	Full length season, 8am start time for opening day, 5 bird daily bag limit opening weekend only, 10 bird daily bag limit for remainder of the season, including a maximum of two Blue-winged Shoveler plus an additional two Wood Duck and/or Mountain Duck per day, lead shot for use on private land not over water
*Duck and Quail Hunting Australia	Full length season, 10 bird daily bag limit with an additional two Blue-winged Shoveler
Animals Australia	Cancel season
RSPCA	Cancel season
Coalition Against Duck Shooting	Cancel season
Regional Victorians Opposed to Duck Shooting	Cancel season
*Geelong Duck Rescue	Cancel season

\*Unsolicited submission

# Considerations for the 2022 duck season

Current as at 17 December 2021

# Climate

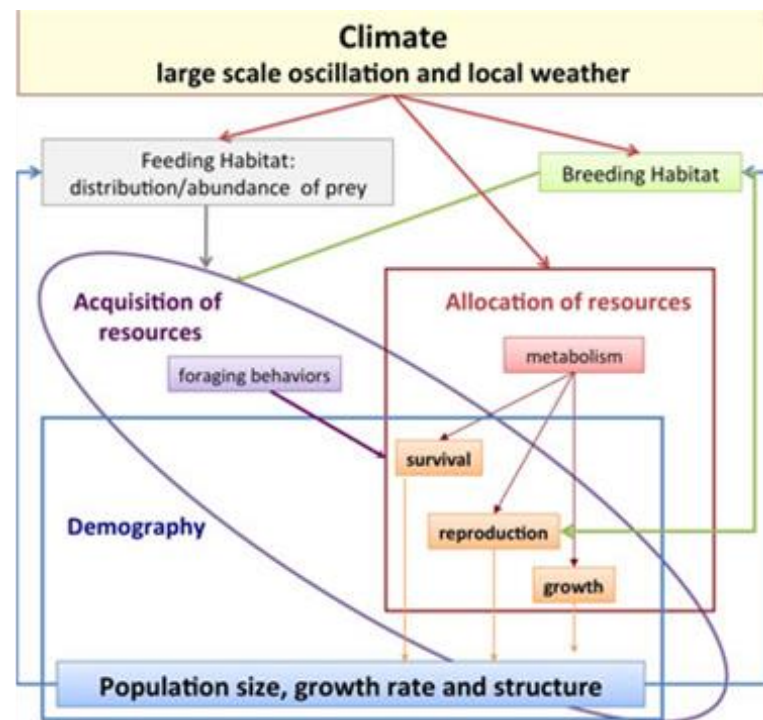
Past and present climatic conditions dictate present environmental conditions

Climatic predictions can be used to consider whether environmental conditions will change into the future



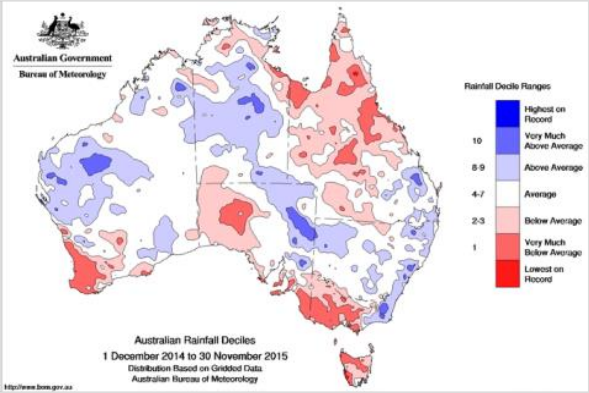
# Climatic conditions and waterfowl

- Climatic conditions, such as large scale oscillations (e.g. Southern Oscillation Index) and local weather (e.g. rainfall and temperature) can effect the distribution, productivity and size of waterfowl populations.
- In Australia, waterbird abundance is strongly related to river flows and rainfall (Kingsford *et al.* 2017).
- Large and extensive rainfall events can contribute to population increase as conditions are enhanced to support breeding and recruitment. Conversely, during dry periods, breeding may be modified or greatly reduced (see Kingsford and Norman 2002).
- Hunting during periods when there is little recruitment (e.g. dry periods) removes breeding adults which can negatively affect subsequent recruitment and further drive declines in hunted species (Kingsford *et al.* 2017).

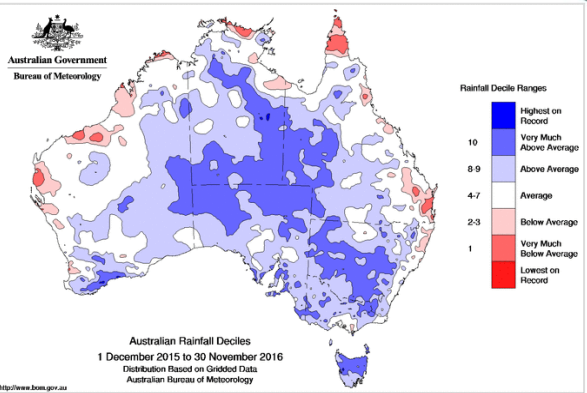


Climate effect on waterbird populations. Source: Jenouvrier 2013

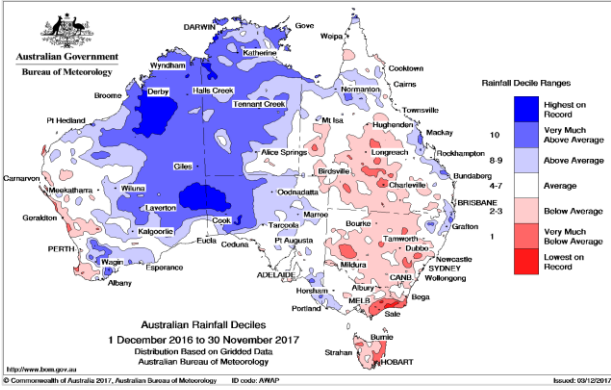
2015



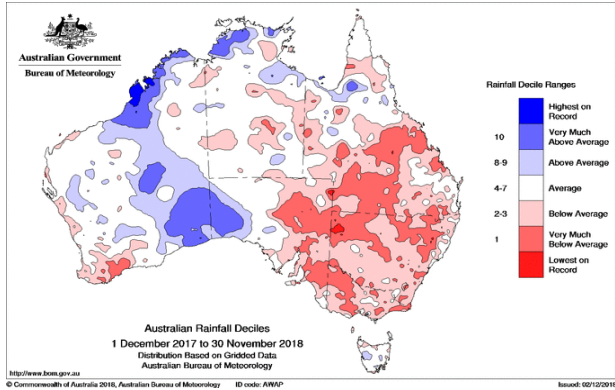
2016



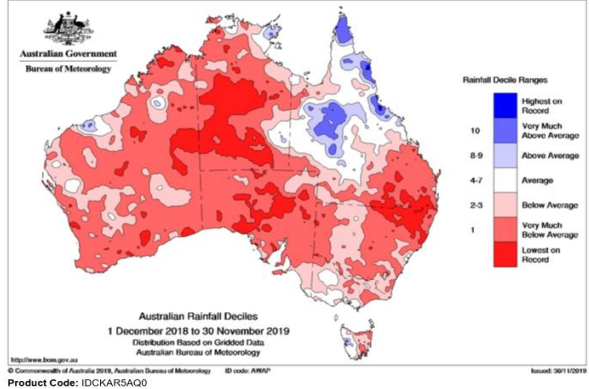
2017



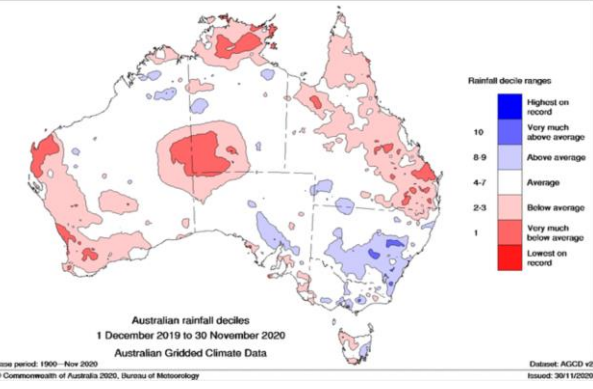
2018



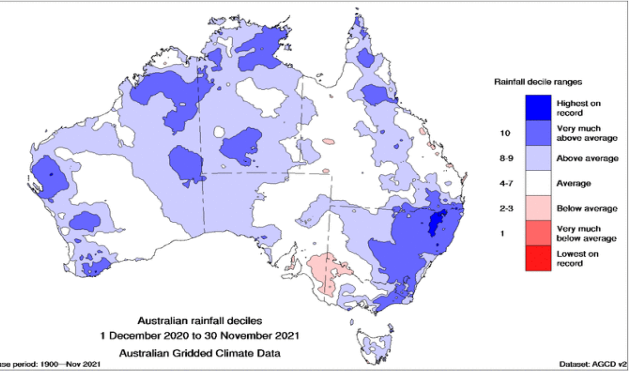
2019



2020



2021



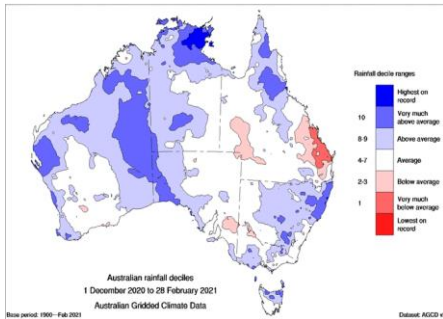
# Annual rainfall deciles 2015 to 2021

(Deciles = rainfall received compared to historical averages)

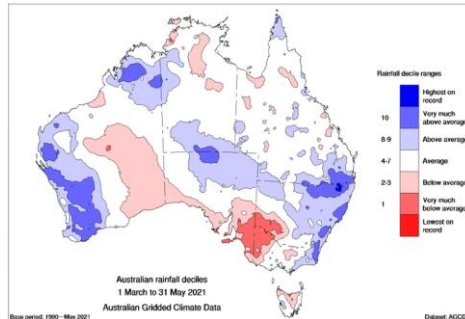
Source: [www.bom.vic.gov.au](http://www.bom.vic.gov.au)

# Rainfall through the seasons 2021

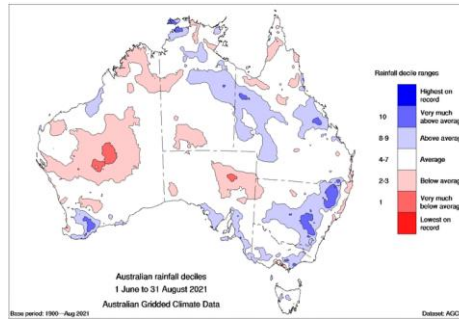
Summer



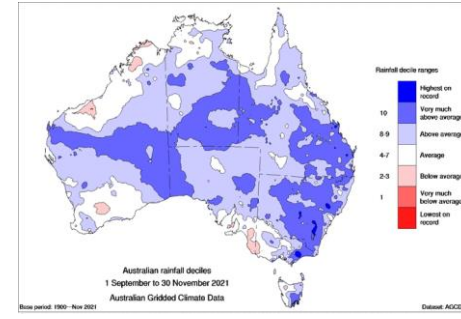
Autumn



Winter



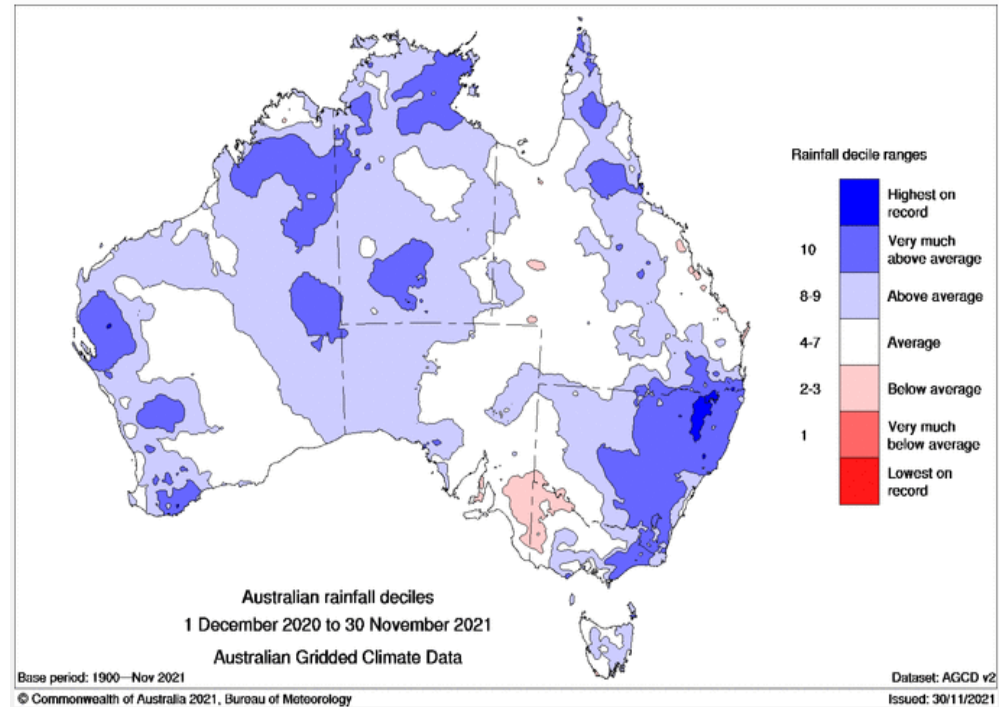
Spring



- Much of the NSW portion of the Murray Darling Basin (MDB) received above average rainfall over the summer period, as well as central and south west Victoria and parts of northern QLD. The central and southern coast of QLD received below to very much below average falls. Much of the west of Australia received above average rainfall.
- The MDB continued to receive above average rainfall in NSW, southern QLD and eastern Victoria in autumn. Average falls were recorded throughout most of the rest of eastern Australia except northern and western Victoria and south-eastern SA which received below to very much below average rainfall.
- Above average rainfall was received across approximately half of NSW and in parts of central QLD, coastal SA and Gippsland and parts of south western Victoria in winter. The rest of eastern Australia mostly received average rainfall.
- Most of Australia received above average to very much above average rainfall in spring. South eastern SA received below average rainfall.

# Year-to-date rainfall 2021

- November was Australia's, NSW's, SA's and the MDB's wettest November on record, fuelled by a weakening negative Indian Ocean Dipole and La Nina.
- It was Australia's wettest spring since the La Nina of 2010, and the tenth wettest since records began in 1900.
- Serious rainfall deficiencies for the period commencing April 2020 have been cleared from QLD following very much above average rainfall during November.

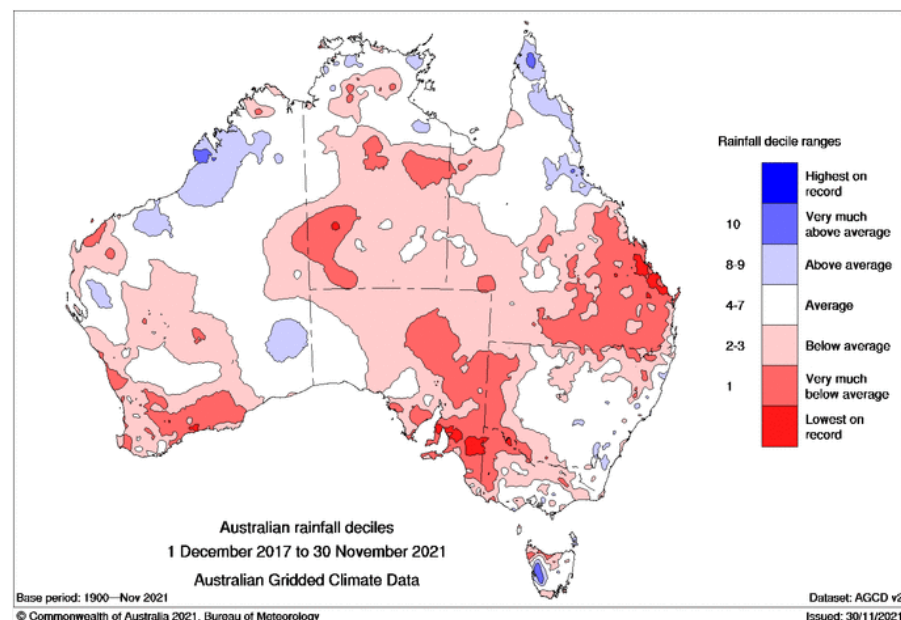


- Rapid filling of storages continued in the northern MDB during spring, and many storages are above full capacity.
- Hume dam storage is at its highest level in five years.
- South-east and central QLD storages have started to increase.



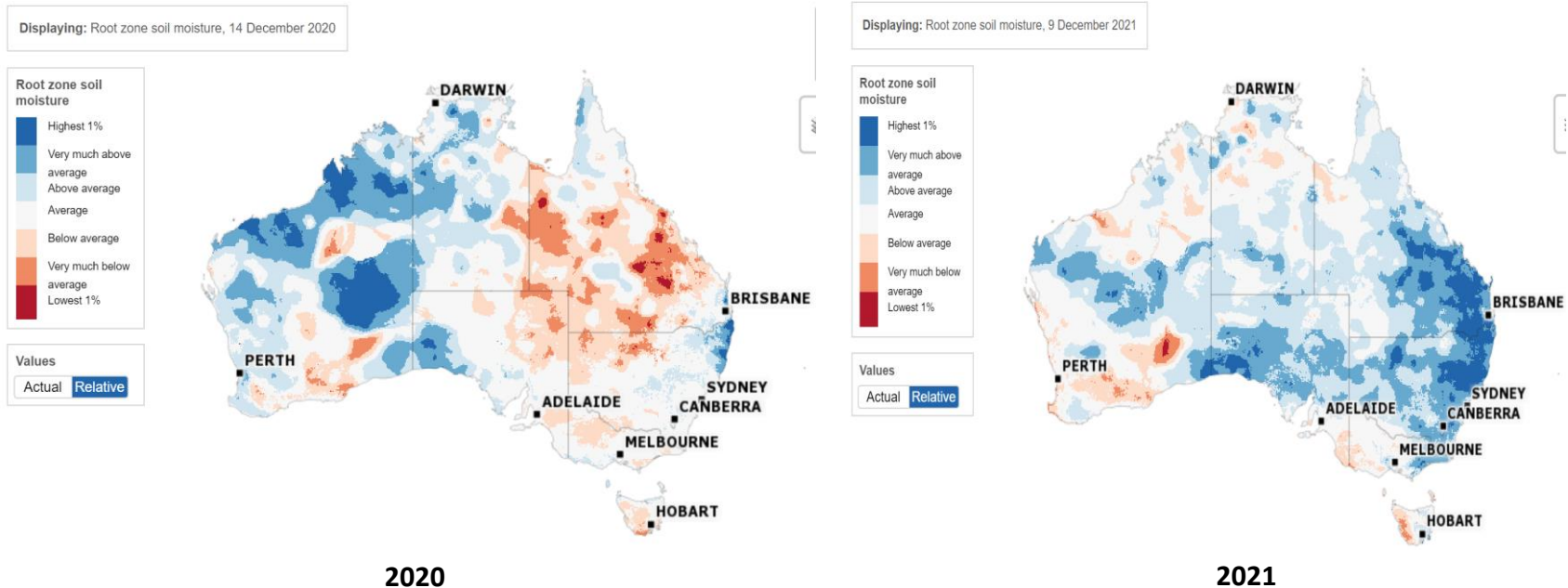
# Four-year rainfall

- Multi-year rainfall deficiencies which originated during the 2017-2019 drought remain over large parts of the country, despite some lessening following the record-wet November. While there has been a reduction in NSW and of the area of lowest on record in eastern QLD, the accumulated rainfall anomalies remain very large for some areas.
- Over the past two years, seasonal conditions have improved over large areas. Water storages have increased across much of Australia, especially in the Murray-Darling Basin
- Many areas experiencing rainfall deficiencies for periods longer than 24 months have typically experienced below average rainfall between April and October, which is consistent with the long-term trends in rainfall reduction over southern Australia and along the Great Dividing Range.
- Further periods of above average rainfall are needed to continue drought recovery, especially in parts of QLD, South Australia, far west NSW and large parts of Victoria, particularly in the north west.





# Soil moisture – December 2021



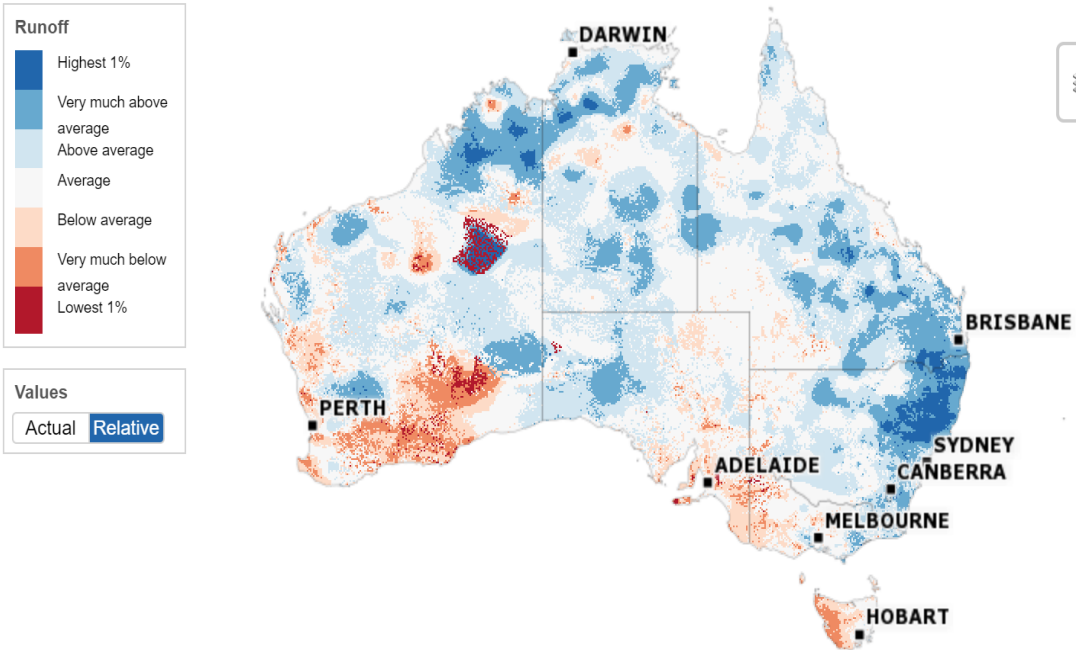
- Root zone (0-100cm) soil moisture at December improved over much of eastern Australia from 2020 to 2021.
- At 9 December 2021, root zone soil moisture was above average across most of Australia, including the Murray-Darling Basin, reflecting recent above average spring rainfall.

# Runoff

Runoff impacts the availability of water in the wetlands and the health of riverine systems. It has a direct influence in the creation and maintenance of waterbird habitat.

- Year-to-date runoff for much of eastern Australia has been above average to very much above average.
- However, for western Victoria and much of eastern South Australia, runoff has been below average.

Displaying: Runoff, 9 December 2021



# Australian water storage levels

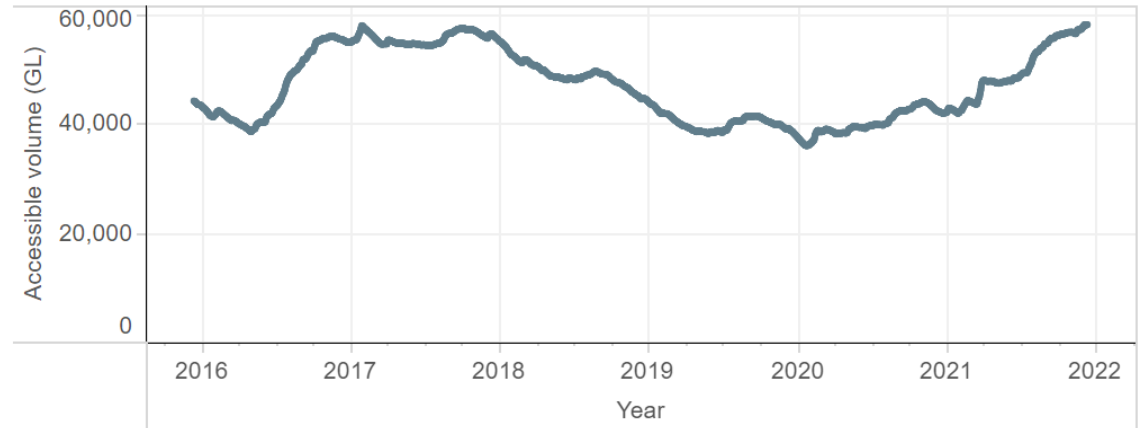
Water storage levels provide an indicator of the availability of waterbird habitat and waterflows through feeder systems.

However, often impoundments and storages can trap water and prevent it from entering creeks, streams and wetlands, thereby reducing available habitat. Therefore, this information must be considered in context, particularly during dry periods.

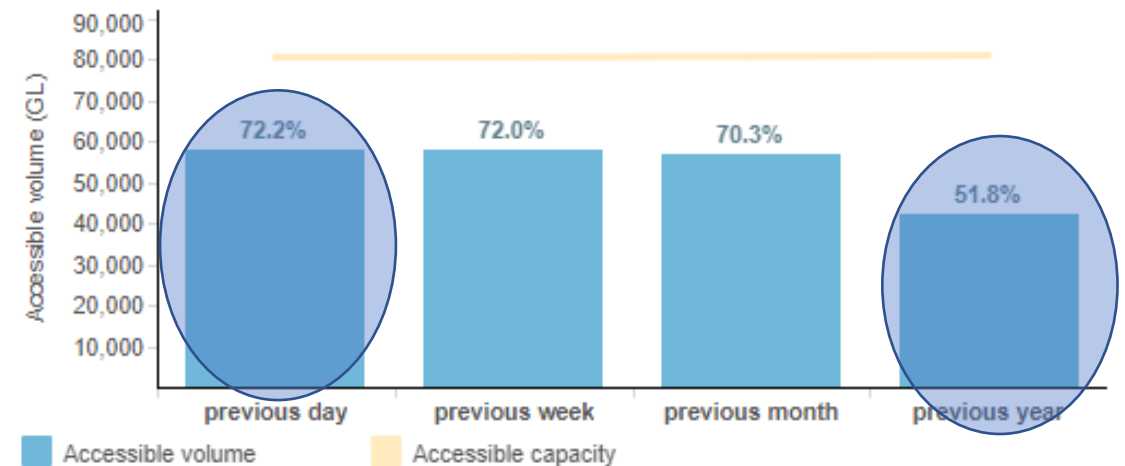
Deep storages generally provide poor habitat for game ducks.

- In 2021, Australia's water storages increased significantly by 20.4% from the same time last year, from 51.8% to 72.2%.

Accessible volume - Australia

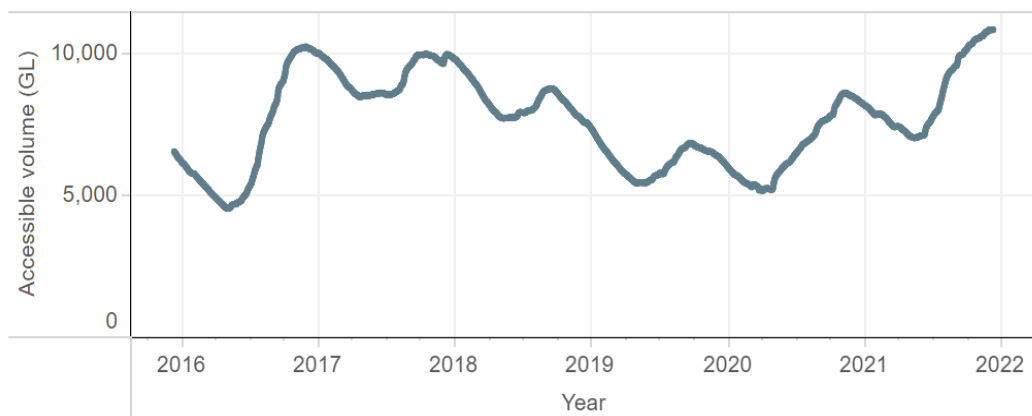


History - Australia



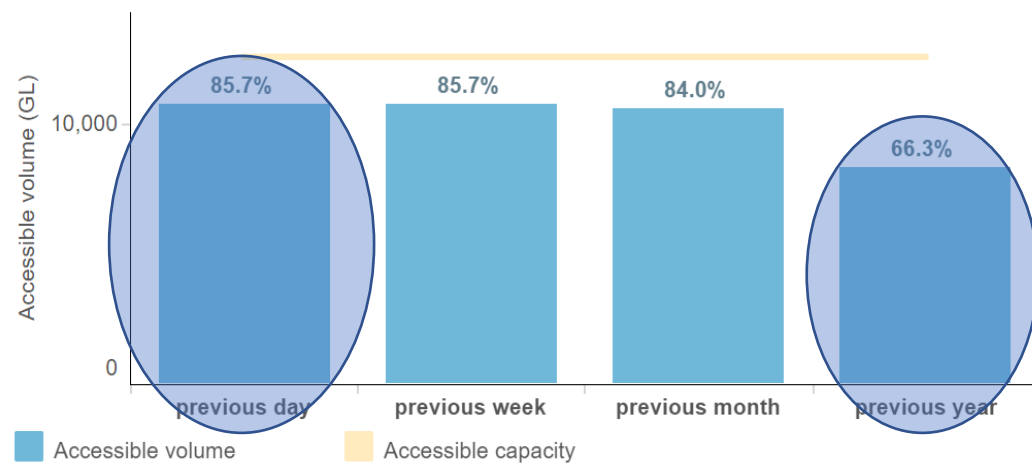
# Victorian water storage levels

Accessible volume - Victoria



- The total (Melbourne and Regional) Victorian water storage levels are currently at 85.7% compared to 66.3% last year.
- Storage levels have increased by 19.4% from this time last year.

History - Victoria

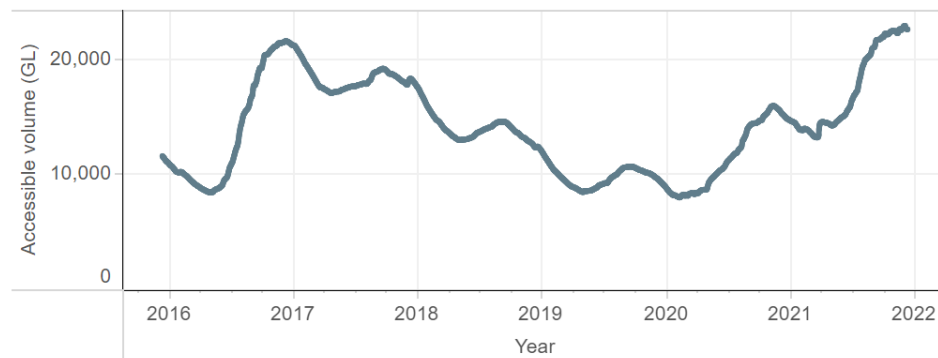


# Murray-Darling Basin water storage levels

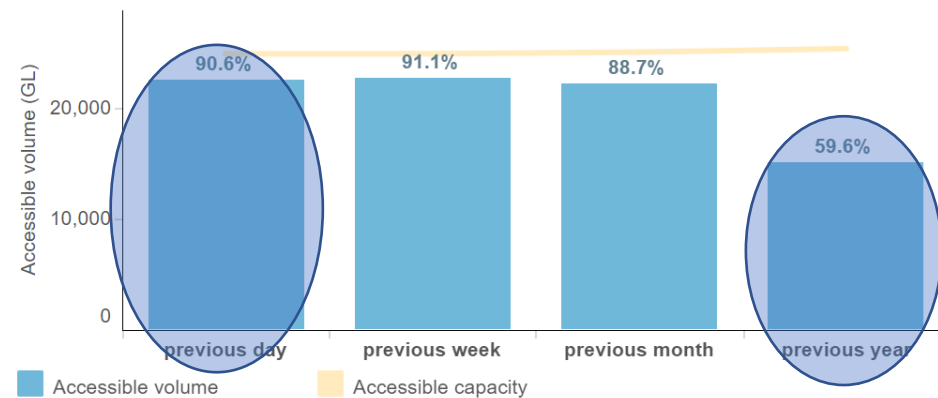
The Murray–Darling Basin is a critical area for waterfowl production and Australia's most developed river basin (240 dams storing 29,893 GL).

- Storage systems in the MDB are at 91% of capacity, which is 31% higher than at the same time last year (60%).
- Storage volumes in the northern MDB have significantly increased to 90.9% from 24.5% in November 2020.
- Storage volumes in the southern MDB are at 90.4% up from 69% in November 2020.

Accessible volume - Murray-Darling Basin

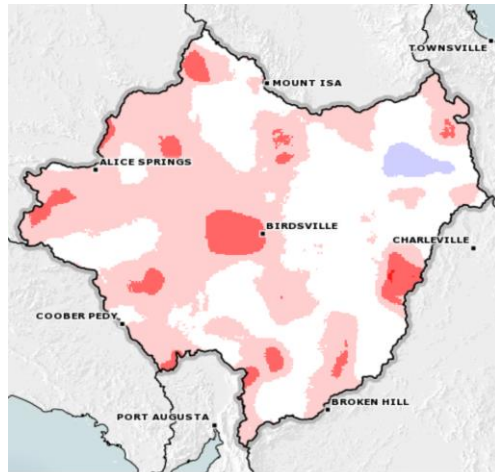


History - Murray-Darling Basin

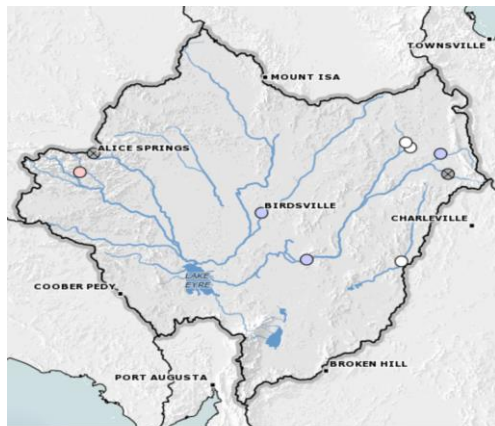
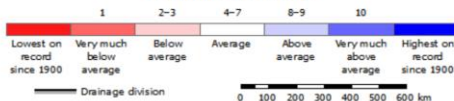




2020



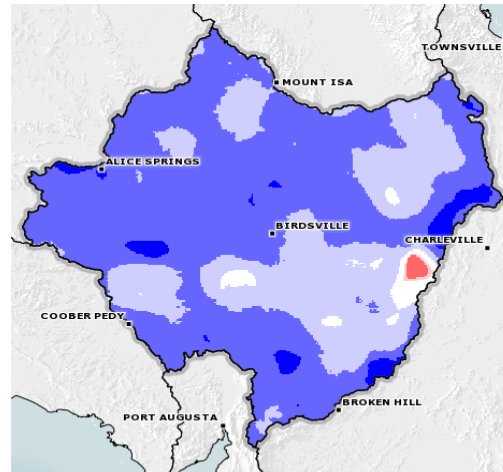
Rainfall decile ranking



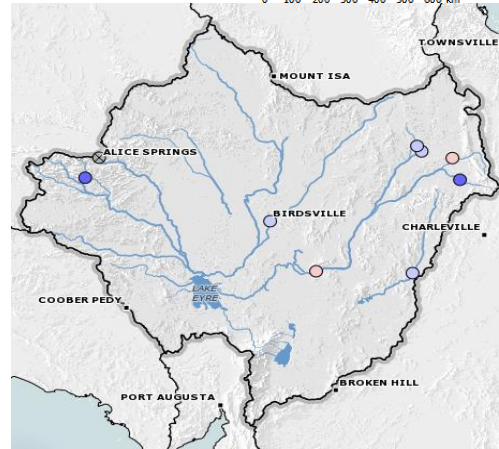
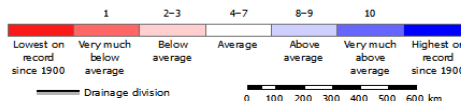
Stream flow decile ranking



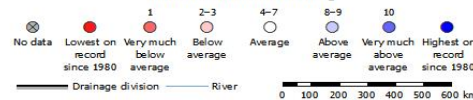
2021



Rainfall decile ranking



Stream flow decile ranking



# Lake Eyre Basin

- Rainfall across the Lake Eyre Basin increased from 2020.
- Rainfall was higher than average across 97% of the Basin area and very much above average across 67% of the area in November.
- Total rainfall was 60mm, 216% higher than the long-term mean of 19mm for November.
- Streamflows were higher than average for 75% of sites in November.
- Most of Lake Eyre is dry.



# Habitat availability



# Eastern Australian Waterbird Survey (EAWS)

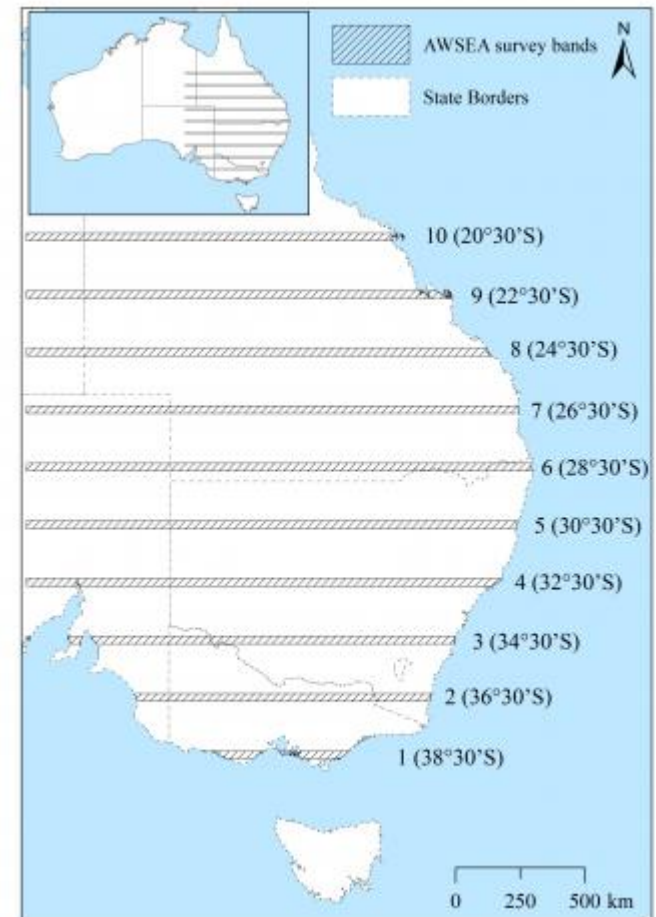
The EAWS monitors changes in the abundance and distribution indices of 50 waterbird species in eastern Australia. It also tracks changes in waterbird habitat over time.

The EAWS was designed by CSIRO's Dr Graeme Caughley and has been conducted annually in October since 1983. Waterbirds are counted from the air across ten aerial survey bands (each 30 km in width), every two degrees of latitude, crossing eastern Australia to monitor all wetlands over 1ha in size.

The EAWS provides:

- an index (not total count) of abundance of waterbirds, including game ducks
- information on the distribution of waterbird and game duck populations along survey bands
- the extent and distribution of habitat along survey bands, and
- information on waterbird breeding.

The information is valuable for examining waterbird trends on over one-third of continental Australia and over a long period.

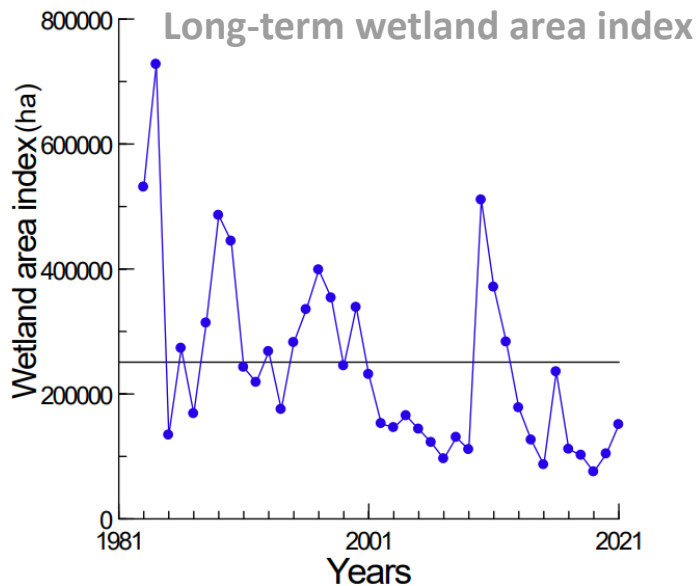




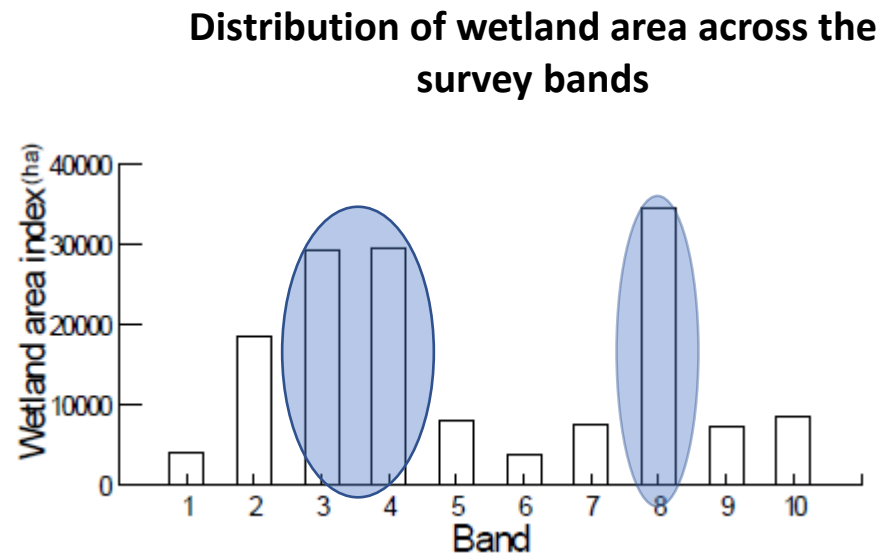
# EAWS wetland area index

The wetland area index is a measure of wetland availability across all 10 EAWS transects (bands). This gives an indication of the extent and distribution of habitat available for waterbirds.

- The 2021 wetland area index ranked 27<sup>th</sup> of the 39 surveys.
- There was an increase in the index from last year but it is 61% of the long-term average.
- The majority of the available habitat occurs from southern to central NSW (bands 3 & 4) and central QLD (band 8).



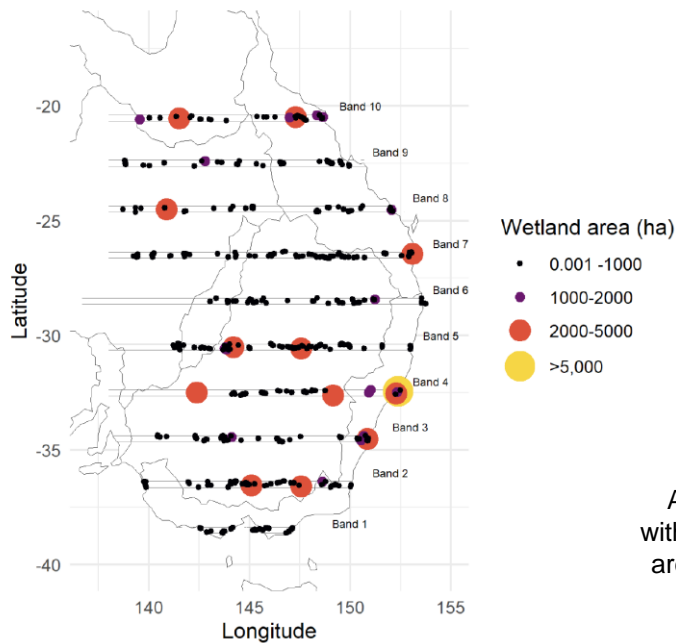
Changes over time in wetland area in the Eastern Australian Waterbird Survey (1983 - 2021); horizontal line shows long-term average.



Distribution of wetland area index in 10 survey bands of the Eastern Australian Waterbird Survey in 2021.

# Wetland distribution

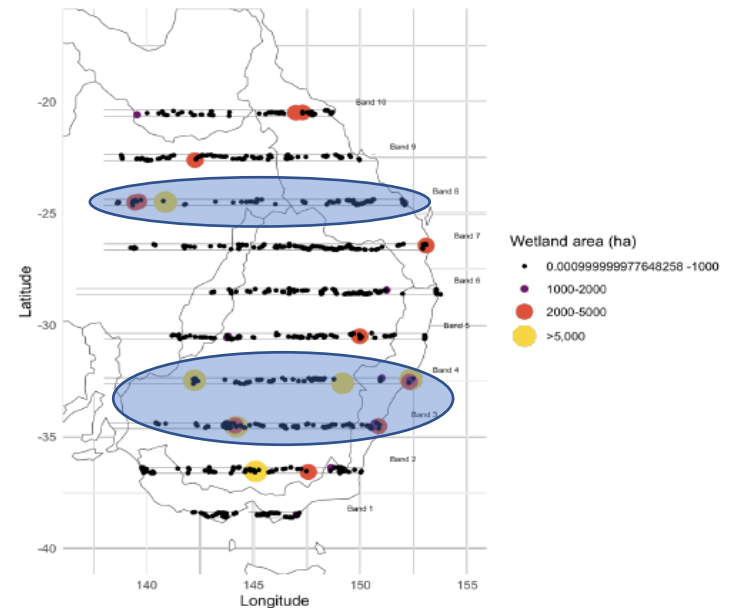
2020



All surveyed wetlands  
with surface water present  
are plotted; dry wetlands  
not plotted

2021

2021 Wetland area index – 150,803 ha



- The majority of the habitat surveyed occurred in bands 3 & 4 and 8. This is reflected in the increased wetland area in the Murray-Darling Basin and, in particular, those areas of the Lachlan and Murrumbidgee Rivers which experienced flooding. Band 8 also recorded a greater amount of habitat compared with remaining bands.
- 48% of surveyed wetlands (including dry wetlands) held no waterbirds.



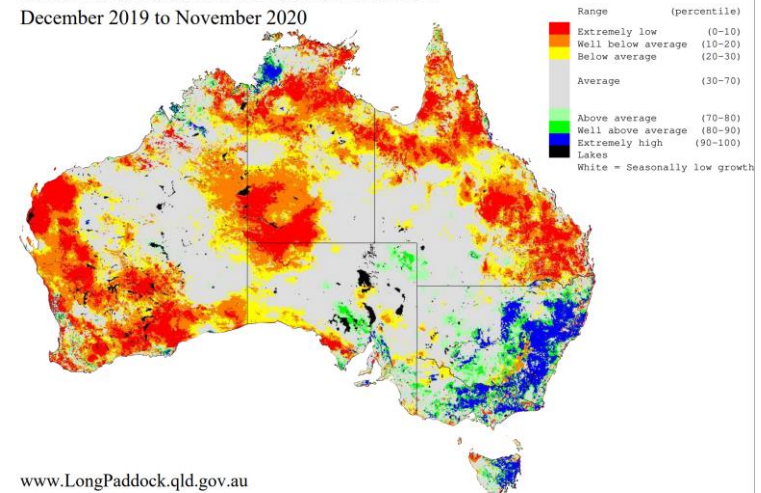
# Pasture conditions

Pasture conditions are a coarse indicator of potential feeding habitat for grazing species, such as Wood Duck and Mountain Duck, and nesting habitat for ground-nesting game ducks.

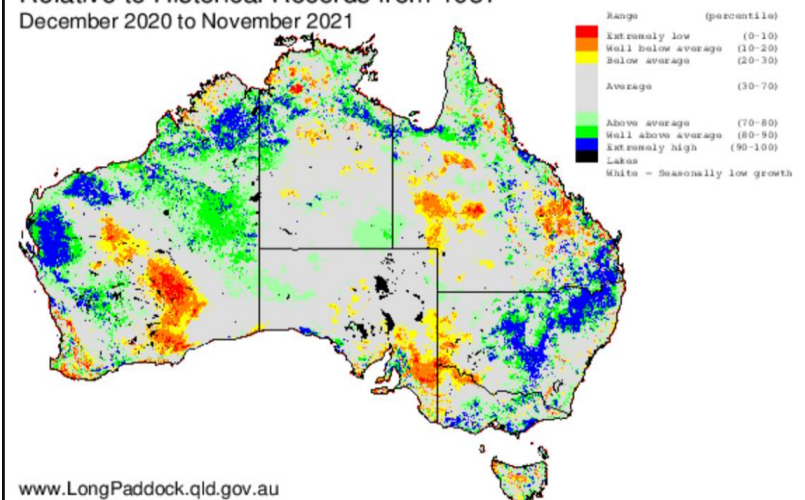
## Current conditions

- Over the last 12 months, pasture growth across NSW and Victoria has remained at average or higher.
- Pasture growth in QLD has improved throughout much of the state, however some deficiencies remain in the central west and east.
- South-eastern South Australia, parts of northern Victoria and far west NSW has experienced below to well below average growth.

Pasture Growth Percentile  
Relative to Historical Records from 1957  
December 2019 to November 2020



Pasture Growth Percentile  
Relative to Historical Records from 1957  
December 2020 to November 2021



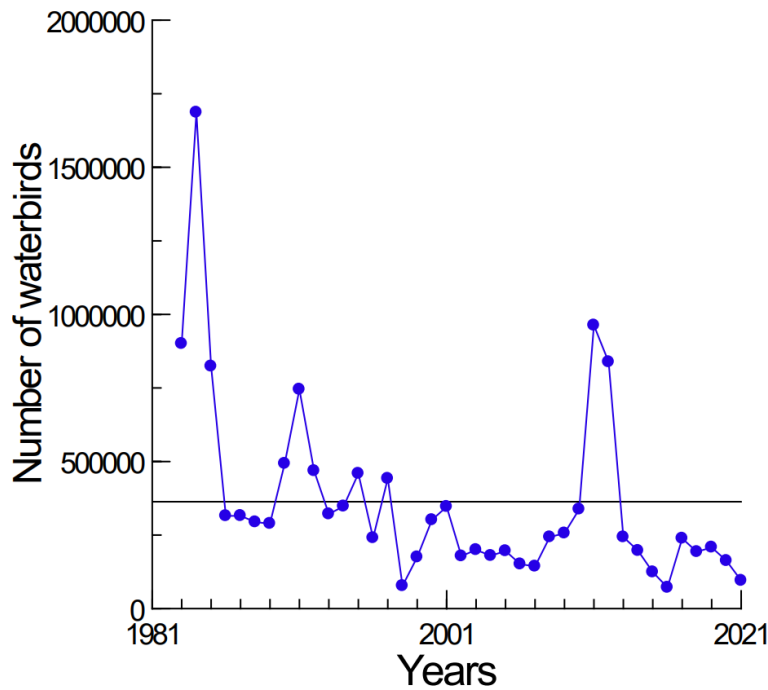


Population indices of abundance,  
distribution and breeding

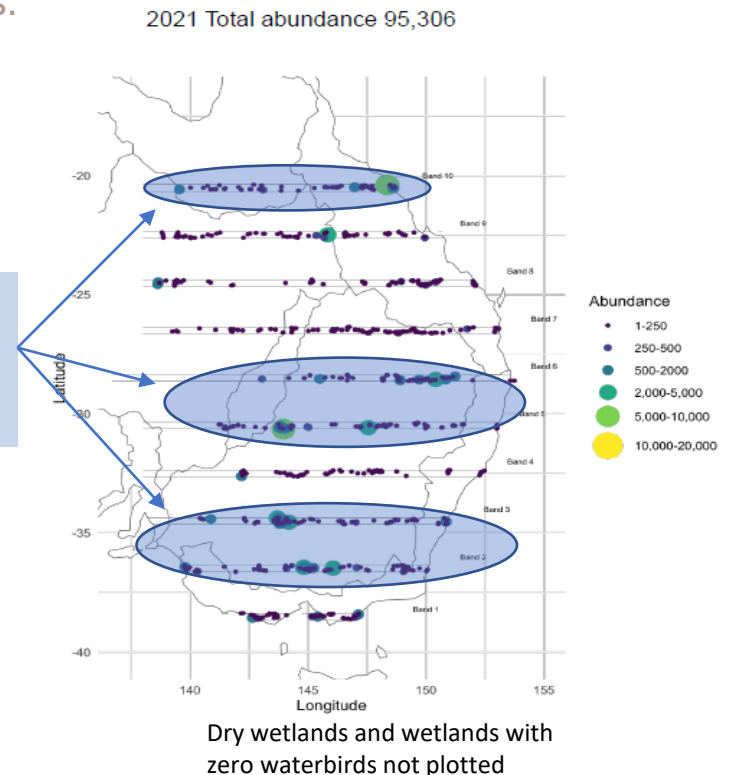
# Index of waterbird abundance (all waterbirds)

Up to 50 waterbirds species are surveyed in October each year and includes all Victorian game duck species and non-game species such as swans, Freckled Duck, ibis, coots etc.

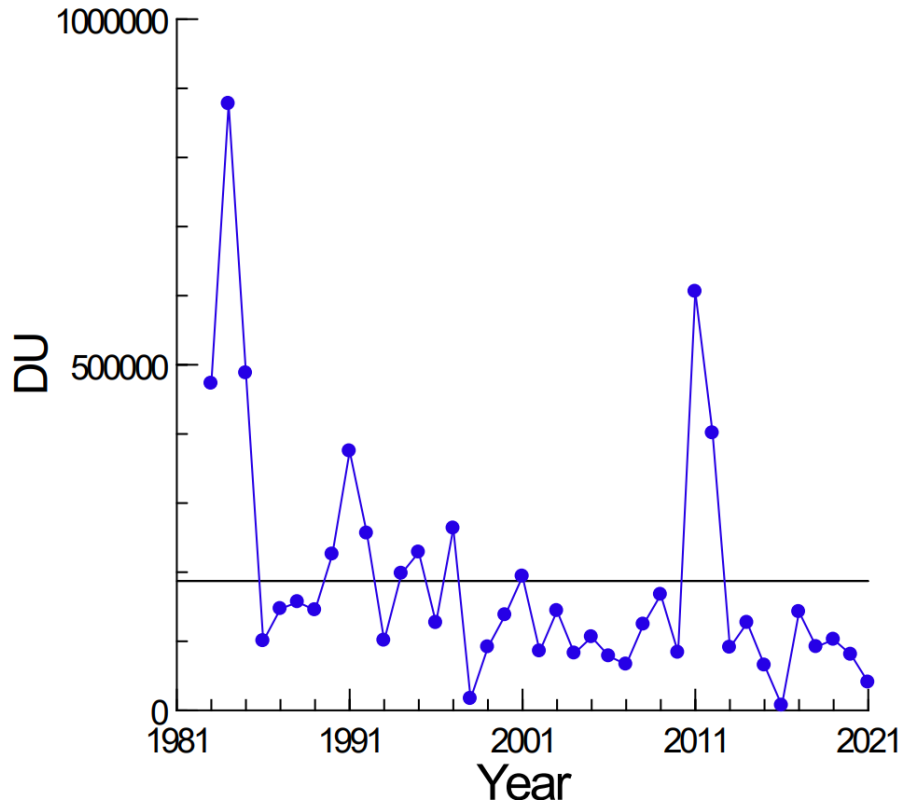
- The total index of waterbird abundance (95,306) decreased by 41% from 2019 (162,824). The total waterbird abundance index is the 3<sup>rd</sup> lowest in 39 years.
- Only 2 wetlands supported more than 5,000 waterbirds.



Waterbirds were most abundant in Bands 2&3, 5&6 and 10.



# EAWS game duck abundance index

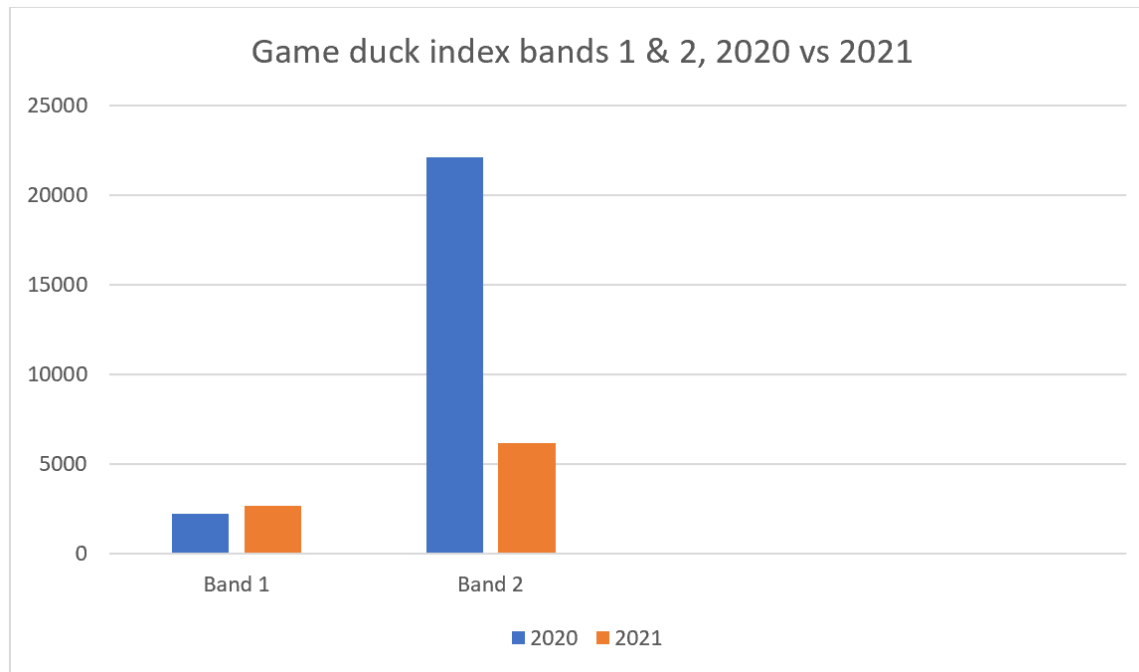


This index provides information on game ducks only.

- The game duck abundance index decreased by 58% from last year.
- The 2021 game duck abundance index was the 3<sup>rd</sup> lowest recorded in 39 years of survey and is 25% of the long-term average.
- The decrease in the index was despite an increase in available habitat. Habitat availability and game duck abundance have a positive relationship, so when habitat increases, so does duck abundance but with a lag as it takes time for the habitat and birds to respond.

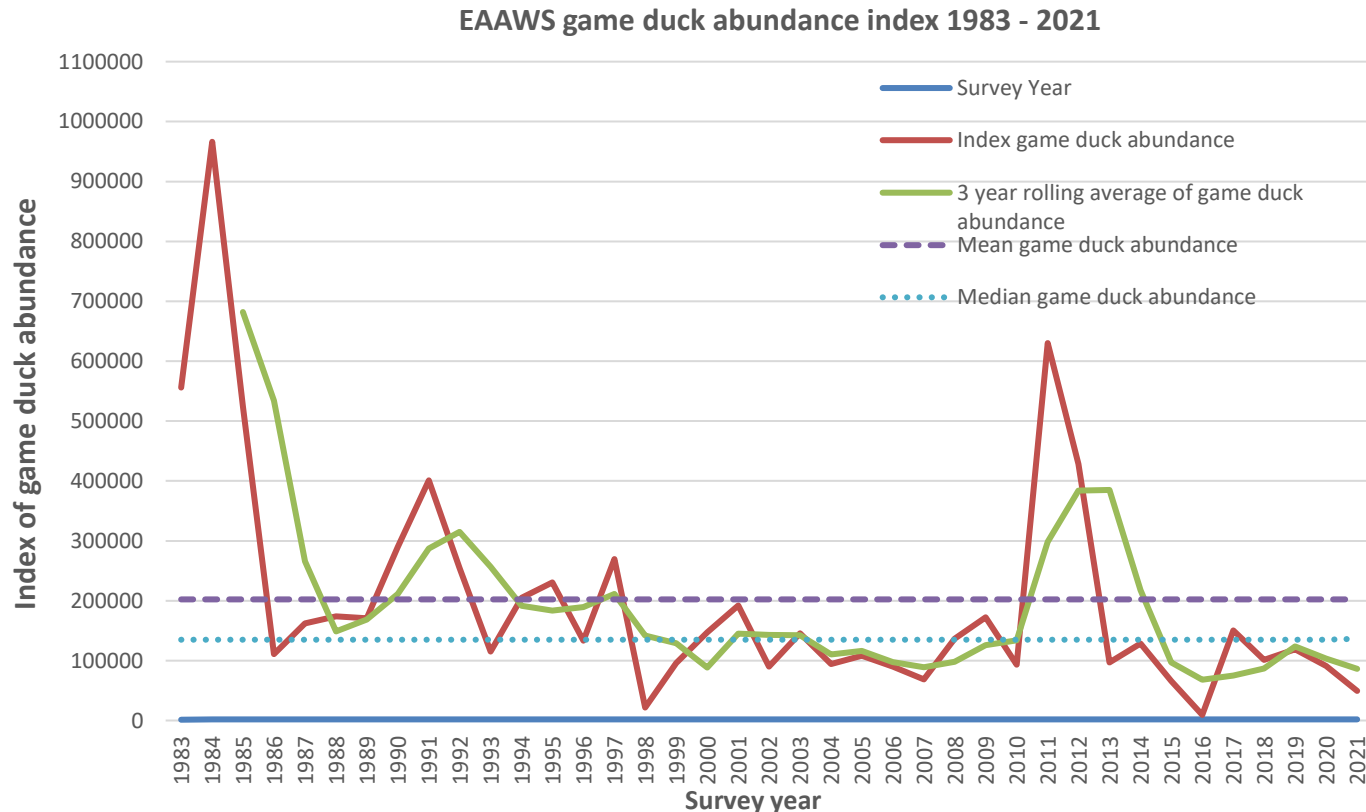
# EAWS game duck abundance index bands 1 & 2

- Bands 1 and 2 cover parts of Victoria. Band 1 covers parts of southern coastal Victoria and band 2 covers parts of northern Victoria.
- Game duck abundance in band 1 was similar for 2020 and 2021 but declined significantly in band 2 in 2021 reflecting the drier conditions in that band.





# EAWS game duck abundance index over time

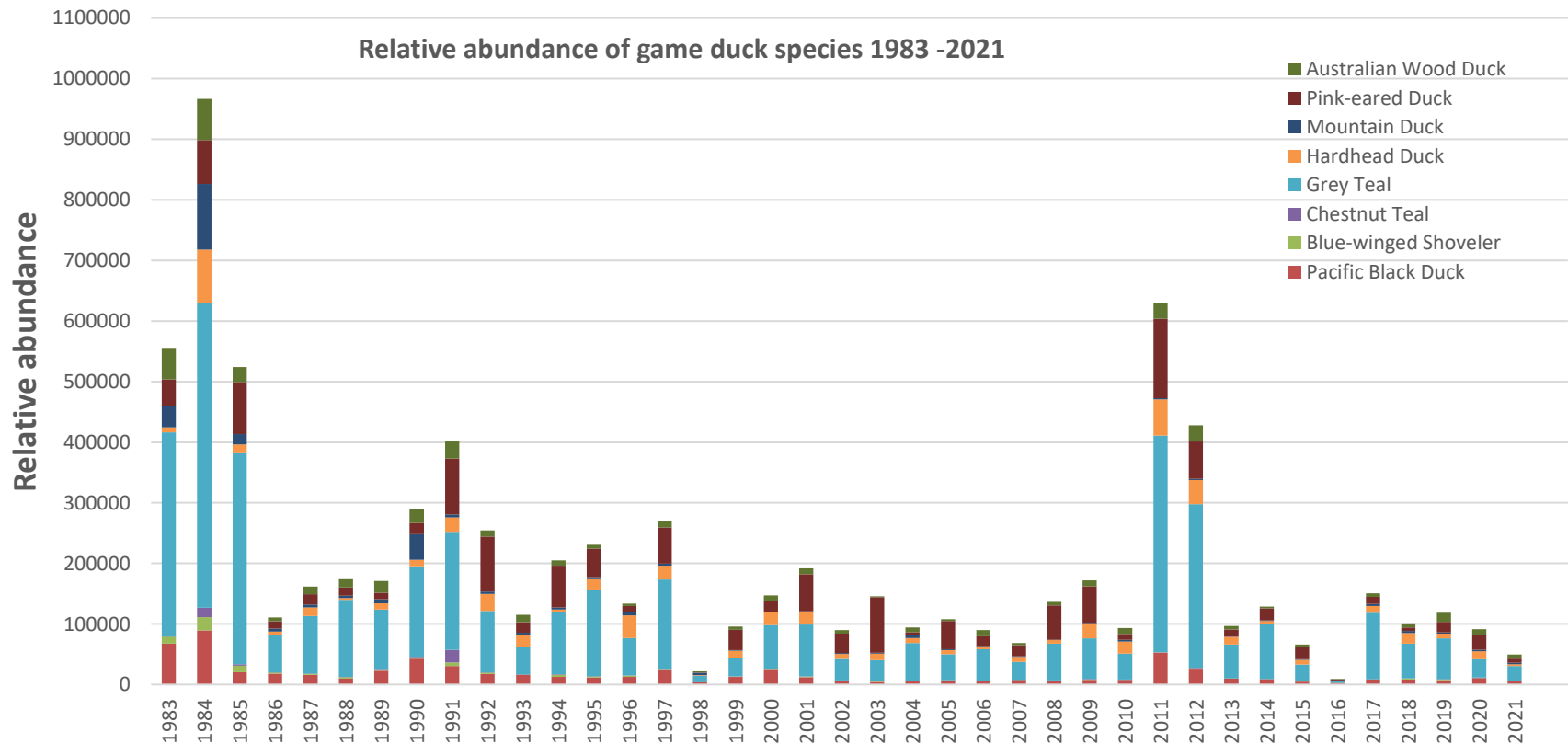


When considering management implications, the abundance index must be considered in context with:

- distribution of birds
- habitat availability and distribution
- climatic forecasts
- concentrations of birds

- This graph includes abundance index data (red line) and the rolling (or moving) average (green line). A rolling average is used to get an overall trend in a data set. In this case, the rolling average is calculated for three-year subsets.
- The long-term average (mean) and median abundance levels are also included. The median is the mid-value and is more statistically suitable than the average when outliers are present.

# Relative abundance of game duck species 1983-2021 (EAWS)



The percentage of game ducks detected in 2021 EAWS were:

Black Duck 11% (12%), Grey Teal 50% (33%), Wood Duck 14% (10%), Pink-eared Duck 13% (27%), Hardhead 6% (14%), Mountain Duck 5% (3%), Chestnut Teal <1% (1%) and Blue-winged Shoveler <1% (<1%). Figures in parentheses are from 2020.

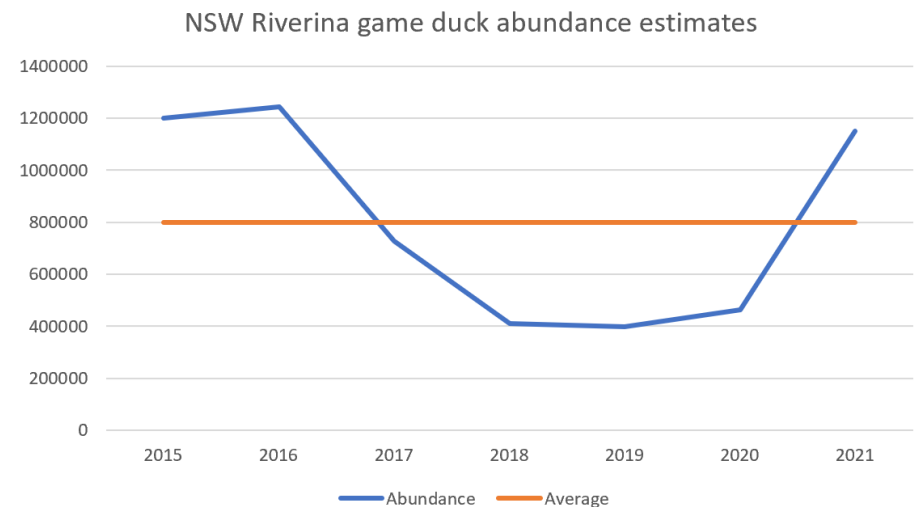
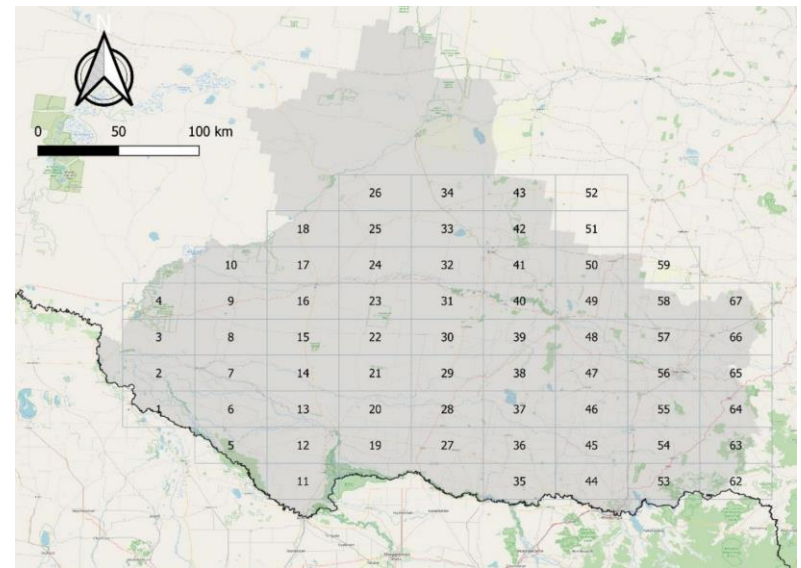


# Victorian game duck abundance estimates

- Aerial and ground counts were conducted on randomly selected farm dams, sewage ponds, wetlands, creeks, rivers and irrigation channels throughout Victoria in October.
- It was estimated that there were 2.94 million game ducks on these habitats. This is compared to 2.42 million game ducks in 2020, a 20% increase.
- The total statewide abundance of game ducks was higher than in 2020, mainly due to the inclusion of estimates for rivers/streams and sewage treatment ponds, which were not included in the pilot survey in 2020.
- Total surface water (combined dams and wetlands) increased by 13% (14,326 hectares) between 2020 and 2021.
- Wood Duck were the most numerous game species (~1,240,500), followed by Grey Teal (~609,300), Australian Shelduck (~503,900) and Pacific Black Duck (~443,700).
- These estimates are preliminary and may be subject to revision.

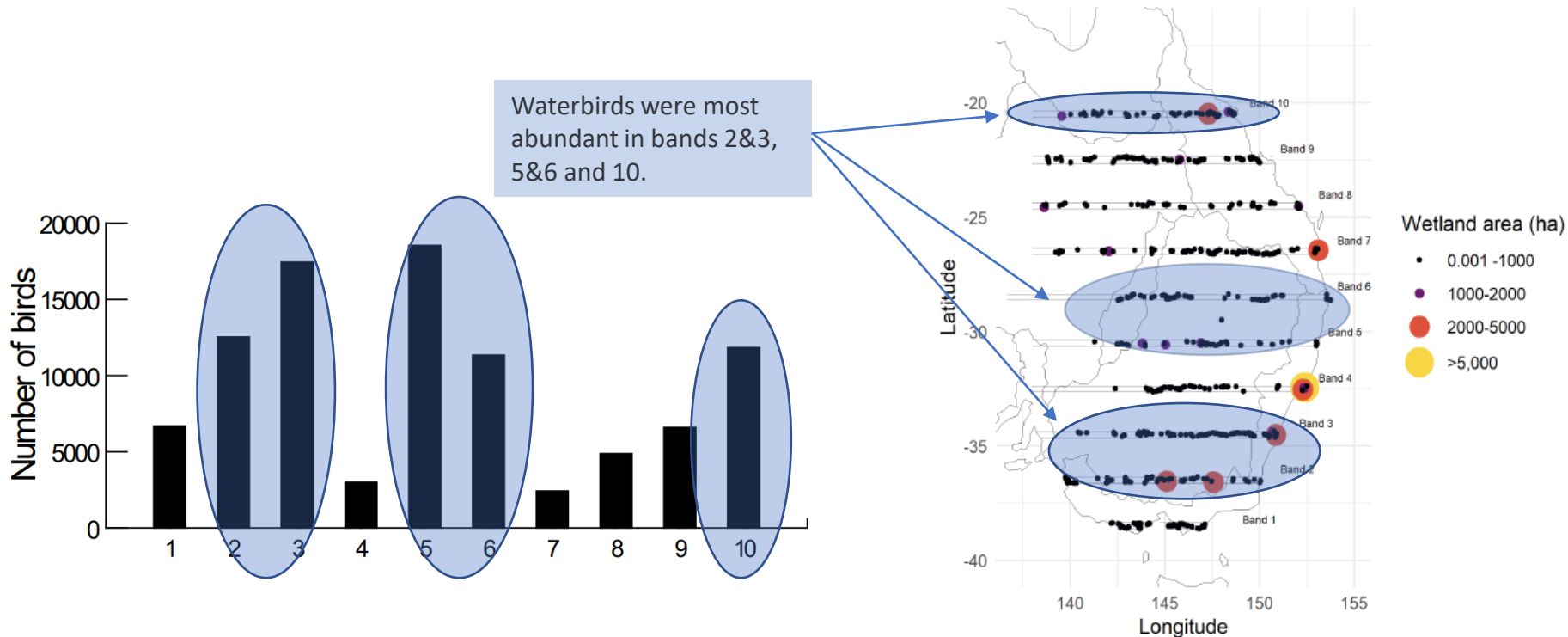
# NSW Riverina waterfowl abundance surveys

- Helicopter, drone and ground counts of randomly selected farm dams, treatment ponds and wetlands were conducted throughout the NSW Riverina to determine waterfowl abundance in order to set annual crop damage mitigation destruction quotas.
- Surveys were conducted in late-April to July.
- Game duck\* numbers increased from the previous year by almost 250% from 463,0404 to 1,149,395 reflecting the improved conditions in this part of the MDB.
- Numbers of waterfowl are recovering towards 2016 levels following a decline in response to the drought years of 2017-2019.



\*Includes Plumed Whistling Duck, which is not a Victorian game duck species

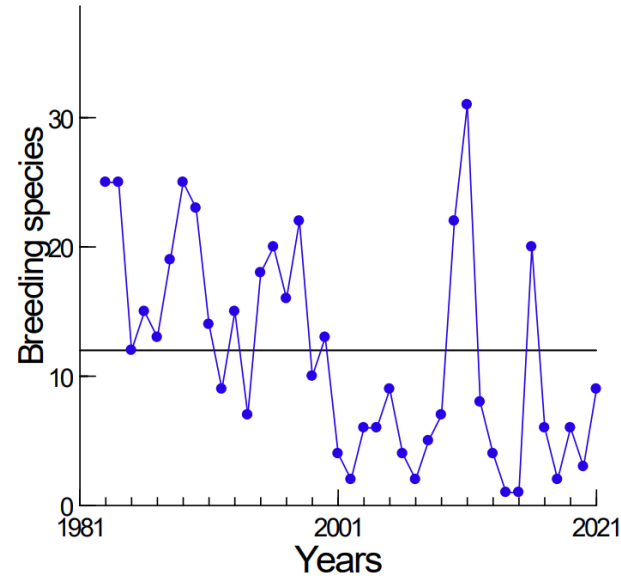
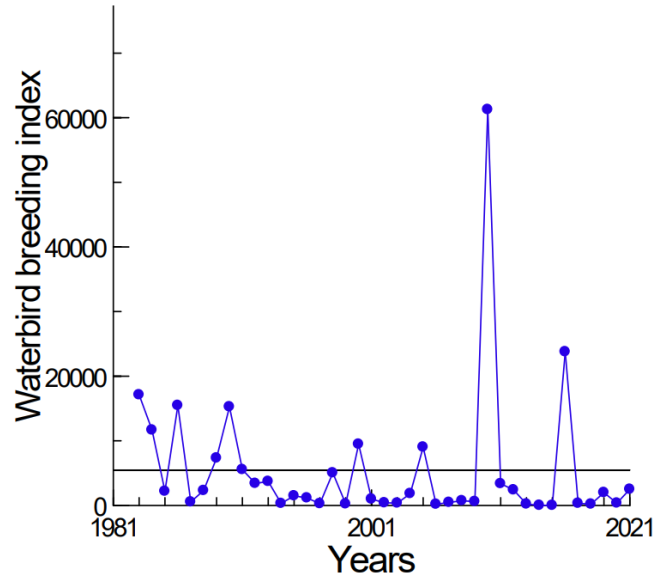
# EAWS waterbird distribution



- Waterbirds were again widely dispersed (similar to 2020) and less concentrated, reflecting an increase in habitat availability, especially in the Murray-Darling Basin.
- Surveyed waterbirds were most abundant in bands 2 & 3, 5 & 6 and 10. Data shows these same bands also held the most game ducks. The majority of the habitat occurred in bands 3&4 and 8.
- Only two wetlands supported more than 5,000 waterbirds, representing 13% of total abundance. Five wetlands supported more than 5,000 waterbirds in 2020. More than 48% of surveyed wetlands supported no waterbirds (which includes wetlands that were dry).



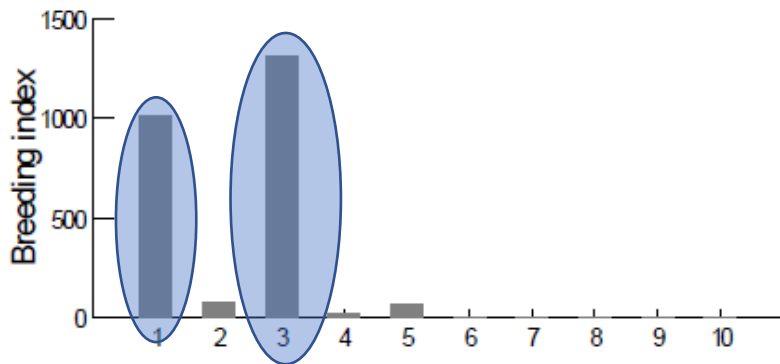
# Waterbird breeding (all species combined)



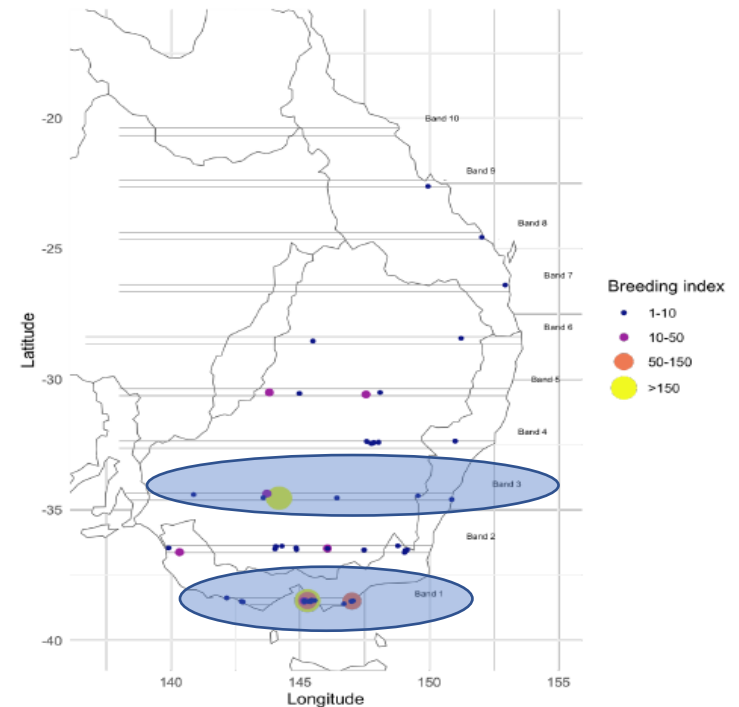
- The EAWS total breeding index (all species combined) increased considerably from the previous year but was still below the long-term average.
- EAWS breeding species richness (i.e. the number of different species observed breeding) also increased from last year but was below the long-term average and was the ninth lowest on record. Ibis made up 83% of the total breeding records.

## Waterbird breeding (all species combined)

2021 Breeding index – 2,494

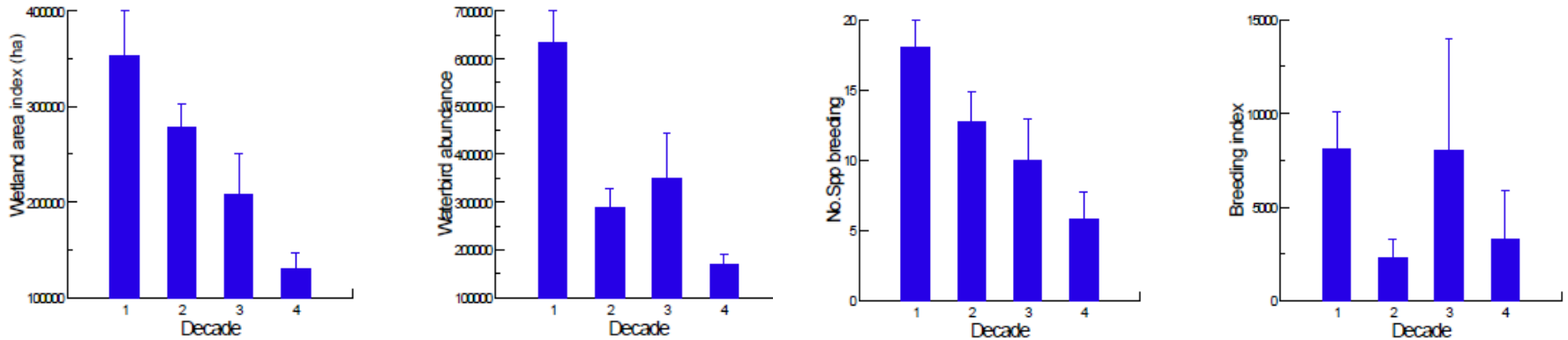


- Most breeding occurred in bands 1 and 3.
- Ibis comprised most of the breeding recorded (83% of the total).



Only wetlands with breeding  
recorded are plotted.

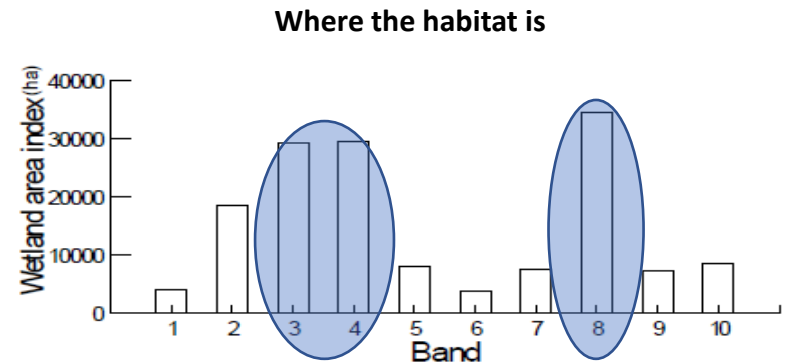
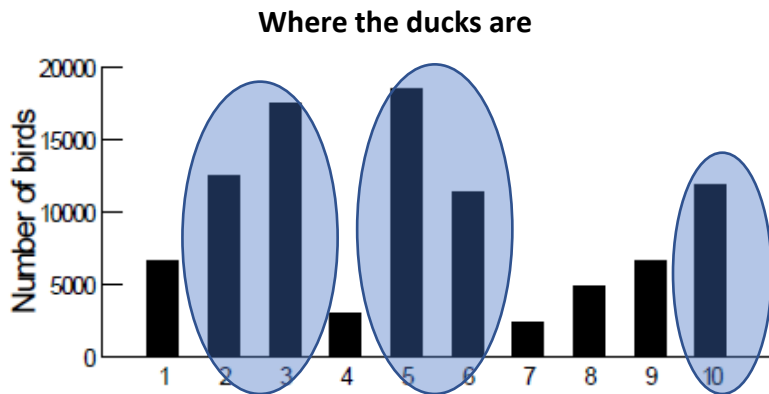
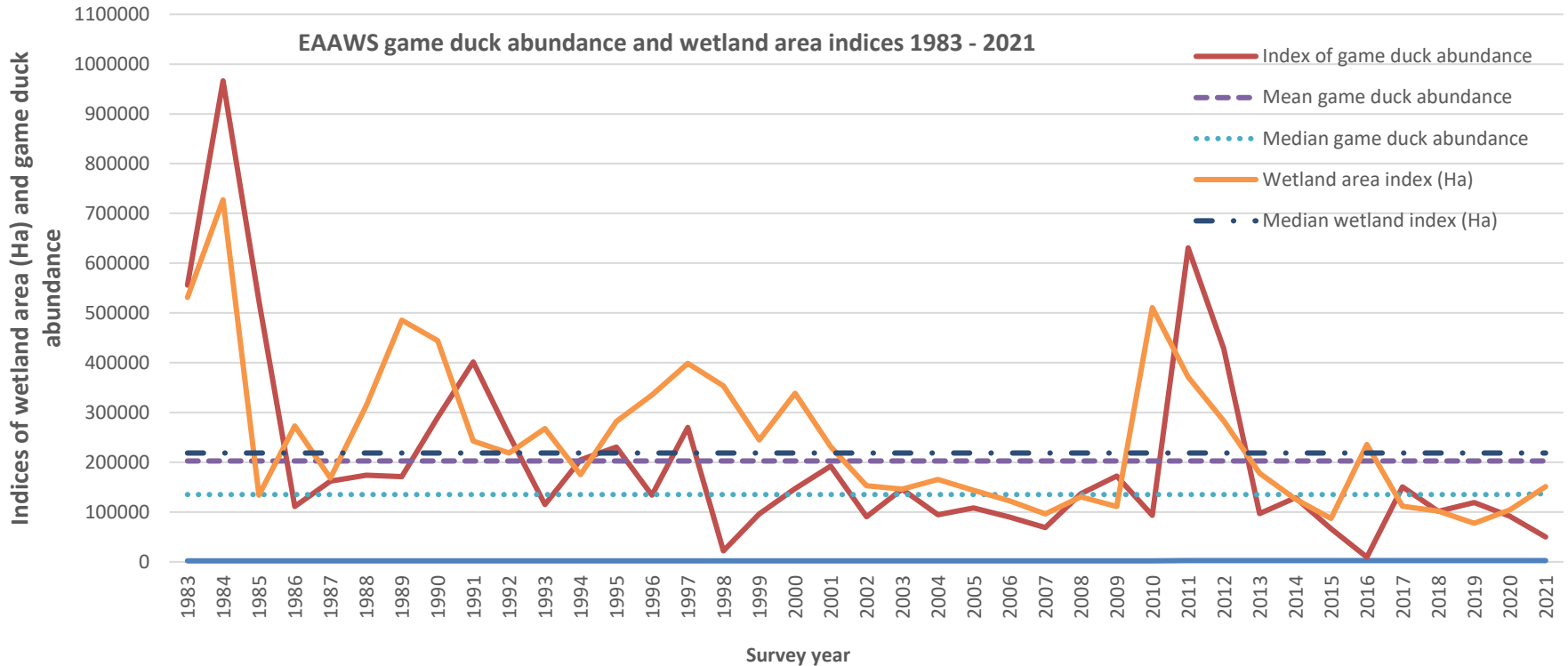
# EAWS indices over time



Decadal changes in indices for total abundance, wetland area, number of breeding species and breeding in the EAWS 1983 - 2021

- For eastern Australia, overall waterbird abundance, breeding index and breeding species are positively related to habitat availability (wetland area index).
- All major EAWS indices for waterbirds (wetland area index, total abundance index, number of species breeding and breeding index) continue to show significant declines over time.

# EAWS game duck abundance, distribution and habitat - summary



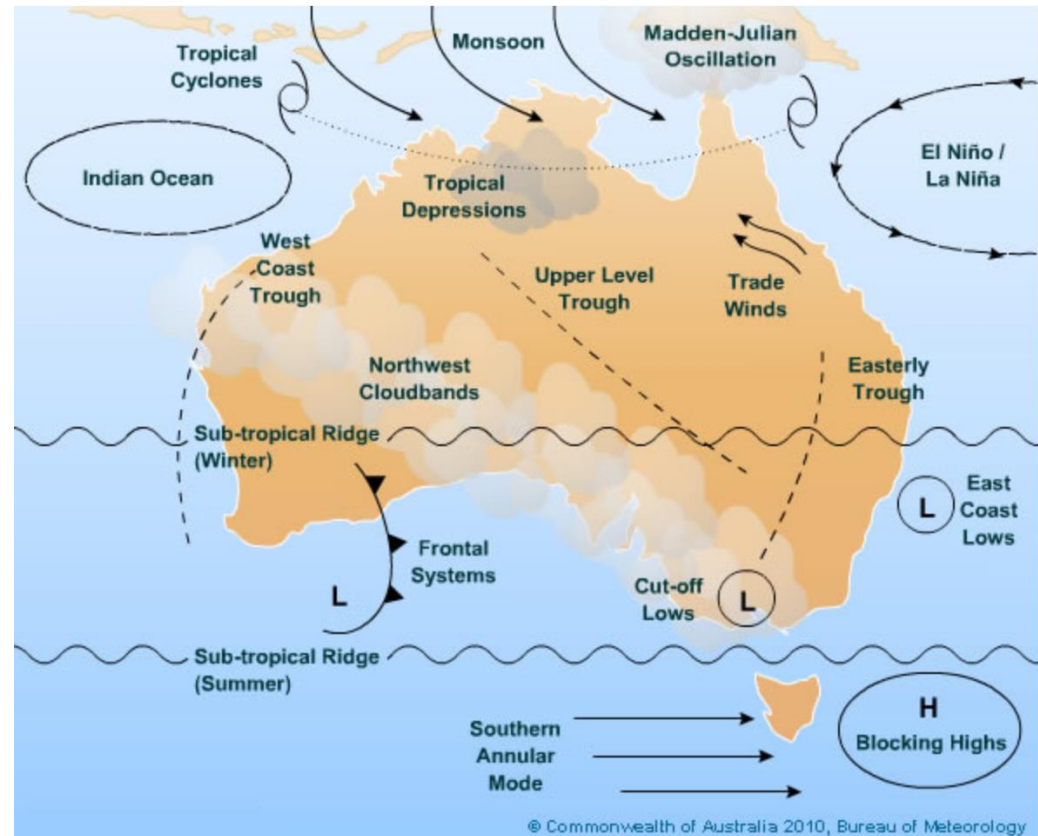
# Climate predictions – future conditions





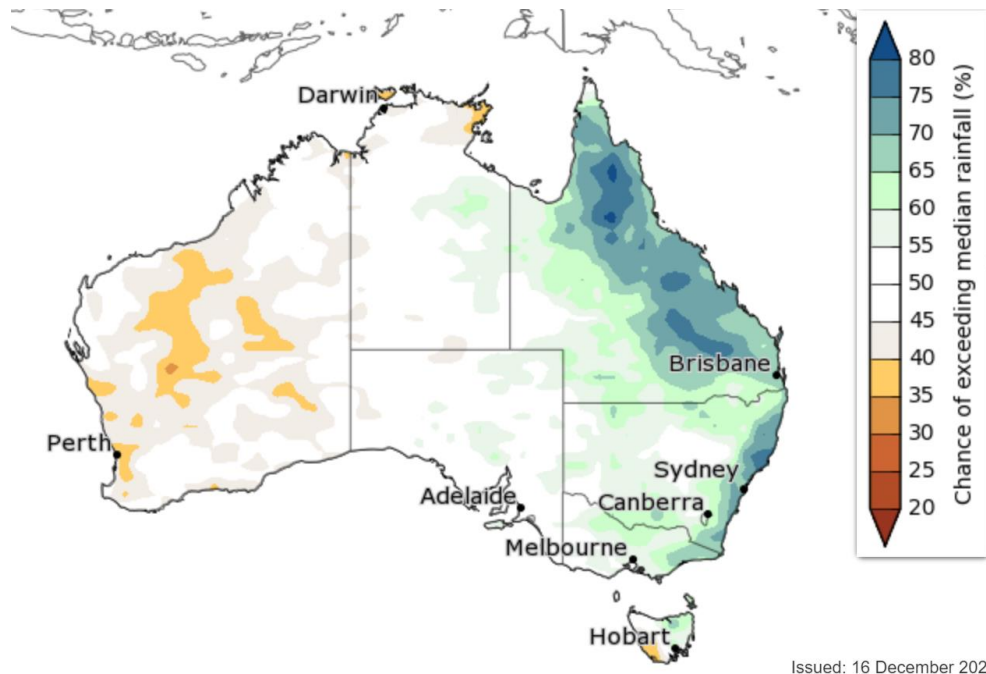
# Current climate drivers

- Australia's climate can vary greatly from one year to the next.
- A number of drivers can influence the Australian climate. Influences will have varying levels of impact in different regions at different times of year.
- Current influences on Australia's climate include:
  - La Niña
  - The Southern Annular Mode (SAM)
  - The Madden–Julian Oscillation (MJO)
- All of these influences typically result in above average rainfall for northern, eastern or central parts of the country.



# January – March 2022 predicted rainfall

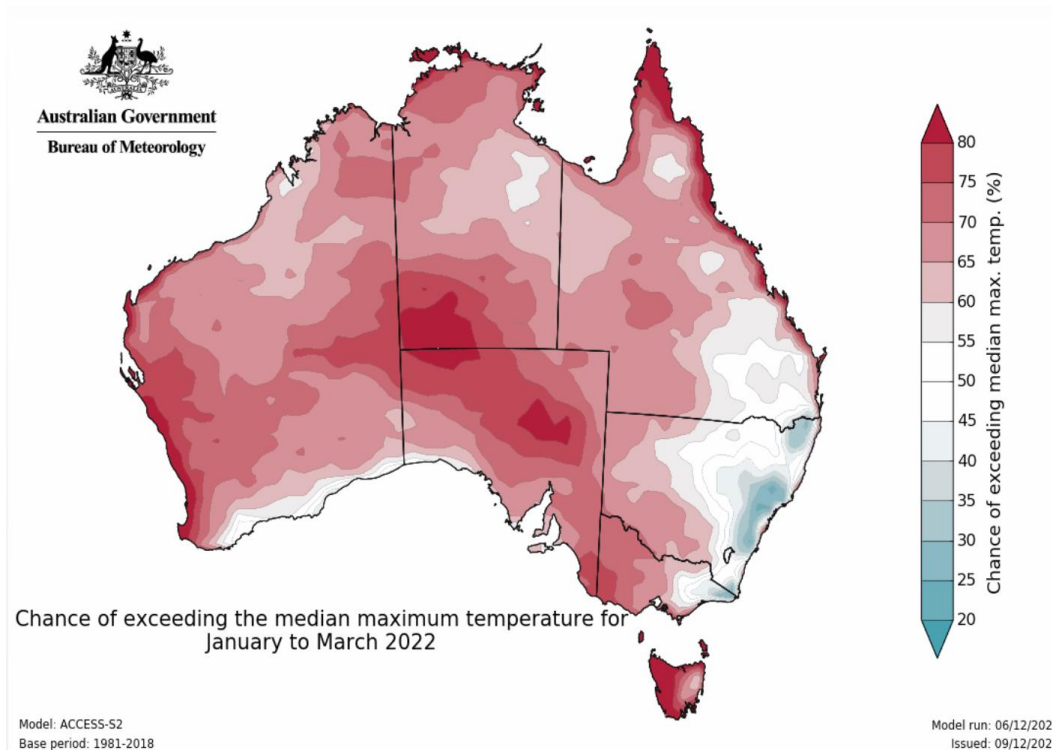
January – March rainfall prediction can be used to indicate the potential impact on habitat for the forthcoming season.



- January to March rainfall is likely to be above median for eastern QLD, east coast NSW, eastern Victoria, areas near the NSW-Victoria border, and north-east Tasmania (chance of exceeding median is greater than 60%).
- The rest of Australia has roughly equal chances of above or below median rainfall (chance of exceeding the median is close to 50%).
- There is an increased chance of unusually high rainfall (in the top 20% of historical records) for January to March in eastern Queensland, through parts of eastern NSW and eastern Victoria, and in small patches of western Queensland and western NSW (1.5 to 2.5 times the usual chance).

Source: [www.bom.gov.au](http://www.bom.gov.au)

# January – March 2022 temperature prediction



- January to March maximum temperatures are likely to be above median for most of Australia (>65% chance), except east of the Great Dividing Range in NSW and Victoria and the WA southern coastline with a mixed or below median outlook.

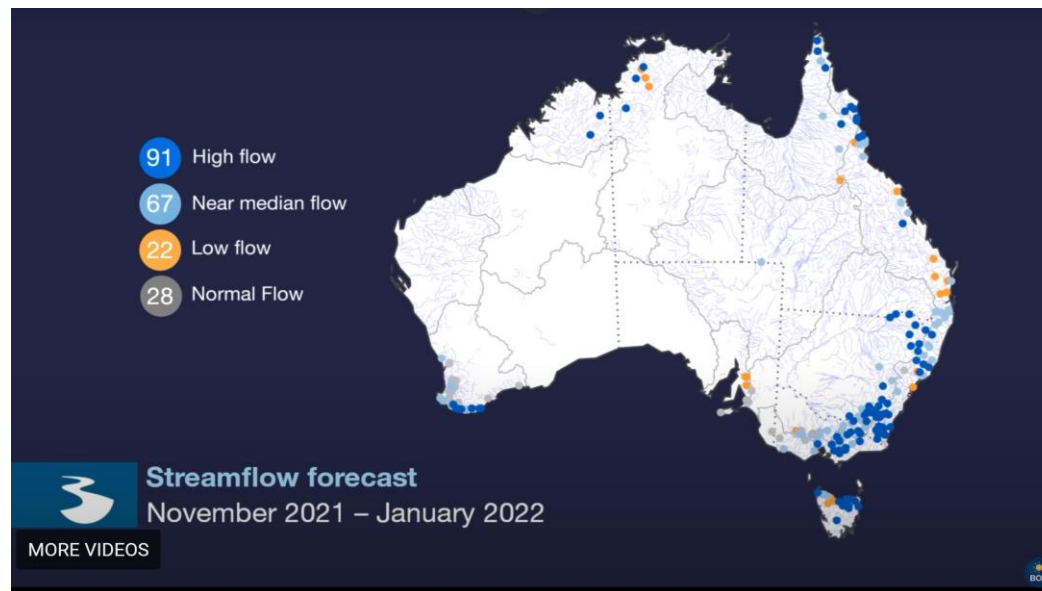
Source: [www.bom.gov.au](http://www.bom.gov.au)

# Streamflow predictions

Streamflow has a direct influence on waterbird habitat extent and population abundance. Rivers and creeks provide feeding, resting and breeding habitat and provide inputs into wetlands where they have not been diverted.

## Current prediction

- For November - January, near median or high stream flows are expected across most of central and eastern Victoria, and parts of southern and north-eastern NSW. Near median or high stream flows together with predicted high summer rainfall increases the risk of flooding across areas of eastern Australia which can provide waterbird habitat of varying duration depending on the extent of flooding and follow-up rains.



# Victorian harvest estimates 2021





# 2021 harvest estimates

Harvest statistics can provide information on the health and dynamics of game duck populations, including distribution, abundance and productivity.

- The 2021 duck season was modified, due to ongoing reduced game duck abundance. The season length was 20 days, commencing on 26 May and concluding on 14 June, and the daily bag limit was five birds. Blue-winged Shoveler could not be hunted.
- COVID-19 restrictions impeded the movement of hunters within Victoria. These restrictions and the reduced season significantly impacted on participation levels and the resultant size of the total seasonal harvest.
- There was a maximum of 24,330 Game Licence holders endorsed to hunt duck in 2021. It was estimated that 32%, or 7,785, actually hunted, each taking an average seasonal harvest of 6.8 birds.
- The average number of duck hunting days per active duck hunter was estimated to be 2.6 days.

# 2021 harvest estimates cont...

- The total estimated seasonal harvest in 2021 was 52,500, the lowest recorded harvest since the telephone surveys were introduced in 2009 and less than one-sixth of the average annual duck harvests revealed by previous surveys (347,000).
- The total estimated number of duck hunting days was 19,700 and was the lowest recorded, less than one-quarter of the average annual duck hunting days in previous surveys (90,000).
- The two most commonly harvested species were Pacific Black Duck (37% of the total harvest) and Australian Wood Duck (27% of the total harvest). The remaining ducks harvested were Grey Teal (21%), Chestnut Teal (10%), Mountain Duck (3%) and Pink-eared Duck (1%) and Hardhead (<1%).
- The total harvest was estimated to be greatest in the West Gippsland CMA, followed by the North Central CMA and the East Gippsland CMA. The top five towns for the total reported number of ducks harvested were (in descending order) Sale, Bairnsdale, Heyfield, Loch Sport and Warragul.

# Long-term harvest estimates

Estimates	2009 <sup>1</sup>	2010 <sup>2</sup>	2011	2012	2013	2014	2015 <sup>3</sup>	2016 <sup>4</sup>	2017 <sup>5</sup>	2018 <sup>6</sup>	2019 <sup>7</sup>	2020 <sup>8</sup>	2021 <sup>9</sup>	Avg 2009 - 2021
Licensed hunters	18,348	21,861	23,716	24,533	24,036	26,261	25,837	25,681	26,324	25,799	24,925	23,378	24,330	24,233
Total # hunter days	76,659	85,801	103,450	109,718	91,748	118,800	91,264	100,749	96,508	91,570	81,023	29,501	19,720	84,347
Total harvest	222,302	270,574	600,739	508,256	422,294	449,032	286,729	271,576	438,353	396,965	238,666	60,403	52,456	324,488
Average # days hunted in the season	4.0	4.0	4.5	4.6	3.7	4.6	3.6	3.9	3.8	3.6	3.3	1.26	2.57	3.65
Seasonal harvest per licence holder	11.1	12.5	26.0	21.2	17.2	17.3	11.4	10.5	17.4	15.7	9.62	2.58	2.16	13.44
Opening weekend bag per hunter	4.5	4.2	9.2	5.3	9.5	5.7	5.8	5.1	7.1	6.3	4.4	N/A	N/A	5.6*
Average # ducks per day hunted	2.7	3.1	5.7	4.6	4.6	3.7	3.1	2.6	4.5	6.4	2.9	2.05	2.33	3.71

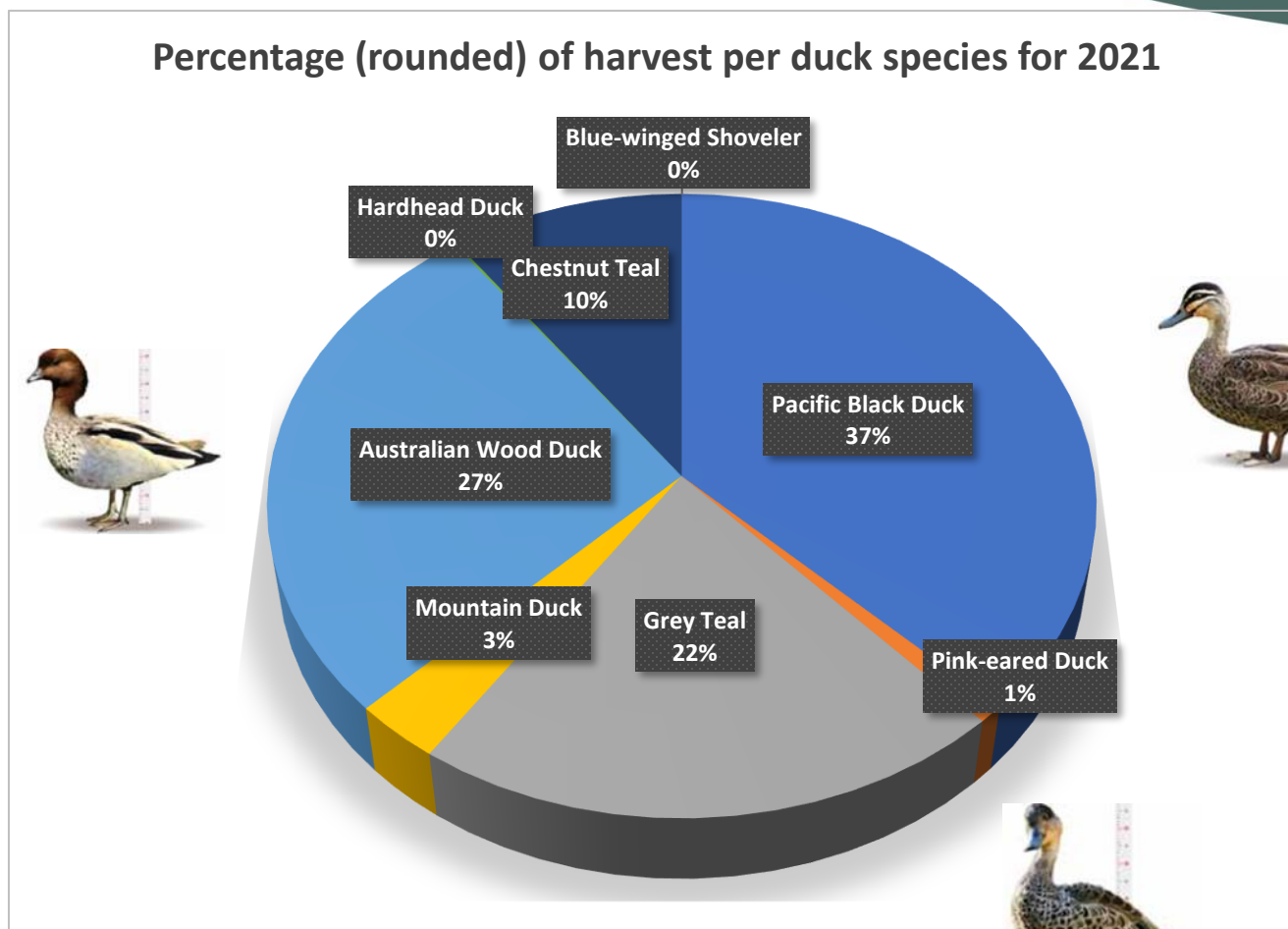
\*Does not include 2020 and 2021

Harvest estimates are at 95% confidence intervals

## Modified season arrangements

1. Two (2) birds per day with an additional three (3) Wood Duck. No Blue-winged Shoveler, Pink-eared Duck or Hardhead duck (49 day season)
2. Five (5) birds per day with an additional three (3) Wood Duck. No more than 1 Blue-winged Shoveler (72 day season)
3. Ten (10) birds per day which included a maximum of two Blue-winged Shoveler on opening day. Five (5) birds per day which includes a maximum of one Blue-winged Shoveler for remainder of season (80 day season)
4. Eight (8) birds on opening day. Four (4) birds per day for remainder of the season. No Blue-winged Shoveler hunted in 2016 (87 day season)
5. Ten (10) birds per day. No Blue-winged Shoveler hunted in 2017 (87 day season)
6. Ten (10) birds per day. No Blue-winged Shoveler hunted in 2018 (87 day season)
7. Four (4) birds per day on opening weekend. Five (5) birds per day for the remainder of the season. No Blue-winged Shoveler hunted in 2019 (65 day season)
8. Three (3) birds per day. No Blue-winged Shoveler hunted in 2020 (38 day season). COVID-19 restrictions applied to travel, gathering size, no overnight camping
9. Five (5) birds per day. No Blue-winged Shoveler hunted in 2021 (20 day season). COVID-19 restrictions applied to travel and the size of social gatherings

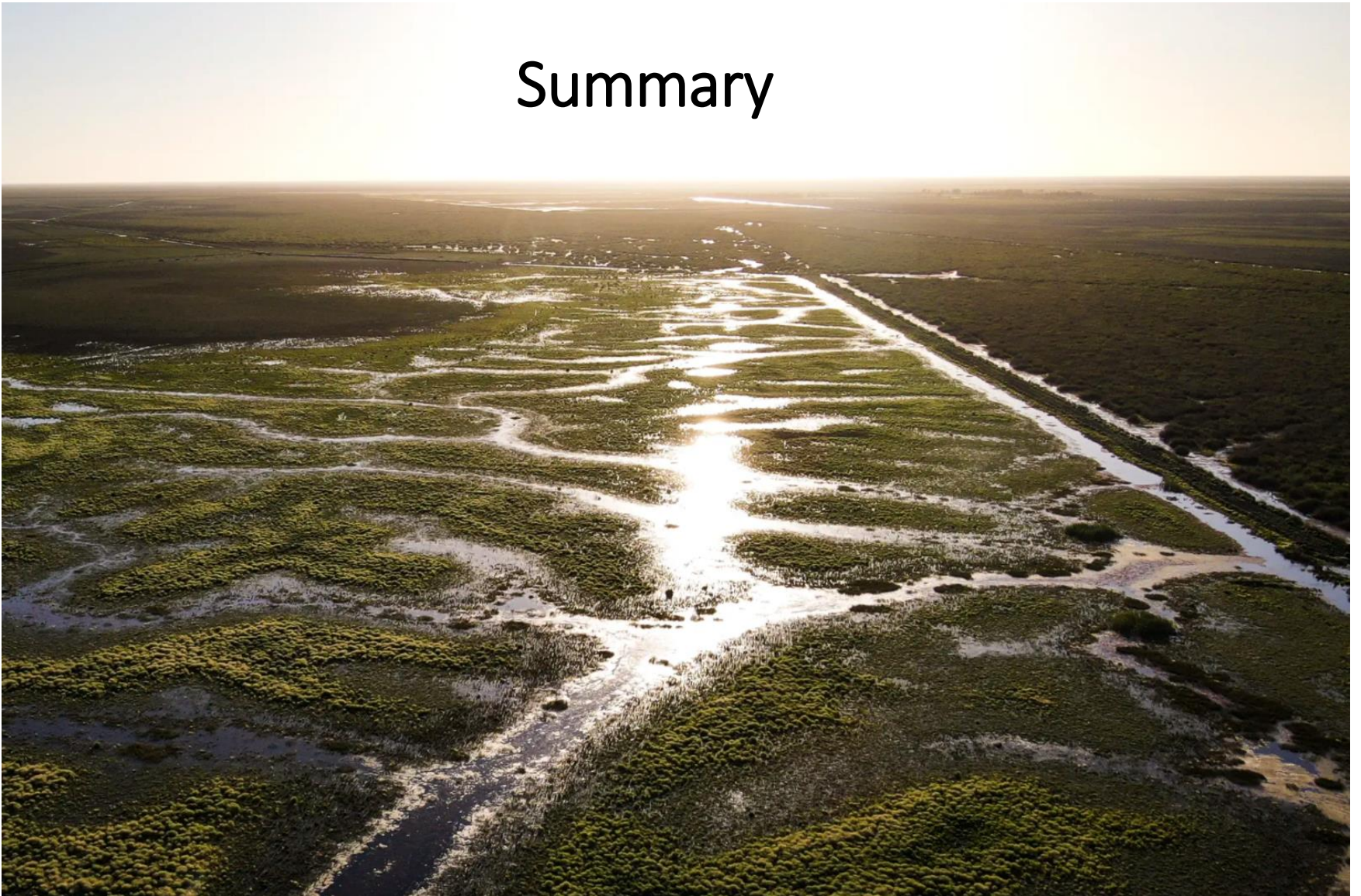
# Harvest per game species



Grey Teal, Wood Duck and Black Duck consistently make up the majority of the harvest each year. The size of the Grey Teal harvest was significantly lower than normal in 2021 and accords with the reduction in Grey Teal abundance detected during the EAWS. The Black Duck harvest was slightly higher than normal and Wood Duck slightly lower.



# Summary





# Summary

- La Nina has influenced Australia's climate for the last two years, resulting in improvements in rainfall. Water storages, wetlands and waterways have benefitted, as has the wildlife that inhabits these environments. New South Wales and parts of the Murray Darling Basin in particular have benefitted. Despite these improvements, the EAWS wetland area index is at 61% of the long-term average.
- Multi-year rainfall deficiencies experienced during the 2017 – 2019 drought still remain for some parts of eastern Australia. Waterbird habitat is patchy with areas including south-east South Australia, northern Victoria, western Queensland and far western New South Wales experiencing accumulated rainfall deficiencies.
- The EAWS index of game duck abundance for eastern Australia has declined and is the third lowest recorded in 39 years, or 25% of the long-term average. Victoria's estimated total game duck abundance has increased somewhat from 2020 and total abundance has significantly increased in the NSW Riverina, an area that has benefitted from the improved rainfall over the last two years. Waterbird breeding has increased in response to the improved conditions but is still below the long-term average.
- Waterbirds, including game ducks, are widely dispersed throughout eastern Australia and in relatively low densities. Only two wetlands in the EAWS held more than 5,000 waterbirds. There is some concentration of game ducks in southern and central NSW and central Queensland.
- Waterbird abundance, breeding index, breeding species richness and habitat availability are showing continuing long-term declines throughout eastern Australia. Five of the eight game duck species are showing long-term declines.
- Most of eastern Australia is predicted to receive above average rainfall over the January to March period. As a consequence, median or high streamflows are predicted for November – January at most locations which poses an increased risk of flooding, which would benefit waterbirds.

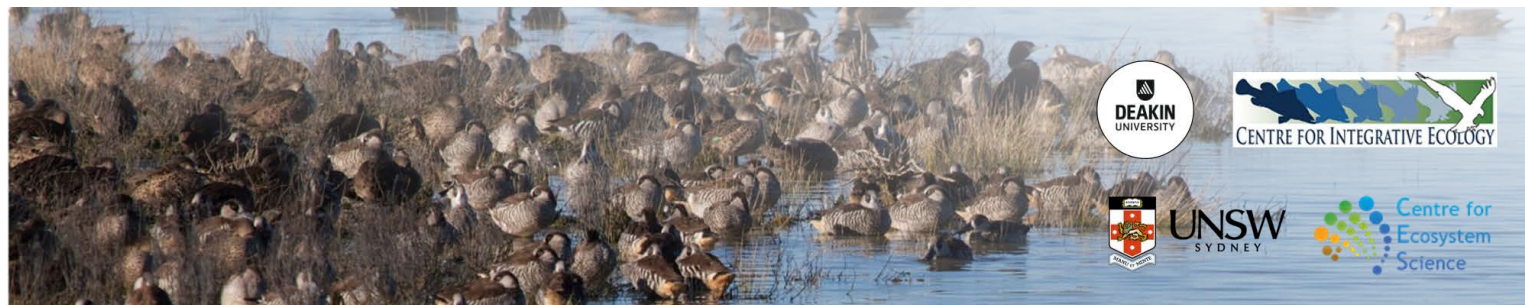


# References

- Bureau of Meteorology - [www.bom.gov.au](http://www.bom.gov.au)
- Jenouvrier S. (2013) Impacts of climate change on avian populations. *Glob Change Biol*, 19: 2036-2057. doi:[10.1111/gcb.12195](https://doi.org/10.1111/gcb.12195)
- Kingsford R. T. and Norman F. I. (2002) Australian waterbirds—products of the continent's ecology, *Emu - Austral Ornithology*, 102:1, 47-69, DOI: [10.1071/MU01030](https://doi.org/10.1071/MU01030)
- Kingsford RT, Bino G, Porter JL. (2017) Continental impacts of water development on waterbirds, contrasting two Australian river basins: Global implications for sustainable water use. *Glob Change Biol*. 2017; 00:1–12. <https://doi.org/10.1111/gcb.13743>
- Moloney, P.D. and Flesch, J.S. (2021) *Estimate of duck and Stubble Quail harvest in Victoria for 2021: results from surveys of Victorian Game Licence holders in 2021*. Unpublished Client Report for the Game Management Authority. Arthur Rylah Institute for Environmental Research, Department of Environment, Land, Water and Planning, Heidelberg, Victoria.
- NSW Department of Primary Industries (2021) *2021-2022 Annual Waterfowl Quota Report to DPI Hunting*, NSW Department of Primary Industries.
- Porter J.L., Kingsford R.T., Francis, R., and Brandis K. (2021) *Aerial Survey of Wetland Birds in Eastern Australia - October 2021 Annual Summary Report*, University of New South Wales 2021.
- Ramsey, D. and Fanson, B. (2021) *Preliminary results from 2021 survey of game ducks in Victoria*, Arthur Rylah Institute for Environmental research, Department of Environment, Land, Water and Planning.
- The Long Paddock- [www.longpaddock.qld.gov.au](http://www.longpaddock.qld.gov.au)

# Using duck proxies and surface water to inform hunting arrangements

Marcel Klaassen & Richard Kingsford



## Introduction

Based on literature, practices elsewhere, and earlier recommendations, duck harvest management for Victoria should contain indices that inform on (i) breeding conditions in Victoria, (ii) breeding conditions throughout SE Australia, (iii) current or recent duck population size in Victoria, and (iv) duck population size throughout SE Australia.

Following a protocol outlined in *Relationships among duck population indices and abiotic drivers to guide annual duck harvest management* by Klaassen and Kingsford (2021) we calculate five indices reflecting the above elements i-iv. Three of these indices, reflecting breeding condition elements i and ii, use availability of water in the landscape (LANDSAT satellite imagery) across up to 4 regions in SE Australia over 1-3 year intervals. The models underlying these three indices are updated annually making use of the latest data.

After a presentation of the water data in section 2, the three updated models are presented in sections 3-5.

In section 6, we compare the indices with actual hunting regulations between 1991-2021 and briefly evaluate their use in advising on future annual hunting arrangement.

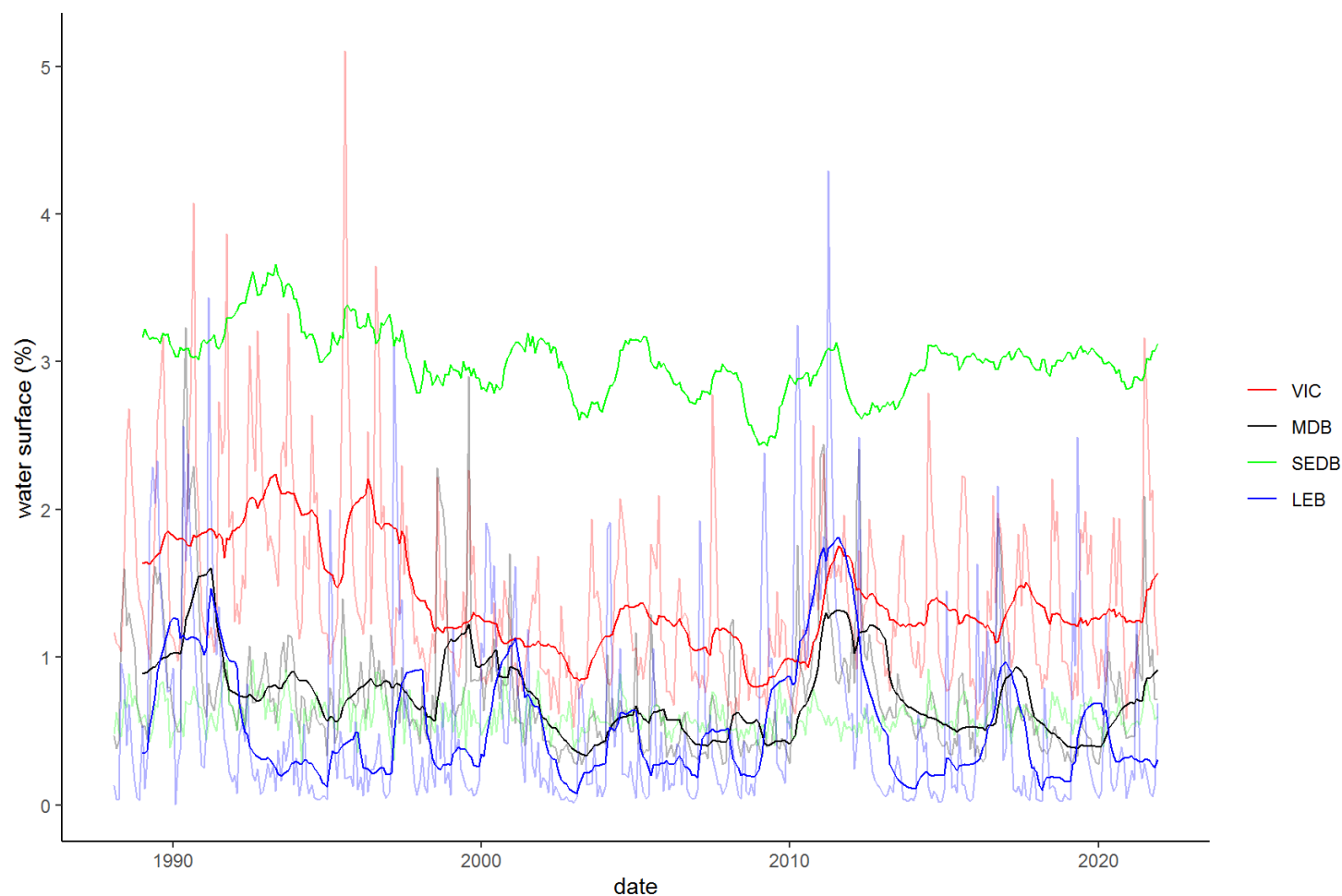
Finally, in section 7, a proposed hunting arrangement for 2022 is proposed.

## Water surface area across SE Australia

The monthly maximum water surface area in the landscape calculated from LANDSAT imagery using the <https://docs.dea.ga.gov.au/setup/Sandbox/sandbox.html> tool were kindly obtained by Roxane Francis (UNSW) for

- Victoria (VIC)
- Murray-Darling Basin (MDB)
- SE Australia south of the MDB (SEDB, see image below)
- Lake Eyre Basin (LEB)

Below, the water surface area (in %) across Victoria (VIC), Murray-Darling Basin (MDB), SE Australia south of the MDB (SEDB; multiply by 2) and Lake Eyre Basin (LEB) is depicted. The monthly values are plotted in light shadings, whereas the right-aligned 12 month running mean is depicted in bold.



Only the 12 month rolling average water surface areas were used in subsequent analyses.

# Water surface area and game counts in priority wetlands

This analysis relies on the Victorian Duck Season Priority Waterbird Counts (e.g. [https://www.gma.vic.gov.au/\\_\\_data/assets/pdf\\_file/0011/803459/DSPWC-2021-report.pdf](https://www.gma.vic.gov.au/__data/assets/pdf_file/0011/803459/DSPWC-2021-report.pdf)) courtesy Peter Menkhorst (Arthur Rylah Institute for Environmental Research). These counts mostly take place a month before the duck hunting season.

## Predictive models

We used linear modelling to conduct a regression across all game count data across 37 priority wetlands for which also water surface data was available for all four areas. Water surface area was time shifted by 4 months. This was done to see in how far one can judge in December what the expected hunting bag is going to be in March.

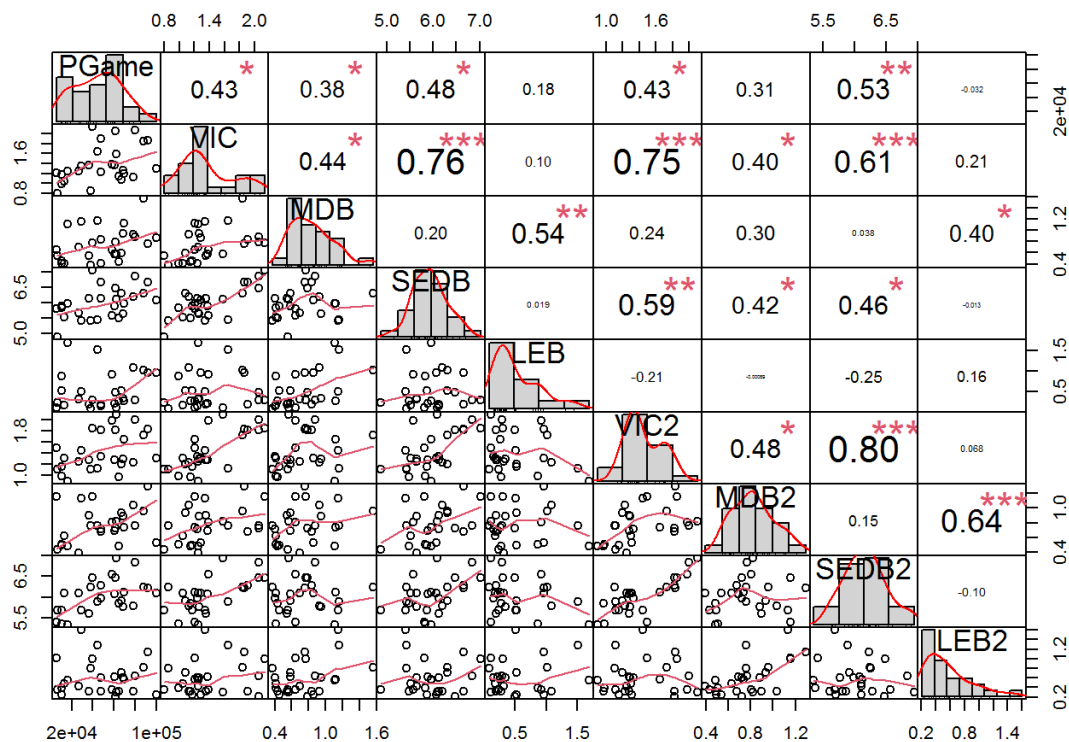
We ran models using as explanatory variables the average water surface area over the preceding 12 months and 13-36 months prior to the “decision” point in December for all 4 areas. All combinations of these 8 explanatory variables were tested.

We first present a correlation chart for all variables in the model, including Pearson correlation coefficients. Next, there is a table presenting all the models with a deltaAIC <= 7 (i.e. models with substantial to moderate statistical support) ranked from the best to the poorest model.

In the Table, red rows indicate models where all explanatory variables have a P<0.05. The orange columns indicate variables where we a priori expected a possible effect.

We ultimately selected a model as the most satisfying model that:

- 1. was high ranking
- 2. had significant and preferably positive parameter estimates for all its parameters (not considering the intercept)
- 3. had a high adjR^2 or R-squared



(Intercept)	LEB	LEB2	MDB	MDB2	SEDB	SEDB2	VIC	VIC2	adjR^2	delta	AllSignif
-344540	NA	-45357	51617	87306	NA	67719	NA	-65692	0.641	0.00	TRUE
-187611	NA	NA	34654	NA	NA	34955	NA	NA	0.415	3.11	TRUE
-369991	NA	-41492	49788	80057	7060	66198	NA	-67689	0.650	3.42	FALSE
-355205	NA	NA	47781	NA	29526	41694	-42561	NA	0.529	3.64	FALSE
-346227	6093	-44483	45518	86547	NA	67458	NA	-62456	0.646	3.70	FALSE
-342894	NA	-45628	50733	87442	NA	67333	2598	-67239	0.642	4.07	FALSE
-217881	NA	NA	30812	NA	12341	28238	NA	NA	0.452	4.37	FALSE
-212535	20938	NA	NA	NA	NA	41522	NA	NA	0.385	4.48	FALSE
-166057	NA	-31014	39311	43097	NA	28354	NA	NA	0.512	4.61	FALSE
-217817	20390	NA	NA	25816	NA	39136	NA	NA	0.435	5.23	FALSE
-177578	NA	-11881	40476	NA	NA	33749	NA	NA	0.434	5.26	FALSE
-205771	10863	NA	25626	NA	NA	38121	NA	NA	0.434	5.28	FALSE
-189339	NA	NA	30727	16060	NA	33669	NA	NA	0.433	5.32	FALSE
-324623	NA	NA	37099	NA	17984	47343	NA	-32839	0.498	5.35	FALSE
-243897	18715	NA	NA	NA	13724	33338	NA	NA	0.432	5.37	FALSE
-237529	NA	NA	38976	NA	NA	46871	NA	-17645	0.431	5.42	FALSE
-309209	NA	NA	36007	36142	NA	60159	NA	-41609	0.491	5.72	FALSE



-167361	NA	NA	NA	NA	NA	35890	NA	NA	0.282	5.88	TRUE
-210847	NA	NA	NA	NA	16505	26767	NA	NA	0.352	5.90	FALSE
-201139	22776	-24553	NA	49519	NA	35555	NA	NA	0.488	5.92	FALSE
-203397	NA	NA	38356	NA	NA	38739	-7059	NA	0.419	5.96	FALSE
-407864	NA	NA	49537	NA	30806	52804	-36114	-22601	0.549	6.17	FALSE
-373370	10627	NA	39246	NA	29297	45146	-42990	NA	0.547	6.30	FALSE
-174166	NA	NA	NA	27170	NA	33534	NA	NA	0.337	6.48	FALSE
-370749	NA	NA	34927	29896	15265	58263	NA	-50365	0.538	6.80	FALSE
-304219	22728	-30714	NA	75886	NA	59001	NA	-38553	0.537	6.88	FALSE
-207516	NA	-11060	36361	NA	11923	27342	NA	NA	0.469	6.89	FALSE
-233922	10160	NA	22488	NA	11956	31408	NA	NA	0.469	6.90	FALSE
-354008	NA	NA	46066	11194	27739	42246	-43448	NA	0.536	6.91	FALSE
-187677	12569	-30668	27980	46024	NA	31818	NA	NA	0.536	6.93	FALSE

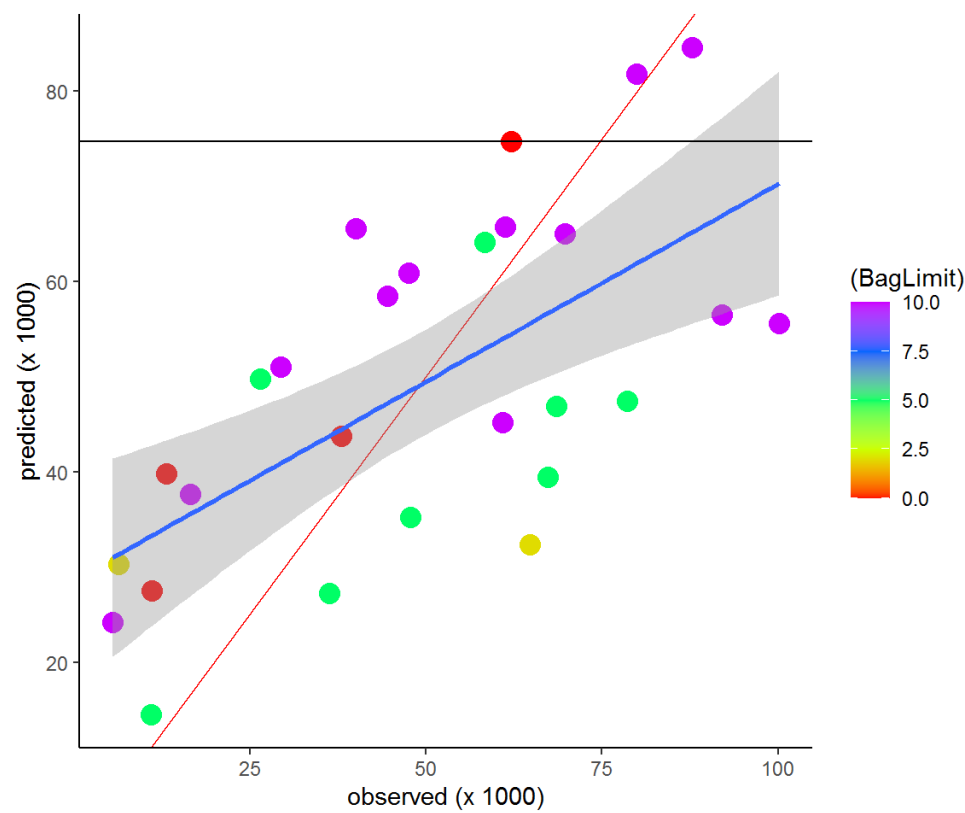
## Predicted versus observed

We present the critical statistics for the ultimately preferred model and a plot of the predicted versus the observed Victorian Game counts. In this graph the symbol colour reflects hunting bag limits for the season (not considering potential separate limitations for individual species and special restrictions during opening weekend). Red line depicts *observed=predicted*, while the blue line is the linear regression relationship with grey shading reflecting the 95% confidence interval of this line. Black horizontal line is the threshold for the dependent variable, reflecting the lower limit above which unlimited seasons were called.

```
##
##      The preferred model selected: 2
##
##
##

##
## Call:
## lm(formula = PGame ~ MDB + SEDB2 + 1, data = Jc)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -26582 -17574  -4509   14077   44604
##
## Coefficients:
##              Estimate Std. Error t value Pr(>|t|)
## (Intercept)  -187611     64364   -2.91   0.0076 **
##      MDB           34654     14821    2.34   0.0280 *
##      SEDB2        34955     10560    3.31   0.0029 **
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 22100 on 24 degrees of freedom
## Multiple R-squared:  0.415, Adjusted R-squared:  0.366
## F-statistic: 8.52 on 2 and 24 DF, p-value: 0.0016
```

```
##
## The threshold number is 74700
##
##
##
```

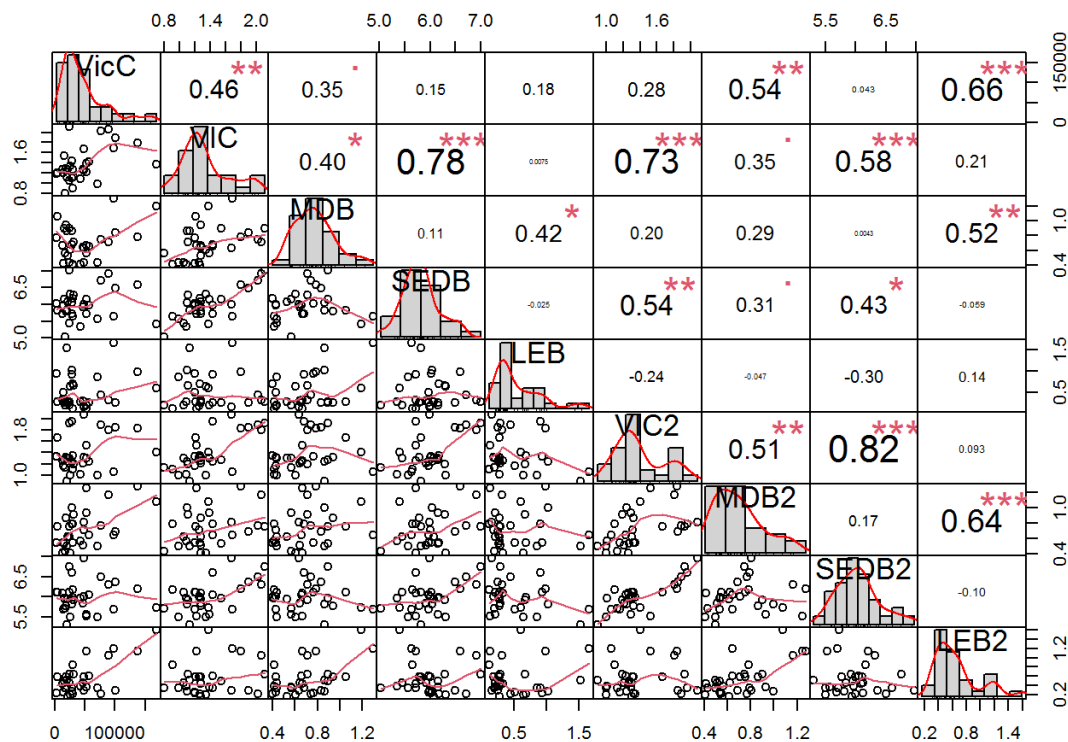


# Water surface area and Eastern Australian Waterbird Survey counts for Victoria (i.e. band 1-3)

These analyses rely on the Eastern Australian Waterbird Survey data (Kingsford, R. T., J. L. Porter, K. J. Brandis, and S. Ryall. 2020. Aerial surveys of waterbirds in Australia. Scientific Data 7:1-6. <https://www.nature.com/articles/s41597-020-0512-9>), which typically take place in October of every year. The data is split into two: bands 1-3 representing Victoria (and the SE of SA) and bands 4-6 representing NSW and southern Queensland (and the E of SA bordering NSW).

We removed the Victoria counts from 1984, which formed an outlier (>4x higher count than any of the other counts in Victoria)

## Predictive models



(Intercept)	LEB	LEB2	MDB	MDB2	SEDB	SEDB2	VIC	VIC2	adjR^2	delta	AllSignif
-42924	NA	65260	NA	NA	NA	NA	39376	NA	0.547	0.00	TRUE
54255	NA	59043	NA	NA	-21005	NA	62729	NA	0.567	1.46	FALSE
39139	NA	61185	NA	NA	NA	-15940	50835	NA	0.562	1.82	FALSE
-37050	NA	72170	-23325	NA	NA	NA	44282	NA	0.560	2.01	FALSE
207933	NA	NA	NA	96246	-54699	NA	126577	-55646	0.600	2.10	TRUE
-47253	9586	63715	NA	NA	NA	NA	39624	NA	0.557	2.19	FALSE
-46923	NA	59691	NA	13849	NA	NA	37155	NA	0.551	2.59	FALSE
-40577	NA	64953	NA	NA	NA	NA	43352	-5495	0.548	2.79	FALSE
363580	NA	NA	NA	71782	-52592	-35147	114156	NA	0.591	2.86	TRUE
173697	NA	52853	NA	NA	-24883	-19715	81213	NA	0.590	2.93	FALSE
84967	NA	66907	-31468	NA	-25930	NA	74824	NA	0.589	3.00	FALSE
-40804	17959	74397	-40616	NA	NA	NA	48383	NA	0.587	3.13	FALSE
81842	NA	44550	NA	30259	-28856	NA	66606	NA	0.584	3.38	FALSE
255008	NA	61366	-42352	NA	-32810	-26314	103678	NA	0.626	3.45	FALSE
66256	NA	69061	-29871	NA	NA	-19747	59853	NA	0.582	3.52	FALSE
95774	20299	68774	-52015	NA	-29129	NA	83225	NA	0.623	3.66	FALSE
49893	9578	57501	NA	NA	-20997	NA	62967	NA	0.577	3.86	FALSE

249106	NA	30696	NA	42273	-37049	-25801	92334	NA	0.619	4.00	FALSE
-28222	NA	70790	NA	NA	NA	NA	NA	26055	0.485	4.03	FALSE
6626	NA	73067	NA	NA	NA	NA	NA	NA	0.436	4.17	TRUE
61115	NA	58370	NA	NA	-21738	NA	69421	-8123	0.570	4.40	FALSE
248729	NA	NA	-24479	103409	-61929	NA	143726	-62154	0.614	4.40	FALSE
43449	NA	53084	NA	18935	NA	-17840	49163	NA	0.570	4.41	FALSE
148926	NA	23775	NA	66707	-41930	NA	104299	-40089	0.614	4.41	FALSE
86257	NA	59535	NA	NA	NA	-26737	44257	19820	0.569	4.46	FALSE
21393	6158	60935	NA	NA	NA	-13034	48904	NA	0.566	4.67	FALSE
-91901	NA	74303	NA	NA	16351	NA	NA	NA	0.472	4.78	FALSE
324762	NA	39820	-40979	40579	-44232	-31942	113625	NA	0.653	4.80	FALSE
-53154	11005	56159	NA	18221	NA	NA	36738	NA	0.564	4.82	FALSE
440065	NA	NA	-28576	76717	-60822	-41367	133526	NA	0.608	4.87	FALSE
-33495	NA	72049	-24372	NA	NA	NA	50078	-7707	0.562	4.97	FALSE
-40317	NA	67710	-21666	9869	NA	NA	42351	NA	0.562	4.97	FALSE
198105	7766	NA	NA	94658	-53759	NA	121870	-49961	0.606	5.04	FALSE
278034	NA	NA	NA	88198	-54233	-15034	125404	-37862	0.606	5.05	FALSE
175333	NA	NA	NA	73905	-50674	NA	88296	NA	0.512	5.20	TRUE
-43193	NA	53754	NA	26228	NA	NA	47544	-17104	0.558	5.22	FALSE
-47556	9703	63729	NA	NA	NA	NA	39204	585	0.557	5.29	FALSE
107210	NA	53341	-29003	27036	-32559	NA	77340	NA	0.601	5.39	FALSE
-41254	15495	67944	NA	NA	NA	NA	NA	30943	0.508	5.44	FALSE
-9489	NA	58811	NA	32852	NA	NA	NA	NA	0.460	5.45	FALSE
227828	15620	63960	-55891	NA	-33835	-20821	104119	NA	0.644	5.53	FALSE
126139	22923	51349	-51461	35210	-38175	NA	87588	NA	0.644	5.56	FALSE
81456	12380	39798	NA	36020	-30340	NA	67652	NA	0.599	5.57	FALSE
35671	14443	71681	-42030	NA	NA	-14477	58996	NA	0.598	5.68	FALSE
334202	8446	NA	NA	72788	-51790	-30982	110226	NA	0.597	5.73	FALSE
225619	NA	50982	NA	NA	-25251	-31214	74690	21005	0.597	5.75	FALSE
90372	NA	65848	NA	NA	NA	-24950	NA	50292	0.502	5.81	FALSE

96960	NA	66438	-33512	NA	-27318	NA	85362	-11839	0.593	6.02	FALSE
-62591	NA	74362	NA	NA	NA	11436	NA	NA	0.449	6.12	FALSE
156553	5036	52812	NA	NA	-24397	-17264	79040	NA	0.592	6.12	FALSE
160665	17529	NA	NA	75471	-49480	NA	86500	NA	0.545	6.14	FALSE
183370	NA	32017	-32943	66106	-47233	NA	119655	-43454	0.637	6.19	FALSE
-45641	18721	68107	-38973	14126	NA	NA	45792	NA	0.591	6.20	FALSE
118827	NA	67519	-30886	NA	NA	-31711	52949	21726	0.589	6.32	FALSE
317215	NA	59498	-43736	NA	-33491	-39717	96930	24091	0.635	6.34	FALSE
2901	8889	71680	NA	NA	NA	NA	NA	NA	0.444	6.36	FALSE
-42009	18472	74498	-40787	NA	NA	NA	46711	2378	0.587	6.48	FALSE
-70740	NA	71987	NA	NA	8470	NA	NA	19687	0.491	6.49	FALSE
251471	15873	NA	-38179	104171	-64054	NA	143705	-54176	0.633	6.53	FALSE
67724	NA	62218	-27798	14717	NA	-20959	57928	NA	0.586	6.58	FALSE
300648	17714	40689	-56202	44484	-46493	-26254	115083	NA	0.677	6.62	FALSE
419363	16979	NA	-42907	81215	-63337	-36112	135339	NA	0.630	6.75	FALSE
5261	NA	72174	2643	NA	NA	NA	NA	NA	0.436	6.81	FALSE
-28705	NA	67179	NA	8907	NA	NA	NA	23149	0.486	6.82	FALSE
-26194	NA	72594	-5493	NA	NA	NA	NA	26660	0.485	6.85	FALSE

## Predicted versus observed

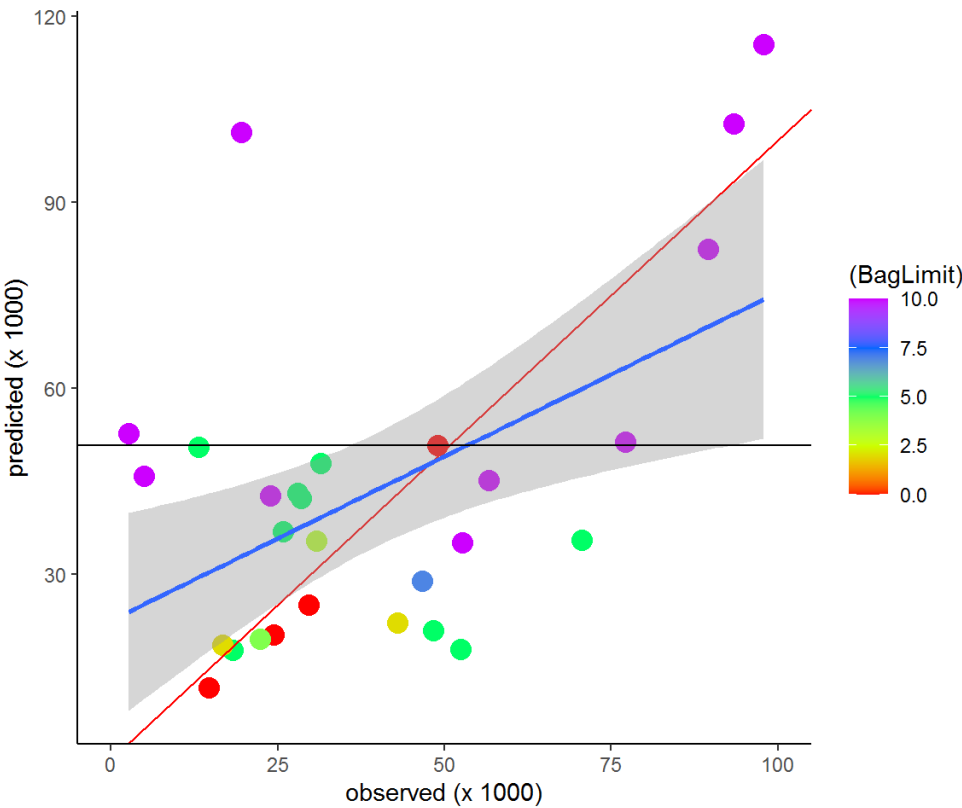
```
##
##      The preferred model selected: 1
##
##
##

##
## Call:
## lm(formula = VicC ~ LEB2 + VIC + 1, data = Jc)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -58457 -17202   3193  10108  53486
##
## Coefficients:
##              Estimate Std. Error t value Pr(>|t|)
## (Intercept)   -42924     20949   -2.05   0.050 *
## LEB2           65261     14377    4.54  9.8e-05 ***
## VIC            39376     15002    2.62   0.014 *
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
```



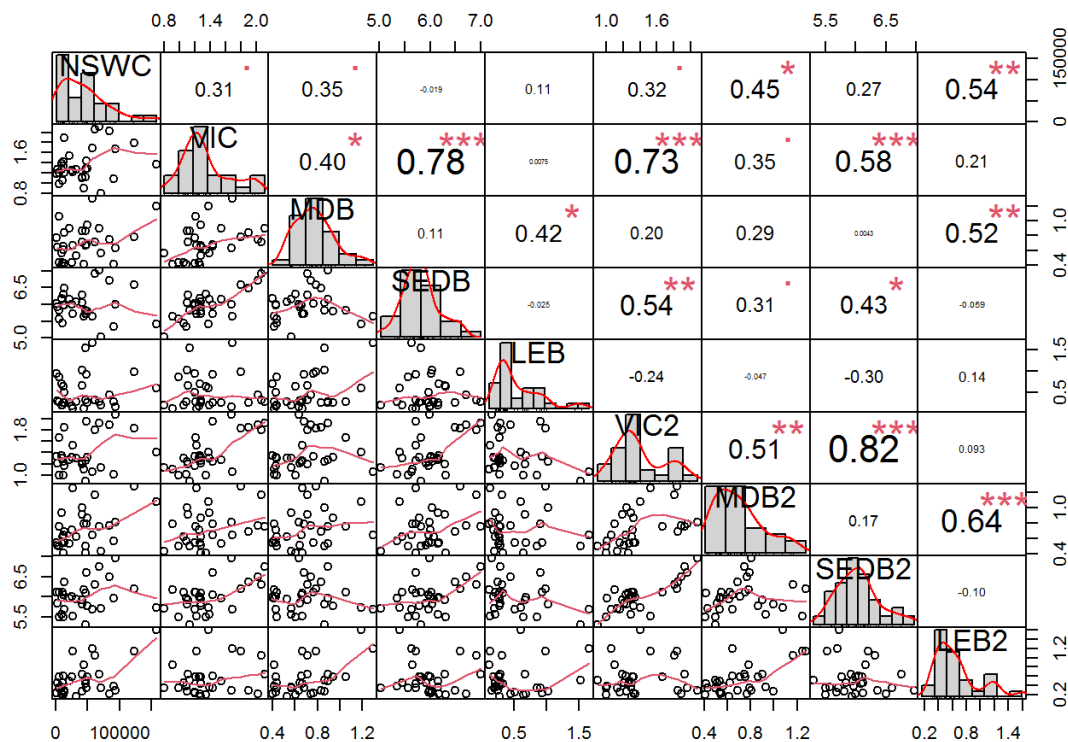
```
## Residual standard error: 27000 on 28 degrees of freedom
## Multiple R-squared:  0.547, Adjusted R-squared:  0.515
## F-statistic: 16.9 on 2 and 28 DF,  p-value: 1.51e-05
```

```
##
## The threshold number is 50800
##
##
##
```



# Water surface area and Eastern Australian Waterbird Survey counts for NSW (i.e. band 4-6)

## Predictive models



(Intercept)	LEB	LEB2	MDB	MDB2	SEDB	SEDB2	VIC	VIC2	adjR^2	delta	AllSignif
-184465	NA	61673	NA	NA	NA	32355	NA	NA	0.397	0.00	TRUE
241657	NA	NA	NA	66473	-59776	NA	81035.56	NA	0.429	1.19	TRUE
-30483	NA	55277	NA	NA	NA	NA	NA	31289.6	0.365	1.62	FALSE
-145843	NA	61434	NA	NA	-13029	38944	NA	NA	0.417	1.83	FALSE
-214684	13404	60041	NA	NA	NA	36419	NA	NA	0.416	1.90	FALSE
11367	NA	58011	NA	NA	NA	NA	NA	NA	0.291	2.38	TRUE
157617	NA	42158	NA	NA	-37949	NA	65493.70	NA	0.401	2.65	FALSE
-187914	NA	57789	11360.6	NA	NA	31955	NA	NA	0.401	2.68	FALSE
-180517	NA	57273	NA	9764	NA	30911	NA	NA	0.399	2.76	FALSE
-185904	NA	61753	NA	NA	NA	32697	NA	-473.3	0.397	2.86	FALSE
-184318	NA	61654	NA	NA	NA	32315	73.31	NA	0.397	2.86	FALSE
51919	NA	52957	NA	NA	-16415	NA	NA	43631.5	0.392	3.14	FALSE
-17956	NA	53391	NA	NA	NA	NA	23302.27	NA	0.332	3.17	FALSE
-8228	NA	50752	NA	NA	-32564	27375	39828.41	NA	0.447	3.31	FALSE
200853	NA	19444	NA	47423	-50254	NA	71568.95	NA	0.443	3.50	FALSE
-175180	15332	59535	NA	NA	-14792	44485	NA	NA	0.441	3.65	FALSE
233400	9867	NA	NA	67354	-59104	NA	80025.07	NA	0.440	3.69	FALSE

174689	NA	NA	NA	67228	-59094	12503	71835.96	NA	0.439	3.71	FALSE
-39545	10776	53298	NA	NA	NA	NA	NA	34689.0	0.377	3.88	FALSE
-2965	NA	45332	NA	29217	NA	NA	NA	NA	0.311	4.13	FALSE
246889	NA	NA	NA	70058	-60422	NA	87179.80	-8931.4	0.431	4.16	FALSE
236453	NA	NA	3444.3	65832	-58825	NA	79252.47	NA	0.429	4.27	FALSE
-124740	NA	50493	NA	24120	-16858	37315	NA	NA	0.428	4.35	FALSE
-32774	NA	53240	6204.1	NA	NA	NA	NA	30606.5	0.366	4.43	FALSE
30444	NA	NA	NA	94909	-61860	46418	90801.67	-63842.1	0.485	4.44	FALSE
-30225	NA	57203	NA	-4752	NA	NA	NA	32840.0	0.365	4.46	FALSE
-30883	NA	55088	NA	NA	NA	NA	1404.76	30267.2	0.365	4.47	FALSE
135694	NA	44306	NA	NA	-35607	NA	44107.01	25962.2	0.425	4.49	FALSE
-147219	NA	56016	15783.7	NA	-14181	38971	NA	NA	0.424	4.58	FALSE
3338	NA	52758	15544.1	NA	NA	NA	NA	NA	0.298	4.74	FALSE
-100236	NA	59216	NA	NA	-15213	30741	NA	12865.6	0.420	4.76	FALSE
-210814	13955	54276	NA	12642	NA	34717	NA	NA	0.419	4.82	FALSE
-224725	14021	61086	NA	NA	NA	38934	-4322.63	NA	0.416	4.96	FALSE
9955	3370	57485	NA	NA	NA	NA	NA	NA	0.292	4.98	FALSE
-213270	13412	59960	NA	NA	NA	36081	NA	470.2	0.416	5.00	FALSE
-214776	13502	60173	-420.8	NA	NA	36464	NA	NA	0.416	5.00	FALSE
5020	NA	58091	NA	NA	1053	NA	NA	NA	0.291	5.03	FALSE
51289	13574	50160	NA	NA	-18563	NA	NA	49529.3	0.410	5.27	FALSE
58074	NA	31270	NA	37168	-43260	22024	49606.44	NA	0.471	5.31	FALSE
167649	NA	44726	-10278.6	NA	-39558	NA	69444.17	NA	0.404	5.62	FALSE
-183757	NA	52614	12155.8	10880	NA	30319	NA	NA	0.403	5.65	FALSE
155901	3767	41551	NA	NA	-37946	NA	65587.37	NA	0.403	5.67	FALSE
-23398	NA	45813	NA	18845	NA	NA	20280.08	NA	0.340	5.67	FALSE
119659	15820	NA	NA	69113	-57591	20306	64474.65	NA	0.464	5.71	FALSE
-196504	NA	58115	13423.1	NA	NA	34025	-3979.40	NA	0.401	5.75	FALSE
-198997	NA	58135	12115.1	NA	NA	34510	NA	-3568.6	0.401	5.77	FALSE
-210180	NA	56010	NA	16569	NA	37615	NA	-10656.9	0.401	5.78	FALSE

253357	NA	NA	NA	NA	-56657	NA	94196.68	NA	0.274	5.79	TRUE
-51054	12580	50649	NA	NA	-31348	33498	34400.57	NA	0.462	5.81	FALSE
-182061	NA	57412	NA	9917	NA	31320	-802.03	NA	0.399	5.85	FALSE
-9058	NA	NA	NA	71613	NA	NA	NA	NA	0.206	5.90	TRUE
-19663	3781	52782	NA	NA	NA	NA	23399.90	NA	0.334	5.96	FALSE
-185932	NA	61711	NA	NA	NA	32685	298.64	-678.9	0.397	5.96	FALSE
-18496	NA	52756	2143.5	NA	NA	NA	22851.42	NA	0.332	6.03	FALSE
-152524	17303	45589	NA	30206	-19814	43157	NA	NA	0.457	6.08	FALSE
50464	NA	50031	8759.1	NA	-16769	NA	NA	42933.6	0.394	6.14	FALSE
52925	NA	51663	NA	3111	-16649	NA	NA	42792.3	0.392	6.24	FALSE
-28301	NA	NA	38679.3	60792	NA	NA	NA	NA	0.257	6.50	FALSE
200612	7736	16474	NA	51023	-51182	NA	72222.52	NA	0.450	6.50	FALSE
-12343	NA	39078	17160.2	30265	NA	NA	NA	NA	0.319	6.63	FALSE
-10371	NA	50527	1116.0	NA	-32355	27549	39236.49	NA	0.447	6.68	FALSE
-6126	NA	50676	NA	NA	-32579	26909	39564.30	850.4	0.447	6.68	FALSE
-119377	15945	56688	NA	NA	-17592	34458	NA	16072.8	0.446	6.74	FALSE
-47419	NA	NA	NA	78087	-25777	31366	NA	NA	0.315	6.81	FALSE
206114	NA	21267	-6015.1	46755	-51022	NA	73795.16	NA	0.444	6.82	FALSE
-6535	5906	43442	NA	31449	NA	NA	NA	NA	0.315	6.82	FALSE
191254	NA	22416	NA	42208	-48383	NA	66175.40	5736.4	0.444	6.83	FALSE
26529	NA	42384	NA	35076	-5372	NA	NA	NA	0.315	6.84	FALSE
142700	NA	NA	11951.7	65164	-55652	15105	63734.70	NA	0.443	6.90	FALSE
-38659	12072	54817	-5352.3	NA	NA	NA	NA	35687.3	0.378	6.95	FALSE
-38995	11280	53665	NA	NA	NA	NA	-3417.77	37335.7	0.378	6.96	FALSE
-39294	10729	54894	NA	-3917	NA	NA	NA	35952.5	0.377	6.97	FALSE
244801	11895	NA	-8669.4	69147	-61360	NA	84305.42	NA	0.441	6.97	FALSE
-72161	NA	NA	42601.0	66364	-26900	33056	NA	NA	0.377	6.99	FALSE

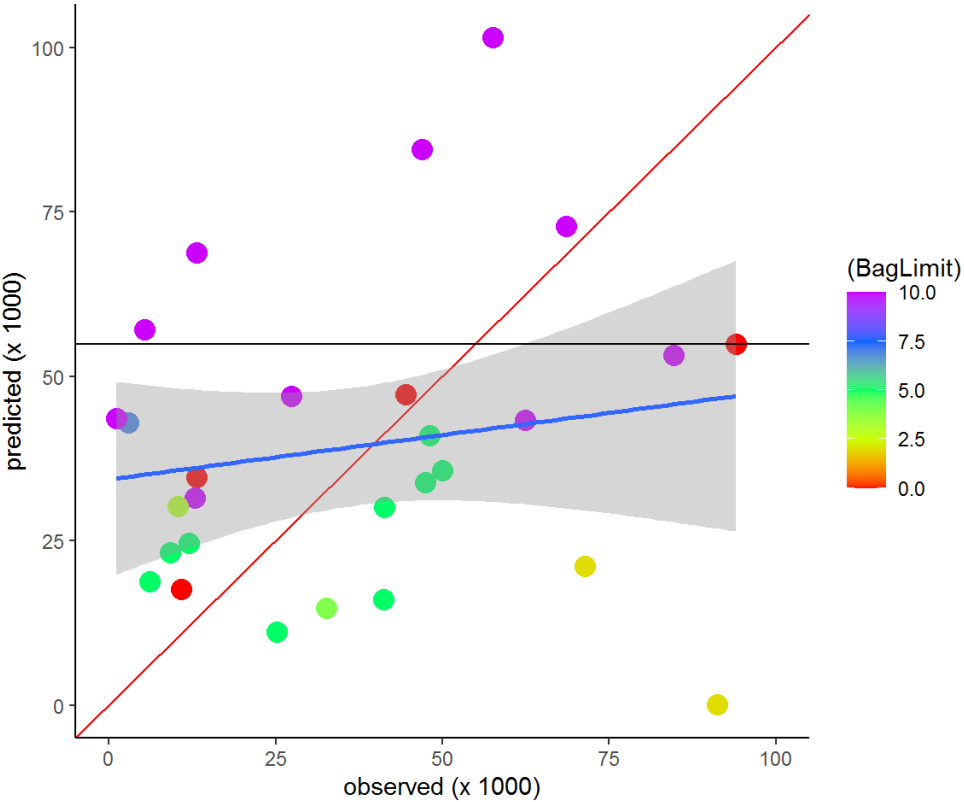
## Predicted versus observed

```
##
##   The preferred model selected: 2
##
##
```

```
##

## Call:
## lm(formula = NSWC ~ MDB2 + SEDB + VIC + 1, data = Jc)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -54554 -21264  -4489   23228   56460
##
## Coefficients:
##              Estimate Std. Error t value Pr(>|t|)
## (Intercept)   241657     92103    2.62  0.0141 *
##      MDB2       66473     24530    2.71  0.0116 *
##      SEDB      -59776     19606   -3.05  0.0051 **
##      VIC        81036     26655    3.04  0.0052 **
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 30000 on 27 degrees of freedom
## Multiple R-squared:  0.429, Adjusted R-squared:  0.365
## F-statistic: 6.76 on 3 and 27 DF, p-value: 0.00151

##
## The threshold number is 54900
##
##
##
```



From predictive models to duck population indices

Summary of predictive models



The following preferred models were selected (with R squared in brackets):

**PGame ~ SEDB2 + MDB + 1 (0.415)**

**VicC ~ LEB2 + VIC + 1 (0.547)**

**NSWC ~ MDB2 + VIC +SEDB + 1 (0.429)**

## Calculation of the indices

Using the preferred predictive models as well as the two aerial duck counts themselves, we calculate indices that broadly inform on the current population status of ducks in SE Australia and Victoria in particular.

Threshold values for game counts in Victoria and aerial surveys for Victoria and NSW were selected above which no years ever had hunting restrictions imposed (and, conversely, below which some years, but not all, had bag limits imposed; see figures in sections 3, 4 and 5).

The five duck population indices are:

**iPGame:** index of game counts limited to 37 priority wetlands using the predictive model from section 3 divided by the game count threshold of 74700

**iVicC:** index of aerial survey for Victoria using the predictive model from section 4 divided by the threshold for these counts of 50800

**iNSWC:** index of aerial survey for NSW using the predictive model from section 5 divided by the threshold for these counts of 54900

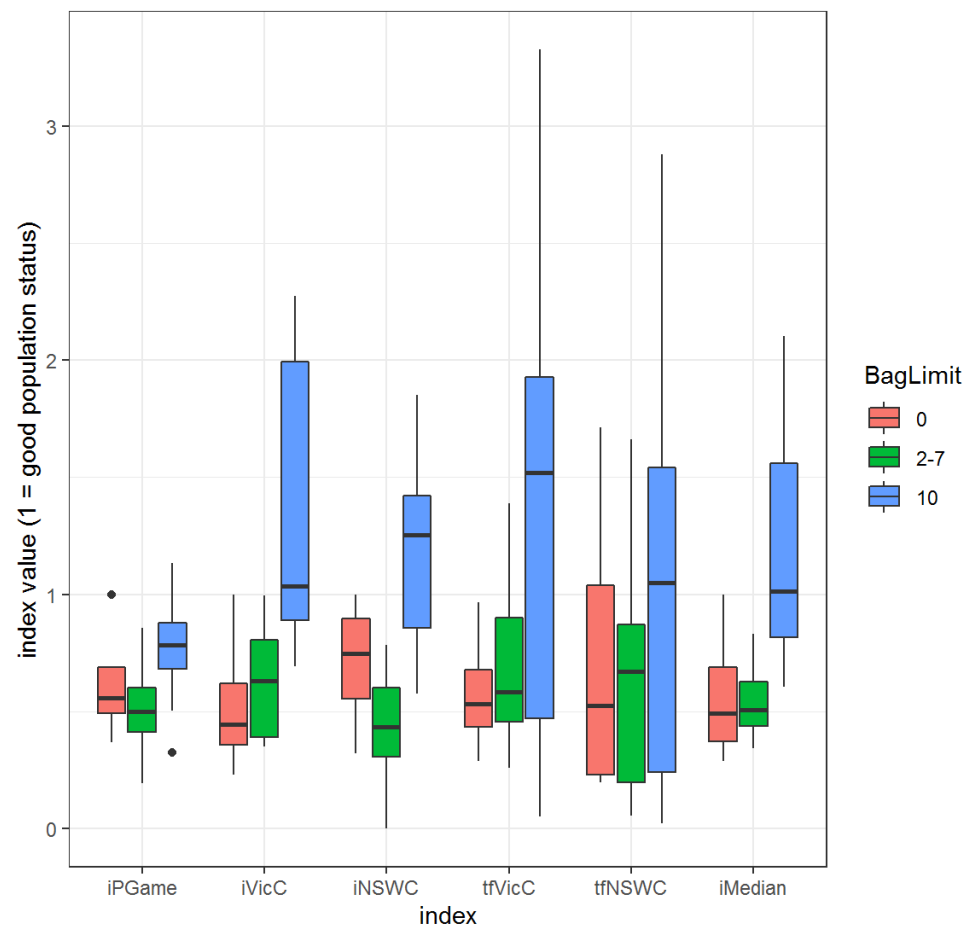
**tfVicC:** index of aerial survey for Victoria using actual counts divided by the threshold for these counts of 50800

**tfNSWC:** index of aerial survey for NSW using actual counts divided by the threshold for these counts of 54900

Index values higher than 1 indicate a good to excellent population status of ducks, while values lower than 1 indicate a poor to good population status.

## Past performance of the indices

Below boxplots (depicting minimum, 25 percentile, median, 75 percentile and maximum) are presented for the five duck-population indices, as well as their median for unrestricted hunting seasons (bag limit = 10, blue) cancelled hunting season (bag limit = 0, red) and hunting seasons with restrictions (bag limit = 2-7, green).



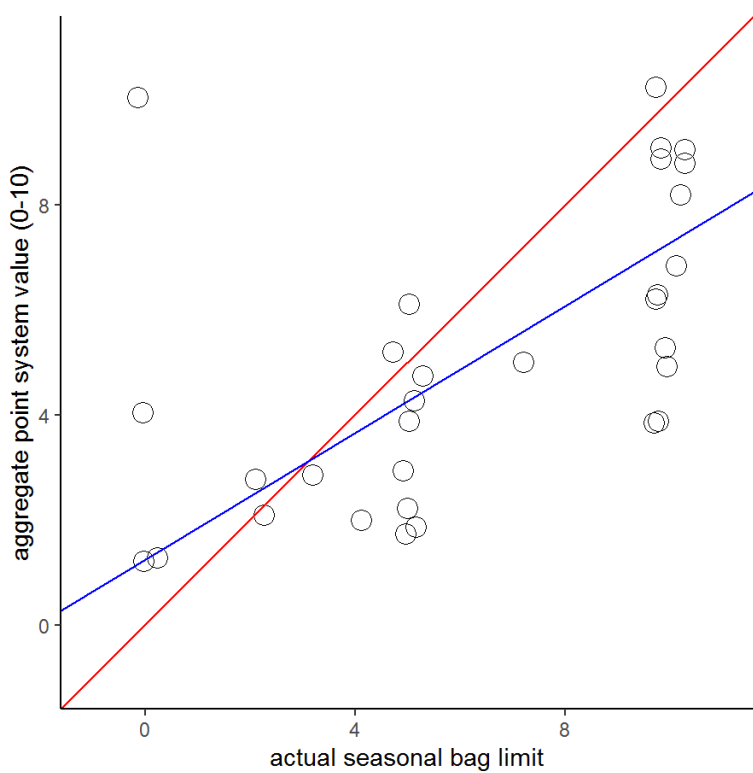
In the table below the five predicted duck population indices for the years 1991-2021 where years are ranked from most (BagLimit = 0) to least (BagLimit = 10) restricted hunting seasons (values are not considering opening weekend and species-specific regulations). The index values are colour coded with dark colours indicating good and light colours indicating poor population status. White indices relate to proxies from Victoria whereas yellow indices relate to proxies from NSW. In the final column an overall duck-population-valuation is presented using an aggregated point system (*aPS*) based on all duck population indices in each year. For more detail on the calculation of *aPS* see section 7.

Year	BagLimit	using water surface			using aerial counts		aPS
		iPGame	iVicC	iNSWC	tfVicC	tfNSWC	
2008	0	0.37	0.23	0.63	0.29	0.24	1
2007	0	0.53	0.40	0.32	0.48	0.20	1
2003	0	0.59	0.49	0.86	0.58	0.81	4
1995	0	1.00	1.00	1.00	0.96	1.71	10
2009	2	0.41	0.37	0.39	0.33	1.30	2
2004	2	0.43	0.44	0.00	0.84	1.66	3
2020	3	0.48	0.70	0.55	0.61	0.19	3
2016	4	0.52	0.39	0.27	0.44	0.59	2
2005	5	0.35	0.73	0.45	0.51	0.22	2
2015	5	0.36	0.35	0.42	1.03	0.17	2
2019	5	0.47	0.41	0.20	0.95	0.46	2
2010	5	0.19	0.70	0.34	1.39	0.11	3
2000	5	0.63	0.35	0.65	0.36	0.91	4
2001	5	0.63	0.85	0.29	0.55	0.75	4
2021	5	0.67	0.99	0.62	0.26	0.86	5
1998	5	0.86	0.83	0.75	0.56	0.87	5
2002	5	0.53	0.94	0.55	0.62	0.75	6
2006	7	0.52	0.57	0.78	0.92	0.05	5
2014	10	0.32	0.69	0.86	1.04	0.50	4
2017	10	0.74	1.04	0.79	0.05	0.02	4

2018	10	0.60	0.89	0.57	1.11	0.24	5
1999	10	0.87	0.90	1.04	0.10	0.10	5
2011	10	0.50	1.99	1.54	0.38	0.85	6
1997	10	0.81	0.72	1.25	1.99	0.24	6
1994	10	1.10	0.84	1.33	0.47	1.25	7
1993	10	0.88	1.62	0.79	1.76	1.14	8
2013	10	0.68	1.56	1.49	3.33	2.88	9
1992	10	0.76	2.10	1.32	2.72	2.24	9
2012	10	0.78	2.27	1.85	1.93	1.05	9
1996	10	0.88	1.01	0.97	1.52	1.54	9
1991	10	1.13	2.02	1.42	1.84	2.60	10

Actual versus proposed bag limits as calculated from the five duck population indices for the years 1991-2020. Red line depicts *actual=proposed*, while the blue line is the major axis relationship. A small amount of random variation has been added to otherwise overlapping data points to improve data presentation.

The average actual bag limit over the years was 6.2258 and the average aPS was 5. Conveniently, the aggregated point system does not deviate much from the actual bag limits between 1991 and 2021, with generally good agreement between actual bag limits and aggregated point system over this period (see Figure below).



## Proposed hunting arrangement for 2022

Although some indices are less prone to error than others, collective use of these indices should adequately address the four key elements that should form part of a decision model. We thus propose to include all five indices in a highly straightforward and transparent manner in guiding decision-making for annual hunting arrangement of which seasonal bag limits form an important part. We propose to do this using an aggregate point system (*aPS*). In this system, each index with a value between 0.5 and 0.9 attracts 1 point and a value over 0.9 attracts 2 points. Given 5 indices, the maximum number of points amounts to 10, when all indices are >0.9. This aggregate point system thus provides a valuation of the overall population status of game ducks in Victoria on a scale from 0-10.

For 2022 the five indices have the following values:

- Using water surface area, the Vic priority game count prediction is: 49580, resulting in an iPGame of: “, 0.66, worth 1 aPS points.
- Using water surface area, the Vic aerial game count prediction is: 50516, resulting in an iVicC of: 0.99, worth 2 aPS points.

- Using water surface area, the NSW aerial game count prediction is: 33887, resulting in an iNSWC of: 0.62, worth 1 aPS points.
- Aerial game counts Vic amounted to: 15720 , and the concomitant tfVicC is: 0.31, worth 0 aPS points.
- Aerial game counts NSW amounted to: 21383 , and the concomitant tfNSWC is: 0.39, worth 0 aPS points.

**Finally, using these five indices in the aggregated Point System calculation results in an aPS of: 4, or a daily bag limit of four ducks per day.**

## Summary: stakeholder views on 2022 duck season arrangements

Organisation	Recommendation	Comments	Support model output?
<b>Solicited submissions/comments</b>			
Coalition Against Duck Shooting (CADS)	<b>Cancel</b> the 2022 duck season	<p>CADS recommends a cancelled season for 2022, citing climate change, low waterbird numbers and duck welfare concerns.</p> <p>CADS claims that the GMA and ARI <i>are both failing Australia's waterbirds</i>, and contends that the <i>GMA has effectively sidelined the government's own experts on environmental conditions including climate change impacts and Australia's leading scientist on waterbirds and wetlands</i>.</p> <p>CADS claims that the RSPCA has been removed as the regulator to investigate and prosecute duck hunters.</p> <p>CADS referenced the listing of Blue-winged Shoveler and Hardhead as vulnerable under recent changes to the Flora and Fauna Guarantee Act Threatened List and queried why these two species still remain on the Game list. In addition, CADS recommends that native duck species that are protected in NSW and Queensland which fly into Victoria must also be protected.</p> <p>No additional data or evidence was provided.</p>	N/A
Animals Australia (AA)	<p><b>Cancel</b> the 2022 duck season.</p> <p>Should a season go ahead, AA recommends that wetlands are closed where breeding is observed</p>	<p>AA recommends that the 2022 duck season be cancelled, basing its position on environmental grounds, declining waterbird population estimates and animal welfare concerns.</p> <p>AA highlights concerns regarding the following claims:</p> <ul style="list-style-type: none"> <li>- the GMA's process for making recommendations to Ministers about the 2021 duck season, and claims that the <i>GMA continues to avoid consideration of the clear reality of global warming which affects rainfall, temperature, evaporation and waterbird habitat and the reality of changes in land use</i> as a key factor in driving long-term decline in duck species.</li> <li>- that the GMA undertook a highly subjective 'risk analysis' in order to influence the Board's decision about the 2021 duck season</li> <li>- that the GMA omits relevant data on game duck species breeding from its considerations document on an annual basis.</li> <li>- the results of helicopter survey, in that the GMA has chosen to selectively quote sections of the Kingsford-Prowse review which AA claims misrepresents what the reviewers actually found. AA also claims that the bag limit was also doubled for the 2021 season and that the trial helicopter should never have been used for season bag limit settings</li> <li>- that the Kingsford Klassen model has potential value as a broad 'traffic light system' to guide season decision-making, but takes issue with the model's rationale and claims that it emulates old decision-making patterns rather than attempting to reverse long-term declines in ducks</li> </ul>	Support in part

Organisation	Recommendation	Comments	Support model output?
		<ul style="list-style-type: none"> <li>- that the GMA Board's briefing to the Minister referenced the social and health benefits for hunters, while omitting the negative economic, social and health impacts of the majority of regional resident who do not hunt ducks.</li> </ul> <p>AA also took issue with hunter knowledge and skills and queried the legal basis on which duck shooting is permitted in areas other than the 200 State Game Reserves and additional 41 wetlands prescribed in the Wildlife (Game) Regulations 2012.</p> <p>No additional data and evidence was provided other than an anecdote from an unnamed source.</p>	
Field and Game Australia (FGA)	Not clearly specified. <b>Assume support a full season</b>	<p>FGA has not specified any variation to the 2022 duck season. It considers the timeline in which to provide input to the decision-making process is inadequate.</p> <p>FGA provided feedback on the Interim Harvest Management Model. In summary, FGA supports the model in principle rather than relying on a subjective decision-making process, and notes that:</p> <ul style="list-style-type: none"> <li>- the five indices in the model are considered appropriate</li> <li>- the importance of building helicopter surveys into the modelling and that there is less weighting applied to the Eastern Australia Waterbird Survey</li> <li>- the transition of data from each of the five indices to setting proposed season lengths and bag limits needs to be simply and clearly articulated in messaging to game licence holders.</li> </ul> <p>FGA comments that authorities have a role to play in allaying hunters' concerns that a ten bird bag limit and full length season will ever be achieved, or that authorities need to demonstrate transparently the justification for introducing a model that ultimately reduces the seasonal harvest.</p>	Support
RSPCA	<b>Cancel</b> the 2022 duck season	<p>RSPCA recommends cancelling the 2022 duck season, citing the long-term decline of game duck species abundance, animal welfare concerns and the unlikelihood of predicted rainfall relieving long-term rainfall deficits and poor habitat conditions in order to support sustainable hunting.</p> <p>RSPCA highlights its concern that there is no information on the wounding rate of ducks during the Victorian duck hunting season and believes that improved education, monitoring wounding rates and implementing a number of interventions to reduce the wounding rate are vitally important, should a season be declared.</p>	N/A
Regional Victorian Opposed to Duck Shooting (RVOTDS)	<b>Cancel</b> the 2022 duck season	<p>RVOTDS recommends the 2022 season be cancelled due to low estimates of waterfowl populations, declining environmental conditions and concerns about duck welfare.</p> <p>RVOTDS were critical of the GMA's decision-making process, claiming that the GMA does not exercise its obligations under sections 6 and 8 of the GMA Act. It contends that the GMA does not take into account the best available evidence of environmental factors and socio-economic impacts of duck hunting on Victorian communities and that there is a lack of cost-benefit analysis</p>	N/A



Organisation	Recommendation	Comments	Support model output?
		<p>or socio-economic impact studies on the wider community. RVOTDS also claims the GMA does not take into regard the issue of lead <i>still being used legally in quail shooting and illegally in duck shooting</i>.</p> <p>RVOTDS provided attachments to their submission regarding a 2021 Mount Alexander Shire community petition, an extract from a 2018 survey that was undertaken of which submissions were received from people living and working in areas where duck hunting occurs, and an anecdote from an unnamed person concerning their home and business being negatively impacted by duck hunting.</p>	
Sporting Shooters Association of Australia (Vic)	No submission/comments provided	N/A	
Shooting Sports Council of Victoria	No submission/comments provided	N/A	
Victorian Duck Hunters Association	No submission/comments provided	N/A	
BirdLife Australia	No submission/comments provided	N/A	
Unsolicited Submissions/Comments			
Honker Hunters (HH)	<p><b>Season length</b> Full length (12 weeks)</p> <p><b>Bag limit</b> Opening weekend – five (5) birds per day</p> <p>Remainder of the season - Ten (10) birds per day, including a maximum of two (2) Blue-winged Shoveler</p>	<p>HH has recommended a full 2022 duck season, citing favourable weather conditions and an abundance of waterfowl on private properties that include dams, farmland rivers and creeks across parts of Victoria.</p> <p>HH have recommended an additional two birds per day, in addition to the ten-bird bag limit. HH claims that the Wood Duck and Mountain Duck species have negatively impacted on crops.</p>	N/A

Organisation	Recommendation	Comments	Support model output?
	<p>Two additional birds per day, being either Mountain and/or Wood Duck</p> <p><b>Other</b> Start time – 8.00am for the whole season</p>		
Duck and Quail Hunting Australia (DQHA)	<p><b>Season length</b> Full length</p> <p><b>Bag limit</b> Ten (10) birds per day, including an additional two (2) Blue-winged Shoveler</p>	DQHA has recommended a full 2022 duck season. Its recommendation includes an additional two (2) Blue-winged Shoveler to the ten-bird daily bag limit as it claims that population of Blue-winged Shoveler has increased over the last five years, however DQHA has not provided any additional evidence to substantiate this claim.	N/A
Geelong Duck Rescue (GDR)	<b>Cancel</b> the 2022 Duck Season	<p>GDR recommends cancelling the 2022 duck season.</p> <p>GDR outlines the following issues which it believes justifies a season cancellation:</p> <ul style="list-style-type: none"> <li>- declining waterbird populations</li> <li>- questions the accuracy of data in relation to the helicopter and ground count surveys</li> <li>- climate change and poor environmental conditions</li> <li>- enforcement considerations, in relation to inadequate staffing and training in order to police a significant number of wetlands across Victoria</li> <li>- GMA bias and a perceived conflict of interest in regulating game hunting.</li> </ul> <p>While GDR supports a season cancellation, it provides recommendations should the season be declared. These include:</p> <ul style="list-style-type: none"> <li>- a significantly reduced season length</li> <li>- Blue-winged Shoveler remaining a prohibited species and the Pink-eared Duck being added to the prohibited species list due to low numbers</li> <li>- each game species to be given a significantly reduced bag limit as well as having a reduced daily bag limit overall</li> <li>- closure of any designated hunting area within two kilometres of a major community facility, such as shopping centres, schools, sporting grounds and community halls for the duration of the season (eg. Connewarre State Game Reserve in Geelong)</li> <li>- erection of adequate warning signs at all locations where hunting is permitted.</li> </ul>	N/A



## **Stakeholder Submissions/Comments (solicited) – 2022 Duck Season arrangements**

- 1. RSPCA**
- 2. Field and Game Australia**
- 3. Coalition Against Duck Shooting**
  - a. Attachment A – Pegasus Report and Assessment of GMA Compliance and Enforcement function
- 4. Animals Australia**
- 5. Regional Victorians Opposed to Duck Shooting**
  - a. Attachment A – Regional Comments – GMA Stakeholders
  - b. Attachment B – MAS Petition – I want the area to be a sanctuary
  - c. Attachment C – Home and business under siege

# Duck hunting season 2022

RSPCA Victoria submission

06.01.2022





## About RSPCA Victoria

RSPCA Victoria is a non-government, community-based charity that works to prevent cruelty to animals by actively promoting their care and protection. Since its establishment in 1871, and as member of RSPCA Australia (the federation of eight state and territory organisations in Australia), the RSPCA has collectively become Australia's leading animal welfare charity.

Across the state, RSPCA Victoria's community services include work undertaken by our Inspectorate, Animal Care Centres, Veterinary Clinics and Education teams. RSPCA Victoria operates Animal Care Centres across Victoria, providing refuge, care and new homes where possible to more than 20,000 animals every year. Our team of Inspectors works to protect animals from cruelty, receiving more than 10,000 reports every year, prosecuting offenders and rescuing animals from dangerous situations. Our Education team contributes to prevention strategies by influencing over 9000 young people each year about the value and importance of animals in our lives.

RSPCA Victoria provides the community with education and support regarding animal welfare and works with government and industry to ensure the standard of animal welfare and care continues to improve.

RSPCA policies are a collection of statements developed to improve the welfare of animals in Australia. These policies are underpinned by scientific evidence and must be agreed upon and amended by a unanimous vote from the RSPCA National Board, following a robust consultation process with each state and territory RSPCA.

# Contents

RSPCA VICTORIA RECOMMENDATIONS	3
INTRODUCTION	3
<b>NATIONAL RSPCA POLICY</b>	<b>3</b>
DUCK WELFARE	4
<b>WOUNDING</b>	<b>4</b>
<b>DISTURBANCE FROM HUNTERS</b>	<b>6</b>
CLIMATE OUTLOOK	7
GAME BIRD ABUNDANCE	8
VICTORIANS' ATTITUDES TOWARDS DUCKS	11

# RSPCA Victoria recommendations:

1. RSPCA Victoria strongly recommends cancelling the 2022 duck hunting season due to the inevitable suffering of native ducks.
2. Acknowledging that duck hunting is currently lawful, if it is to continue, RSPCA Victoria has the following recommendations to reduce the negative welfare impacts for ducks and off-target species:
  - Monitor the wounding rates of ducks in Victoria.
  - Improve hunter education on issues such as humanely dispatching downed ducks.
  - Implement interventions to reduce the wounding rate:
    - a. Regulate a maximum shooting distance.
    - b. Make the Shotgunning Education Program mandatory.
    - c. Introduce an annual and mandatory Waterfowl Identification Test.
3. Due to the inevitable welfare impacts caused by hunter disturbance of native waterbirds, it is strongly recommended that the 2022 duck hunting season is cancelled.
4. As climate outlook data and predicted rainfall are very unlikely to relieve long-term deficits and subsequent habitat conditions, the 2022 duck hunting season should be cancelled.
5. As long-term declines in game bird species abundance have not recovered with increased habitat, it is recommended that the 2022 duck hunting season should be cancelled.
6. Due to community concern for the welfare of native ducks and Victorians indicating they would avoid holiday locations where duck hunting occurs, a 2022 duck hunting season would not be consistent with community attitudes and therefore should be cancelled.

## Introduction

RSPCA Victoria appreciates the opportunity to provide a submission to the Game Management Authority (GMA) regarding our suggestions for modifications to the 2022 duck hunting season. In this submission we will outline the reasons we believe the 2022 season should be cancelled.

### National RSPCA policy

*RSPCA Australia is opposed to the hunting of any animal for sport as it causes unnecessary injury, pain, suffering, distress or death to the animals involved.*

*RSPCA Australia is opposed to open seasons on duck, quail, deer and other 'game' species, and to the breeding and release of animals into 'game parks' for the purpose of hunting for sport.*

# Duck welfare

## Wounding

RSPCA Victoria has long expressed concern that there is no information on the wounding rate of ducks during the Victorian hunting season. It is indisputable that duck hunting using a shotgun results in a substantial number of ducks being wounded, with some individuals surviving, while others will suffer before eventually dying. Some surveys of waterbird wounding losses have been undertaken in Australia; however, these studies were conducted from the 1950s to the 1980s and no recent studies have been performed. Until evidence to the contrary is provided, based on the Australian studies, approximately 12% of birds will be wounded and survive, and approximately 14% will be maimed or crippled, but this rate could be as high as 33%.<sup>1</sup> Therefore, approximately 26% to 45% of birds shot will be wounded, maimed or crippled. This wounding rate is unacceptably high and whilst duck hunting remains lawful, must be reduced as a matter of urgency. The likely outcome for wounded, maimed or crippled birds is a slow and painful death.

Using the wounding rates of 26% to 45% and comparing this to the reported total harvest figure of 238,666 ducks from the 2019 season (as the 2020 and 2021 seasons were impacted by COVID-19), this would mean that between 62,053 and 107,400 ducks were wounded and not killed outright in the 2019 season. Although the 2021 duck season was severely limited, using the same wounding rates and comparing this to the reported total harvest figure of 52,500 ducks from the 2021 season, this would mean that between 13,650 to 23,625 ducks were wounded and not killed outright. These are unacceptably high numbers of wounded and suffering native ducks, and along with the fear and distress experienced as part of the hunting process, these are the main factors underpinning our strong recommendation for the 2022 Victorian duck hunting season to be cancelled.

Gunshot wounding reduction can be achieved as evidenced in a study that compared crippling rates in pink-footed geese in Denmark.<sup>2</sup> The study found a declining trend from 36% to 20% of crippled birds, which was a successful decrease of 44% in crippling rates. This result was due to the initiation of a comprehensive interventions program including wounding awareness campaigns, hunter training in distance assessment, training under realistic conditions, stricter requirements for the hunting test and adjustment of hunting techniques to promote shooting at shorter distances, resulting in safer and more accurate shots and therefore better chances of shooting birds without wounding.<sup>3</sup>

---

<sup>1</sup> F.I. Norman & D.G.M. Powell, 'Rates of recovery of bands, harvest patterns and estimates for black duck, chestnut teal, grey teal and mountain duck shot during Victorian open seasons, 1953-77', *Australian Wildlife Research*, 8 (1981), 659-664.

<sup>2</sup> K. Clausen et al., 'Crippling ration: A novel approach to assess hunting-induced wounding of wild animals', *Ecological Indicators*, 80 (2017), 242-246.

<sup>3</sup> J. Madsen & L. Haugaard, 'Shooting of the short-billed goose - update 2016 Memorandum', *Danish Centre for Environment and Energy - Department of Bioscience*, (9 May 2016).



While the GMA initiated the Wounding Reduction Working Group in 2021 to devise practical solutions to address wounding, it will be necessary to monitor wounding rates of ducks to evaluate any interventions. However, as Victoria has not implemented any interventions to reduce wounding rates ahead of the 2022 duck hunting season, the wounding rate of ducks is likely to remain very high. Therefore, if the Victorian duck hunting season proceeds without any mitigations in place to decrease preventable wounding, it is likely a high wounding rate of between 26% to 45% will continue.

To assist in reducing the negative welfare impacts for ducks and off-target species, RSPCA Victoria believes that improving hunter education is of vital importance. The RSPCA is opposed to the unnecessary injury, pain, suffering, distress and death experienced by ducks during hunting. Whilst hunting is still lawful, it is critical to increase hunters' knowledge, particularly on how to humanely dispatch downed ducks, of which only 13% of hunters know how to correctly perform this important skill.<sup>4</sup> Regulation of the maximum shooting distance, as shooting at shorter distances increases chances of shooting birds without wounding, is another intervention that should be put in place to reduce wounding. We continue to have concerns that the Shotgun Education Program (SEP) is voluntary and that there is a cost to participate, which can be a barrier for some hunters. In addition, we are equally concerned that the Waterfowl Identification Test (WIT) only needs to be taken as a once off. While duck hunting continues to be legal in Victoria, at a minimum the SEP should be made mandatory and regular WITs should be undertaken to reduce the risk of shooters killing incorrect species including those that are vulnerable.

### RSPCA Victoria recommendations:

1. RSPCA Victoria strongly recommends cancelling the 2022 duck hunting season due to the inevitable suffering of native ducks.
2. Acknowledging that duck hunting is currently lawful, if it is to continue, RSPCA Victoria makes the following recommendations to reduce the negative welfare impacts for ducks and off-target species:
  - Monitor the wounding rates of ducks in Victoria.
  - Improve hunter education on issues such as humanely dispatching downed ducks.
  - Implement interventions to reduce the wounding rate:
    - a. Regulate a maximum shooting distance.
    - b. Make the Shotgun Education Program mandatory.
    - c. Introduce an annual and mandatory Waterfowl Identification Test.

<sup>4</sup> Game Management Authority, 'Summary report of hunters' knowledge survey findings December 2020', *Game Management Authority, Victoria*, Dec. (2020).

## Disturbance from hunters

In addition to the direct welfare issues from gunshot wounding, a recent study found duck hunting could also indirectly affect the health and survival of bird species through increased energetic requirements in response to recreational hunter disturbance.<sup>5</sup> When additional energy is spent due to hunter disturbance, an increase in food intake is required to recoup the difference in energy. Given the correlating extra time required for supplementary feeding, these factors may carry a survival cost.<sup>6</sup> This survival cost is due to increased predation risk as well as the possible inability to attain and store enough nutrients for migration, which can affect both individual survival and fecundity probabilities.<sup>7</sup> This is particularly critical for waterbirds that may need to fly for great distances, such as the Grey Teal which has been shown to fly over 2000 km in a year.<sup>8</sup>

Disturbance from hunters causes welfare issues through fear and distress responses in ducks resulting in increased flight times. Flight is more energetically expensive than other forms of locomotion and in the recent study flight increases were measured (e.g. via distance or time flying) due to disturbance from hunters. Gun shots on opening day held the highest disturbance levels during which ducks doubled their time flying (4%–7.9%) and distances moved increased by 30% compared with pre-season tracking. When hunters were moving about the landscape in boats or on foot during the hunting season, ducks tripled their flying distance during the nocturnal period (0.6–1.9%) and flight duration more than doubled. Combined, these results indicate that both lethal direct and non-lethal indirect hunter activities, all known to disturb ducks, were the predominant causes of observed movement variations across the hunting season.

Hunters also force ducks to decrease their foraging behaviours, which can lead to compromised animal welfare including poor body condition. This has been shown to cause a decrease in survival rates for migratory birds.<sup>9</sup> There was an increase in crepuscular (twilight) and nocturnal activities during the hunting period studied, as well as a decrease in time periods of nocturnal foraging. The ability for waterbirds to acquire adequate food resources to maintain healthy body condition could be impacted due to the constraint in foraging time, and combined with greater overall flight it may reduce their overall welfare and likelihood of survival.

The indirect effects on duck welfare from recreational hunter disturbance need to be recognised. This negative impact on native bird species due to recreational hunting is also why we recommend that the 2022 Victorian duck hunting season should be cancelled.

---

<sup>5</sup> F. McDuie et al., 'Informing wetland management with waterfowl movement and sanctuary use responses to human-induced disturbance', *Journal of Environmental Management*, 297 (2021).

<sup>6</sup> J. Madsen & A.D. Fox, 'Impacts of hunting disturbance on waterbirds-a review', *Wildlife biology*, 1/1 (1995), 193–207.

<sup>7</sup> J. Madsen & A.D. Fox, 'Impacts of hunting disturbance on waterbirds - a review', 193–207.

<sup>8</sup> D.A. Roshier, N.I. Klomp & M. Asmus, 'Movements of a nomadic waterfowl, Grey Teal *Anas gracilis*, across inland Australia—results from satellite telemetry spanning fifteen months', *Ardea*, 94/3 (2006), 461–475.

<sup>9</sup> J. Madsen & A.D. Fox, 'Impacts of hunting disturbance on waterbirds - a review', 200.



### RSPCA Victoria recommendation:

Due to the inevitable welfare impacts caused by hunter disturbance of native waterbirds, it is strongly recommended that the 2022 duck hunting season is cancelled.

## Climate outlook

Current climatic conditions as well as the forecasted conditions from January to March 2022, will not support sustainable hunting. Although climate outlooks indicate some areas of Australia are likely to experience above or below median rainfall, Victoria has roughly equal chances of above or below median rainfall.<sup>10</sup> While recent excess rain due to La Niña has increased rainfall totals, it has not completely accounted for below average rainfall between April 2020 and November 2021.<sup>11</sup> Many areas previously experiencing serious rainfall deficiency are still below average, and in some areas of Queensland and Tasmania the rainfall levels remain more than 200 mm less than average for the 20-month period. Multi-year rainfall deficiencies, which originated during the 2017 to 2019 drought, remain over large parts of the country including across the Victorian, South Australian and New South Wales borders. Despite some lessening following La Niña rainfalls, the accumulated rainfall anomalies remain very large for some areas of Australia.<sup>12</sup>

Although rainfall has been above average across most of Australia, apart from a few areas which has had below average rainfall including the border of South Australia and Victoria, it has not been sufficient to replenish all habitats to support sustainable waterbird populations. While major water storage levels in the Murray-Darling Basin have witnessed some recovery in 2021 due to La Niña rainfalls and the positive Southern Annular Mode, some water storages remain low, such as in South East Queensland which only increased from 36.5% capacity in February 2021 to 39.7% by the end of November 2021.<sup>13</sup> In addition, often impoundments and storages can trap water and prevent it from entering creeks, streams and wetlands, thereby reducing available habitat.<sup>14</sup> Therefore, although there has been an increase in water storage levels, this is not sufficient to promote sustainable waterbird populations.

<sup>10</sup> Australian Government Bureau of Meteorology, 'Climate Outlooks', *Australian Government Bureau of Meteorology* (30 Dec. 2021), Overview, Rainfall & Temperature, <http://www.bom.gov.au/climate/outlooks/#/overview/summary>, accessed 04 Jan. 2022.

<sup>11</sup> Australian Government Bureau of Meteorology, 'Drought Statement', *Australian Government Bureau of Meteorology* (6 Dec. 2021), Rainfall deficiencies and water availability, <http://www.bom.gov.au/climate/drought/>, accessed 09 Dec. 2021.

<sup>12</sup> Australian Government Bureau of Meteorology, 'Drought Statement', accessed 09 Dec. 2021.

<sup>13</sup> Australian Government Bureau of Meteorology, 'Tracking Australia's climate and water resources through 2021', *Australian Government Bureau of Meteorology* (10 Dec. 2021), Climate updates, <http://www.bom.gov.au/climate/updates/articles/a040.shtml>, accessed 13 Dec. 2021.

<sup>14</sup> Game Management Authority, 'Considerations for the 2022 duck season', *Game Management Authority* (17 Dec. 2021).

### RSPCA Victoria recommendation:

As climate outlook data and predicted rainfall are very unlikely to relieve long-term deficits and subsequent habitat conditions, the 2022 duck hunting season should be cancelled.

## Game bird abundance

RSPCA Victoria continues to be concerned by the data provided in the Aerial Survey of Waterbirds in Eastern Australia each year, which demonstrates the dire conditions that wetland birds are facing. Specifically, from the Aerial Survey of Waterbirds 2021 report,<sup>15</sup> we are concerned to note:

- Four major indices for waterbirds (total abundance, breeding index, number of species breeding and wetland area index) continue to show significant declines since 1983. If 1983 and 1984 peak years are omitted, then three of the four major indices still show significant decline.
- Total waterbird abundance in 2021 has decreased by 41% from 2020 and decreased by 54% from 2019. It currently remains well below average and is the third lowest in 39 years.
- All game species abundances were well below long-term averages, in some cases by an order of magnitude, with six out of eight game species showing significant long-term declines. In particular, the abundance of Grey Teal, Australasian Shoveler and Australian Wood Duck have continued to decline since the years prior. The Pacific Black Duck, Chestnut Teal, Hardhead and Pink-eared Duck abundances have declined since 2020.
- Species functional response groups (feeding guilds) all showed significant long-term declines, with the rate for ducks being the third lowest in 39 years.
- Total breeding index (nests and broods) did increase from the previous year but is still well below the long-term average.
- Breeding species' richness did increase but is still below the long-term average and the ninth lowest on record. Ibis comprised 83% of the total.
- Only two wetlands supported more than 5,000 waterbirds and represented 13% of the total abundance. More than 48% of surveyed wetlands supported no waterbirds (includes wetlands that were dry). Multi-year rainfall deficiencies, which originated during the 2017 to 2019 drought, still remain over some parts of the study area due to the extremely low accumulated rainfall totals experienced over this extended period.

---

<sup>15</sup> J.L. Porter et al., 'Aerial Survey of Waterbirds in Eastern Australia – October 2021 Annual Summary Report', *University of New South Wales, Sydney* (2021).

- Some parts of Australia are still affected by drought, with the most recent drought mapping available showing that around 65% of Queensland was in drought or drought affected.
- Wetland area index increased slightly from the previous year, but remains well below the long-term average.
- Waterbird indices across river basins had not yet responded to recent rainfall and flooding and generally reflected low levels of available habitat and drought intensity in the preceding four years.
- Out of the six game species that are showing significant long-term declines, five of these species together made up 98% of game species harvested in 2021;<sup>16</sup> the Pacific Black Duck, Australasian Shoveler (banned in 2021 from being harvested), Chestnut Teal, Grey Teal, Mountain Duck and Australian Wood Duck all show long-term declines in their abundance.

We are very concerned to note that while there has been an increase in available habitat (i.e. in the Murray-Darling Basin) we have continued to see a decline in game duck abundance. As outlined in the GMA considerations document,<sup>17</sup> habitat availability and game duck abundance have a positive relationship, however the Aerial Survey of Waterbirds in Eastern Australia results show this has not been the case. Two out of the three survey bands that held the majority of waterbird habitat were also bands that were in the lowest three for number of waterbirds. This potential change in relationship could be due the extended history of dry conditions and unprecedented damage from the 2019/20 bushfires. It could also be an indicator of the beginning of a crisis in native duck populations. Until this is properly understood, we recommend that a 2022 duck hunting season should not proceed as this is likely to increase pressure on a population that at this stage seems unable to rebound even with improving habitat.

The 2021 Victorian Duck Season Priority Waterbird Count (DSPWC)<sup>18</sup> indicates that there is a low number of habitable wetlands for waterbirds in Victoria. 44% of priority wetlands (66 locations) were found to be dry and uninhabitable for waterbirds. 98% of priority wetlands were assessed, which was a significant increase from previous years, for example only 39% of wetlands were assessed in 2020. Due to the large proportion of assessed priority locations in 2021, the data would seem to be a good indicator of the current state of waterbird habitats and populations within Victoria.

---

<sup>16</sup> Game Management Authority, 'Considerations for the 2022 duck season'.

<sup>17</sup> Game Management Authority, 'Considerations for the 2022 duck season'.

<sup>18</sup> P. Menkhorst & K. Stamation, 'Victorian Duck Season Priority Waterbird Count, 2021', *Arthur Rylah Institute for Environmental Research, Department of Environment, Land, Water and Planning, Heidelberg* (Aug. 2021), [https://www.gma.vic.gov.au/data/assets/pdf\\_file/0011/803459/DSPWC-2021-report.pdf](https://www.gma.vic.gov.au/data/assets/pdf_file/0011/803459/DSPWC-2021-report.pdf), accessed 24 Nov. 2021.

The most recent DSPWC that counted a similar number of priority wetlands was in 2018, of which 53 priority wetlands were found to be dry,<sup>19</sup> which equates to a 25% increase of dry and inhabitable waterbird locations. The number of game duck species counted in comparison between 2018 and 2021 has decreased dramatically by 83%, even with an increased number of counting days in 2021. This data indicates that the native duck population has suffered a large decrease in population numbers as well as a decrease in suitable habitat. Sufficient time is required for waterbird species to recover their numbers effectively.

The Abundance Estimates for Game Ducks in Victoria 2021 survey preliminary results<sup>20</sup> found 84 waterbodies to be dry and the total number of waterbodies with surface water in 2021 was lower than estimated for the previous survey in 2020. This is despite the 2021 survey being undertaken between October and November, which included one of the highest daily record-breaking days of rainfall in November 2021,<sup>21</sup> as well as extra waterbody types being included in the 2021 survey, specifically sewage treatment ponds, rivers and streams, in addition to dams and wetlands. The addition of more waterbody types is noted to be the cause of the estimated higher abundance of game ducks found in 2021, rather than an actual increase in abundance levels since last year. The increase of included waterbody types in the 2021 survey may also account for the increase in total surface water so far stated in the report. The addition of waterbody types in the 2021 survey inevitably results in an inability to compare data to the year prior. We also note the results from the 2021 survey are only preliminary and may be subject to revision in the final report. RSPCA Victoria believes confirmation of the results and further comparable surveys should occur before this data can be taken into consideration to set duck season conditions.

If a 2022 duck hunting season is not cancelled, duck populations are at risk of depleting to precarious numbers as duck harvest species statistics are not correlating with species abundance numbers reported. The 2021 duck season harvest estimates<sup>22</sup> show the most commonly harvested game bird species was the Pacific Black Duck (37% of the total harvest) which held only the fourth highest abundance number in both the Aerial Survey of Waterbirds (11%) and Abundance Estimates for Game Ducks survey (15%) and was not in the top three game bird species counted in the DSPWC. The Australian Wood Duck was the next commonly harvested species (27% of the total harvest) and although it was the highest counted species in the Abundance Estimates for Game Ducks (42%), contradictorily it was only 14% of game birds counted in the Aerial Survey of Waterbirds and also not in the top three game bird species counted in the DSPWC.

---

<sup>19</sup> P. Menkhorst, K. Stamation & G. Brown, 'Victorian Summer Waterbird Count, 2018', *Arthur Rylah Institute for Environmental Research, Department of Environment, Land, Water and Planning, Heidelberg* (Jun. 2018), [https://www.gma.vic.gov.au/data/assets/pdf\\_file/0005/481334/2018-Summer-Waterbird-Count-report.pdf](https://www.gma.vic.gov.au/data/assets/pdf_file/0005/481334/2018-Summer-Waterbird-Count-report.pdf), accessed 25 Nov. 2021.

<sup>20</sup> D. Ramsey & B. Fanson, 'Preliminary results from the 2021 survey of game ducks in Victoria', *Arthur Rylah Institute for Environmental Research, Department of Environment, Land, Water and Planning, Heidelberg* (Dec. 2021).

<sup>21</sup> Australian Government Bureau of Meteorology, 'Victoria in November 2021', *Australian Government Bureau of Meteorology* (3 Dec. 2021), Monthly Climate Summary for Victoria, <http://www.bom.gov.au/climate/current/month/vic/summary.shtml>, accessed 05 Jan. 2022.

<sup>22</sup> Game Management Authority, 'Considerations for the 2022 duck season'.

Based on the 2021 data in the Aerial Survey of Waterbirds and the Victorian Duck Season Priority Waterbird Count we believe that it is not possible to undertake a sustainable hunting season in 2022.

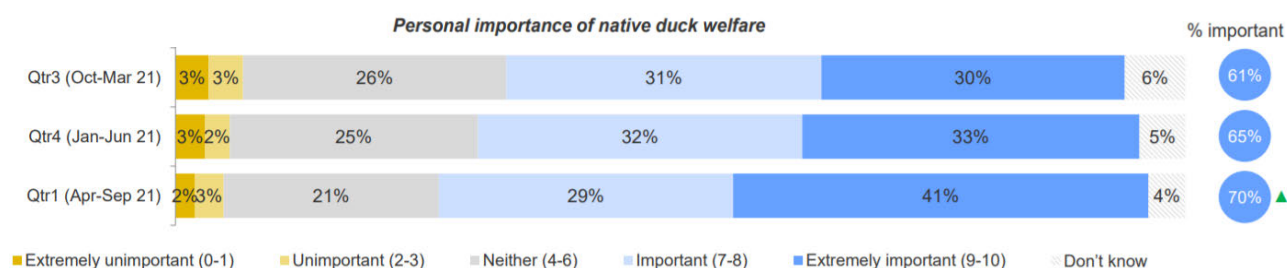
### RSPCA Victoria recommendation:

As long-term declines in game bird species abundance have not recovered with increased habitat, it is recommended that the 2022 duck hunting season should be cancelled.

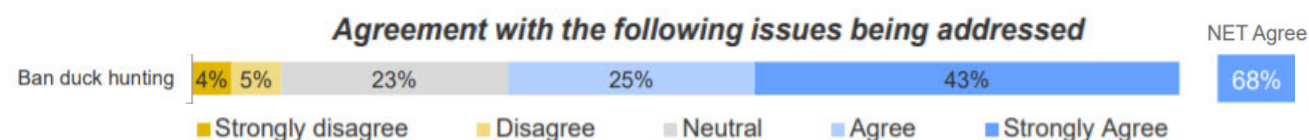
## Victorians' attitudes towards ducks

From April to September 2021, RSPCA Victoria engaged market research firm Kantar to undertake a survey and analysis of Victorians' attitudes to duck welfare. This survey was part of a larger RSPCA Victoria brand-tracking survey that is regularly conducted with data collected from a representative sample of 1,837 Victorian respondents. The data has been weighted to ABS statistics to be representative on age, gender and location.

When asked about the perceived importance of native duck welfare, seven in 10 Victorians (70%) indicated that the welfare of native ducks is personally important to them and more than two in five Victorians (41%) suggested that it was *extremely important*, both of which have significantly increased across the last three survey periods.

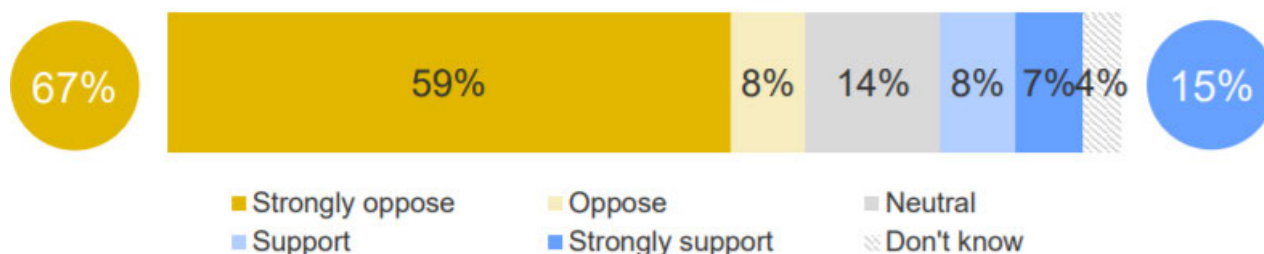


More than two in three Victorians (68%) agree that duck hunting should be banned, whilst more than two in five Victorians (43%) *strongly agree* duck hunting should be banned.



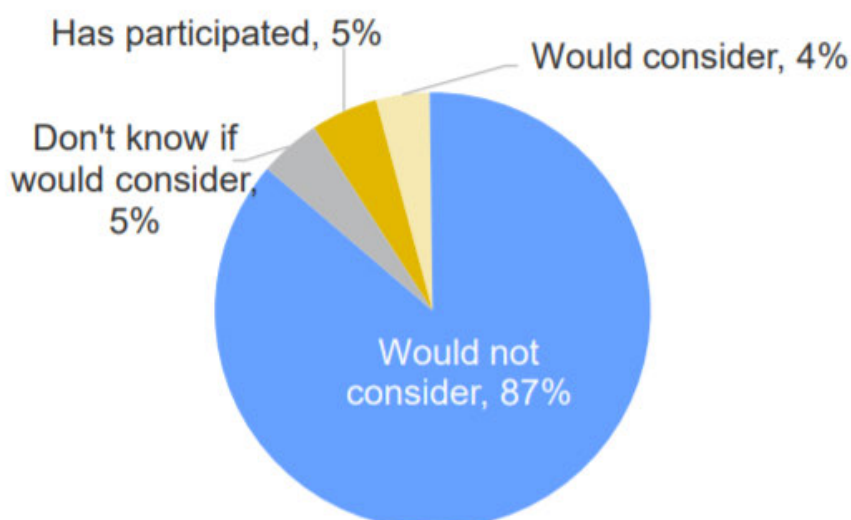
At least two thirds (67%) of Victorians continue to oppose duck hunting, with three in five (59%) indicating their *strong opposition* to the activity and fewer than one in six Victorians (15%) expressing support.

#### Support for duck hunting



The majority of Victorians surveyed have never participated in duck hunting (95%), and the majority of these people would not consider participating in the future (87%). Among those who have participated in or would consider participating in duck hunting, more than four in five people (78%) would be still open to travelling to regional Victoria if they could not participate in duck hunting.

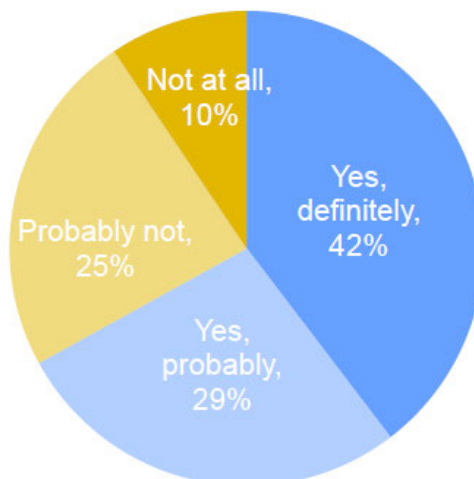
#### Attitudes toward participating in duck hunting





More than seven in 10 Victorians (71%) suggested that they would avoid choosing a holiday destination where duck hunting occurs, with more than two in five Victorians (42%) indicating they would *definitely* avoid holiday destinations where duck hunting occurs.


***Would avoid holiday destinations where duck hunting occurs***



**RSPCA Victoria recommendation:**

Due to community concern for the welfare of native ducks and Victorians indicating they would avoid holiday locations where duck hunting occurs, a 2022 duck hunting season would not be consistent with community attitudes and therefore should be cancelled.



 03 9224 2222

 [advocating@rspcavic.org.au](mailto:advocating@rspcavic.org.au)

 3 Burwood Highway Burwood East VIC 3151

 [rspcavic.org.au](http://rspcavic.org.au)

06.01.22



**Response to the IHM framework & its  
use to determine recommendations for  
Victorian Duck Season 2022**

**January 2022**



## BACKGROUND

---

This report has been prepared following significant involvement and consultation as a stakeholder over an 18 year period. In the past 12 months there has been review by FGA and other hunting organisations of documents and information provided by the Department of Job, Precincts and Regions (DJPR), Department of Environment, Water, Land and Planning (DEWLP) and the Game Management Authority (GMA). Consultation with hunting organisations and other stakeholders and a video presentation by Professor Marcel Klaassen have occurred in recent months to assist stakeholders in understanding how the model was applied.

Field & Game Australia (FGA) has previously prepared a written submission as requested by Game Management Authority the Department of Jobs, Precincts, and Regions (DJPR) alongside other stakeholders with regards to the proposed interim harvest management framework (IHM framework) in October 2021 and this was provided to our members via the website.

1. The current 5 indices are considered appropriate; however, it is imperative that the helicopter surveys from SE Australia continue to be built into the modelling and somehow less weighting is applied to the EAWS. Transition of data from each of the 5 indices to setting proposed bag limits and season lengths, needs to be easily articulated in messaging to licence holders in a manner that can be understood. This is not currently the situation.
2. Clarification is sought around what is viewed by our members as a conservative 10% take, currently this has been met with resistance from hunters and requires further explanation. Licence holders and members alike are fixated on this being based on data from other countries and despite being accepted as world standard or best practice, it's being challenged as not being relevant to Australian conditions and unnecessarily precautionary. Without further explanation and expansion on this topic gaining acceptance and educating stakeholder members will be challenging.

## BACKGROUND

3. Strong stakeholder understanding and support will be essential to gain acceptance of an adaptive approach to harvest management that incorporates mathematical models and FGA feels there's more work to be done in presenting the case to our membership in a manner that will be understood and accepted. This should be the responsibility of all stakeholders to come up with a way of conveying the message in a simple and consumable fashion for licence holders.

Clarity in the process that leads from a science- based data and sound evidence and how that related to bag limits, season lengths and sustainability in hunting seasons is paramount in gaining licenced hunter acceptance. Professor Marcel Klaassen's explanation to stakeholders should perhaps be made public in an attempt to assist educating licence holders.

More recently, on December 23rd, 2021, the following documents were forwarded for us FGA to consider, with the following instruction.

- Considerations document
- Using duck proxies
- Preliminary results– Victorian game duck abundance survey
- Eastern Australia Waterbird Survey

### Invite for Written submissions

*The GMA invites your organisation to provide comments on the data the GMA provides, including the output of the interim harvest decision framework, and any additional data that may assist in a recommendation on the possible arrangements for the upcoming 2022 duck season.*

*The GMA is not seeking any information or advice on the policy of whether or not duck hunting should, in principle, be permitted in Victoria. Comments and additional information received will be posted on the GMA website.*

*Comments and information must be lodged with the GMA by COB 6 January 2022. Comments and any additional information will then be considered by the GMA Board before a recommendation is made to the Minister for Agriculture.*

*Unlike in previous years, the GMA will not be inviting stakeholders to provide a verbal presentation as part of this process.*

## BACKGROUND

We note the timings around the information provided, the timeline in which to respond are less than adequate for our organisation to review, critique and assemble a more detailed response as we reserve the right to amend and change our feedback or stance should our organisation deem it necessary.

The Victorian Government has demonstrated that it is committed to Sustainable Hunting within Victoria and has further funded the Sustainable Hunting Action Plan 2021 – 2024? (SHAP 2.0) to deliver tangible outcomes for the hunting community into the future.

As part of the SHAP there is a commitment to develop and deliver an Adaptive Harvest Management Model (AHMM). The AHMM is not a new concept and FGA has been advocating (In Principle) for the past 18 years for this model to be developed and used to determine duck seasons for Victorian Hunters rather than a subjective process.

The IAHM model has been developed and feedback from FGA through consultation as a member of the stakeholder group who have been informed of the considerations to this point.

---

Field & Game Australia continues to support the Adaptive Harvest Management model 'in principle', as it has done since its inception back in 2003. The concept of introducing an interim framework is a cautious approach designed to allow refinement over a period of years. This allows all stakeholders to continue consultation and assist in developing best practice.

We are pleased to see this approach in the introduction and adoption of a well-considered model that has been refined through trial and no doubt to a degree some error, which is a welcome alternative to the old processes used for determining duck season length and daily bag limits.

FGA remains committed to being part of the genuine consultation process and assisting the implementation of the interim model for the 2022 season, whilst achieving the most positive outcomes for our membership and ensuring sustainability of hunting opportunities into the future. Additionally we look forward to ongoing consultation in implementing further change and refinement is an effort to develop the best model for the future.

Transparent triggers for season length or bag limit modifications have been developed, however FGA feel further consultation around this issue with stakeholders and their members to gain hunter acceptance is an essential part of the approach to developing a permanent model.



## BACKGROUND

For that to occur the duck counts and harvest monitoring need to be adequately explained, resourced and they need to be defended as fit-for-purpose and inclusive of hunter stakeholder consultation. It is our expectation that as the ARI Helicopter surveys evolves and the survey gaps are resolved that the EAWS data will be removed from the modelling. However, this needs to be verified and a commitment from authorities to stakeholders forthcoming.



## CONCLUSION CONTINUED

**The purpose of this response is to provide feedback to the GMA of FGA's commitment to contribute to making this proposal work and be delivered on time.**

It is our position that the introduction of an IHM model or indeed the final AHM model can be held up no longer. FGA will continue to work alongside stakeholders to enable the successful introduction of this new approach.

There needs to be ongoing consultation on how we deliver the results, share the consistent messaging and transition our membership into acceptance and ownership of this new approach, together with a clear explanation of its rationale.

FGA see this to be a joint responsibility between GMA and FGA as stakeholders. The data is defensible and transparent, and the process needs to be delivered to licence holders in a manner that can be understood and acceptable by the vast majority. Acceptance is currently tentative and there are many who believe that the data included has been selective and chosen to deliver a preconceived outcome.

Authorities need either allay hunters fears that a ten bird limit and full length season is not achievable or demonstrate transparently, what justification there is to introduce a system that ultimately reduces the harvest.

Currently our members cannot see that a 10-bird bag limit and full length season will ever be achieved under IHM, nor do they understand how we ended up with the current proposal of 4.

There needs to be a clear demonstration that a bag limit of 10 birds and full season is achievable and how that would be determined. Clarity of explanation of how the determination for season settings is unclear to hunters and there is a natural fear that the likelihood of a 10-bird limit is achievable in the future. If this is true it needs to be clearly spelled out and explained and justification given.



## CONCLUSIONS CONTINUED

---

### What this IAHM framework has delivered to date:

#### Positives

- Reduced the political influence
- Reduced the emotive influence
- Eventually the IAHM framework should deliver more timely decisions (December each year) FGA has advocated for many years that an ideal timeline would be so Season parameters be confirmed and locked in by December 1. Allowing time for industry retail stakeholders to have adequate stock on hunting equipment especially steel shot ammunition otherwise there is a risk of non-compliance of the use steel shot regulation.
- Science and Data based decisions that are defensible once correct data is used in the input
- True stakeholder consultation
- A monitoring program to determine game duck abundance in Victoria was developed in 2020 and further refined in 2021, genuine stakeholder engagement will shape further refinement
- A fixed season length that removes doubt and creates certainty for all stakeholders that begins on the 3<sup>rd</sup> Saturday of March and runs through to the second Monday in June.
- Increased hunter opportunity over the recent/current trend to shorten season length as well as bag limit
- Sustains the future of duck hunting in Victoria as supported by the Government
- The monitoring program was trialled in November 2020 and further refined in 2021
- Aggregate point score system over 3 years will mean a longer impact from favourable conditions
- Rarely will the bag limit applied be below the average harvest number per hunter
- Increased hunter opportunity with regards to season length or days able to be hunted
- Is defensible and gains social acceptance (social licence)
- There is opportunity to be part of the consultation around refinement/improvement as a stakeholder

#### Negatives

- Aggregate point score system over 3 years will mean a longer recovery period from poor conditions
- The result of 4 bird daily bag limit as a recommendation for 2022 creates concern that a 10 bird limit will be unachievable or rarely achieved The modelling for the IHM when applied to the previous 30 years indicates only 2 years of 10 bird bag limits. This is a result of the inputs being driven by the EAWS which is not fit for the purpose of determining game bird seasons. This will simply not be accepted as a reasonable outcome by the hunting community.

## CONCLUSION CONTINUED

- Hunter apathy – many hunters will not travel or spend time and effort to set up decoys and hunt in a manner consistent with (WWRAP) ethics for low bag limits such as 4
- This has the potential to place increased hunting pressure on locations closer to Melbourne such as the Connewarre SGR
- This also has the potential for hunters to focus on species specific hunting, in turn perhaps applying additional pressure to species such as Pacific Black Duck
- There is concern, that the result of the above point will drive hunting underground (i.e. hunters will refuse to be members of hunting organisations and refuse to purchase game hunting permits, but continue to hunt illegally)
- Hunters who readily achieve a 10-bird limit on hunts, will feel disadvantaged on all but those years where we have had favourable habitat and breeding conditions for multiple years running allowing for a 10-bird bag limit.
- FGA members believe that a truly ADAPTIVE harvest model would allow more than 10 birds to be harvested, if the model has an upper limit added its not adaptive.
- The perception that the AHM model could lead to bag limits above the prescribed number of 10 in the regulations was never a consideration by Government. FGA members believe that If an AHM is to be truly adaptive then when conditions are suitable then the model should work in a manner it can prescribe a bag limit of higher than 10.
- There will still be intervention and endorsement required by Government, rather than the season just going ahead as per regulation. (Dependant on update of regulations due shortly)
- Flow on impact is likely lower numbers of game licences sold and lower numbers of hunter organisation memberships sold
- Hunter organisations may be seen by hunters as less relevant and lose opportunity to be the educators and deliverers of future training/competency testing/advocating for responsible hunting
- Blue-winged Shoveler made up less than 1% of the count and therefore were excluded from the modelling. FGA continue to advocate for further research on this species to assist their recovery in numbers (a review of sampling survey locations and timing required to determine if key habitat that this species is known to frequent is representative. Hunting organisations with their knowledge should play an essential role in this selection process.)
- The process is over complicated whereas a simpler model such as the ARI survey data in conjunction with produces a simpler set of numbers with upper and lower trigger points would produce a far more effective and transparent Harvest Model.



# Coalition Against Duck Shooting

304/78 Eastern Road  
South Melbourne, Vic. 3205  
Reg. No. A 0018114R  
T: 0418 392 826  
E: [info@duck.org.au](mailto:info@duck.org.au)  
W: [www.duck.org.au](http://www.duck.org.au)

3 January 2022

Facebook: Coalition Against Duck Shooting

## Considerations for the 2022 Victorian recreational duck shooting season

No recreational duck shooting must take place in 2022 and the activity must be abolished.

The Game Management Authority (GMA) and Arthur Rylah Institute (ARI) are both failing Australia's native waterbirds.

### Top ornithologist undermined

With climate change and waterbird numbers across eastern Australia down by some 90 per cent since 1983, it is easy to understand the Game Management Authority's urgent need to undermine the important scientific aerial surveys carried out by Professor Richard Kingsford, in order for the GMA to continue to falsely assert that duck shooting is sustainable.

The Kingsford annual surveys are the most valuable and comprehensible study of native waterbird numbers across eastern Australia. But because the dwindling number of Victorian duck shooters are threatened by Kingsford's reports, which highlight the severe downtrend in native waterbird numbers, instead the GMA and ARI have introduced Victorian helicopter surveys so they can control the numbers of birds reported.

The GMA has effectively side-lined the government's own experts on environmental conditions including climate change impacts and Australia's leading scientist on waterbirds and wetlands.

In 2021, the GMA brought forward the flawed, unscientific results of the preliminary "trial" survey of game birds in Victoria to allegedly justify changes to restrictions that it previously deemed necessary.

Now the GMA and ARI can come up with any figures that will suit their purpose to call a duck shooting season, and there is no one to question them.

By making this change, the GMA and ARI will always be able to call a duck shooting season because they will always supposedly detect millions of waterbirds on Victorian waterways.

### 2021 Victorian Fauna & Flora Guarantee Act

Under the Fauna & Flora Guarantee Act 2021 both the Australasian Shoveler and the Hardhead are listed as vulnerable. Yet both of these species are still categorized as 'game'. Why hasn't the ARI called to have these two 'vulnerable' native species permanently removed from the duck shooters' 'game' list? Or does the ARI always comply with the wishes of the GMA?

DELWP's Victorian Framework for Conserving Threatened Species states:



*“The FFG Act places importance on prevention to ensure that more species do not become threatened in the future. The Act emphasises the importance of cooperative approaches to biodiversity conservation and recognises that all government agencies and the community need to participate in the conservation effort.*

*The Act's objectives aim to conserve all of Victoria's native plants and animals.”*

If DELWP seriously want to avoid more species becoming threatened in the future, then it is imperative that recreational duck shooting is banned in Victoria. CADS' rescuers continue to recover illegally shot endangered and vulnerable Freckled, Blue-billed and Musk Ducks (yet the Waterfowl Identification Test was introduced by the Kirner government in 1990 in an attempt to prevent these birds from being illegally shot).

All native duck species numbers are currently in serious decline so why would the GMA continue to allow their destruction by duck shooters? Surely, for compassionate and sustainable reasons there must be some point where the GMA draws the line and puts the welfare and survival of native waterbirds above the shooters' desires.

We don't expect the GMA to look after the interests of native waterbirds, but we would expect the ARI to do that very important job.

### **GMA fails wounded birds – no empathy**

It is believed that following the 2016 duck shooting season, a senior GMA board member, put a stop to the RSPCA taking its high-tech mobile veterinary clinic to the wetlands to treat wounded native waterbirds. We have it on good authority that the RSPCA was told they shouldn't be seen taking wounded birds from rescuers who were in the water illegally before 10am, because it was not a 'good look' for the anti-cruelty organisation to be accepting wounded birds from law breakers. Yet these wounded and suffering sentient native birds include illegally shot species and wounded game birds that have not been retrieved by any shooters or the GMA. (See footage of cruelty compilation: <https://youtu.be/aSQae7heehg> a wounded Pink-eared Duck: <https://youtu.be/92lbdVI9eCE> Lake Lonsdale cruelty 2021: <https://youtu.be/CAa1-7awR4Y> )

Volunteer rescuers and veterinarians have provided the only help for suffering wounded birds for 35 years and will continue to do so until duck shooting is banned. In Victoria today, there are only about 8,000 active duck shooters, compared to around 100,000 duck shooters on the wetlands in 1986 when the campaign to protect Australia's native waterbirds began.

The RSPCA was removed from its primary role as regulator with power to investigate and prosecute duck shooters for alleged aggravated cruelty offences and was replaced by the GMA as the new regulator.

So now, the promoter of duck shooting that services its clients, the duck shooters, has become the sole regulator.

Given this alleged conflict of interest, it is no wonder that the GMA has failed to prosecute a single duck shooter for alleged cruelty offences, even when video evidence is provided.

### **Protected NSW and Queensland duck species must also be protected when flying to Victoria**

When native duck species, which are fully protected in NSW and Queensland, fly interstate, they must remain fully protected. They should not be placed on the game hit-list when they fly to Victoria. This situation should be fully addressed when considering the 2022 duck shooting season, especially by

the Federal Minister for the Environment and we believe that intervention is needed on this matter under the federal EPBC Act.

**This year, Professor Kingsford's aerial survey found:** *Four major indices for waterbirds (total abundance, breeding index, number of species breeding and wetland area index, Fig. 1) continue to show significant declines since 1983. If 1983 and 1984 peak years are omitted, then 3 of the 4 major indices still show significant decline (OLS regression at  $p=0.05$ ; variables 4th root or log transformed where appropriate; Table 1). Long term trends are more informative for predicting population status than year to year fluctuations.*

*Total waterbird abundance in 2021 ( $n=95,306$ ) decreased from 2020 and remains well below average: the 3rd lowest in 39 years. Waterbirds were most abundant in bands 3 and 5 (Figs 2 & 5).*

*Species functional response groups (feeding guilds) all showed significant long term declines (OLS regression at  $p=0.05$ ; variables 4th root or log transformed where appropriate. Fig. 3; Table 2). Long term changes were also observed in decadal averages of total abundance, wetland area index, breeding index and breeding species' richness (Fig. 4, Table 1).*

*Wetland area index (150,803 ha) increased slightly from the previous year, but remains well below the long term average (Fig. 1). Some rivers and wetlands in the northern Lake Eyre Basin, including the Diamantina and Georgina rivers, held moderate amounts of water and supported low numbers of waterbirds. Lakes Torquinnie, Mumbleberry and Galilee held some water and moderate numbers of waterbirds; the largest concentrations of waterbirds were located in the Paroo overflow Lakes, the Macquarie Marshes and Lake Moondarra in the north (Fig. 5).*

*The Macquarie Marshes (Band 5) had moderate levels of water augmented by environmental flows, provided by the NSW Government and Commonwealth managed environmental water and supported considerable numbers and diversity of waterbirds. The Lowbidgee wetlands had moderate inundation (Band 3), and they supported moderate numbers of waterbirds with a breeding colony of straw-necked ibis recorded. Most wetlands in the regulated Menindee Lakes system were full, including outside the survey band to the north - Copi Hollow and Lakes Wetherell, Pamamaroo, Bijiji and Balaka were also full (Band 4). Overall, there were moderate waterbird numbers and breeding activity. The Tallywalka lakes system was dry (Band 4, Fig. 7).*

*Waterbirds were again widely dispersed (similar to the previous year); only 2 wetlands (Green Lake on the Paroo River (Band 5) and Prosperpine Dam (Band 10)) supported more than 5,000 waterbirds representing 13% of the total abundance. More than 48% of surveyed wetlands supported no waterbirds (includes wetlands that were dry).*

*Total breeding index (nests + broods) was 2,494 (all species combined), a considerable increase from the previous year (364) but still well below the long term average (Figs. 1 & 6). Breeding species' richness also increased with 9 species recorded breeding, but this is below the long term average and the ninth lowest on record (Fig. 1). Ibis comprised most of the breeding recorded (white ibis: 1071, straw-necked ibis: 1000), 83% of the total.*

*All game species abundances were well below long term averages, in some cases by an order of magnitude; six out of eight species continue to show significant long term declines (OLS regression at  $p=0.05$ ; variables 4th root or log transformed where appropriate. Table 3). Grey teal ducks declined from the previous year (Fig. 13).*

*Waterbird indices across river basins had not yet responded to recent rainfall and flooding and generally reflected low levels of available of habitat and drought intensity in the preceding 4 years; 2021 abundance decreased, but wetland area rose in the Murray-Darling Basin compared to the previous year (Fig. 8).*

*Across Eastern Australia, overall abundance, breeding index and breeding species richness are positively related to available habitat (wetland area index). Conversely, declines in wetland area are likely to result in declines in waterbird abundance, breeding and breeding species richness (Fig. 9).*

*Selected species distribution and abundances are shown in figures 10-19; freckled ducks and plumed whistling-ducks are included for comparison with game species. Map plots in these figures show 2021 distribution and trend plots show changes in abundance over time (1983- 2021).*

*Breeding species' richness and breeding abundance increased considerably compared to the previous year; breeding largely occurred in bands 1 and 3 (Fig. 6) and comprised mostly of Australian white ibis and straw-necked ibis.*

## **Conclusion**

The 2017 Pegasus Report into the GMA's compliance and enforcement function was scathing of the Authority. The GMA exists to serve the interests of duck shooters, while over the last 35 years, concerned volunteer members of the public do the invaluable job of protecting and caring for Australia's native waterbirds at no cost to the Victorian government. (See ABC 7.30 PG 30 March 2017: <https://youtu.be/Ku-xDXCgW5E> and the ABC 7.30 PG 1 March 2018 Pegasus report: <https://youtu.be/Y7SxDa6MNV8>)

The GMA must factor in the increased threat that climate change poses to Australia's precious native waterbirds, including the impacts of more frequent and severe drought.

With climate change and waterbirds at dangerously low levels, a Victorian duck shooting season must not go ahead in 2022; otherwise the Game Management Authority will be exposed as just another climate change denier.

Laurie Levy

Campaign Director  
Coalition Against Duck Shooting  
Email: [info@duck.org.au](mailto:info@duck.org.au)  
Mobile: 0418 392826

Website: [www.duck.org.au](http://www.duck.org.au)  
Facebook editorials: Coalition Against Duck Shooting Facebook

Attached: Pegasus Report 2017



2017

# Assessment of the GMA's compliance and enforcement function

Roger Fisher & Alistair Davey

Pegasus Economics

September 2017



Pegasus Economics • [www.pegasus-economics.com.au](http://www.pegasus-economics.com.au) • PO Box 449 Jamison Centre, Macquarie ACT 2614

Pegasus Economics is a boutique economics and public policy consultancy firm that specialises in strategy and policy advice, economic analysis, trade practices, competition policy, regulatory instruments, accounting, financial management and organisation development.

For information on this report please contact:

Name: Roger Fisher

Mobile: 0419 205 204

Email: [rfisher@pegasus-economics.com.au](mailto:rfisher@pegasus-economics.com.au)

## Table of Contents

<b>Executive Summary .....</b>	<b>v</b>
<b>Findings .....</b>	<b>vii</b>
<b>Recommendations.....</b>	<b>ix</b>
<b>1 Introduction.....</b>	<b>1</b>
1.1 Introduction.....	1
1.2 Background.....	1
<b>2 Scope and methodology .....</b>	<b>2</b>
2.1 Scope .....	2
2.2 Lines of enquiry.....	2
2.3 Methodology .....	3
2.4 Consultation .....	3
<b>3 Game Management Authority .....</b>	<b>5</b>
3.1 Legislative framework .....	5
3.2 Game Management Authority.....	6
3.3 Funding .....	7
3.4 Organisation .....	7
3.5 Operating model .....	8
<b>4 Policy and regulatory environment .....</b>	<b>10</b>
4.1 Government policies and priorities.....	10
4.2 Role clarity.....	12
4.3 Regulatory and institutional environment.....	15
4.4 Community and stakeholder context.....	17
4.5 Long-term demand.....	20
<b>5 Approach to compliance and enforcement.....</b>	<b>22</b>
5.1 Compliance policies, strategies and planning .....	22
5.2 Licensing.....	25
5.3 Surveillance, monitoring and information gathering .....	27
5.4 Awareness, information and education .....	31
5.5 Enforcement.....	36
5.6 Reporting.....	40
5.7 Conclusions.....	43



<b>6. Operating model .....</b>	<b>45</b>
6.1 Institutional form .....	45
6.2 Regulatory governance .....	47
6.3 Partnership arrangements .....	50
6.4 Conclusions.....	55
<b>7 Capacity and capability.....</b>	<b>56</b>
7.1 Introduction.....	56
7.2 Financial, staffing resources and other assets.....	56
7.3 Capacity and scope of responsibilities.....	58
7.4 Funding model.....	64
7.5 Workforce capabilities.....	65
7.6 Conclusions.....	68
<b>8 A more effective regulator .....</b>	<b>70</b>
8.1 Introduction.....	70
8.2 Rethinking the case for regulation .....	70
8.3 Protecting the independence of the GMA's regulatory functions.....	74
8.4 Approach to regulation.....	77
8.5 Licensing.....	83
8.6 Permits and ballots.....	87
8.7 Stakeholder and community engagement.....	89
8.8 Conclusions.....	95
<b>9 Conclusion .....</b>	<b>96</b>
<b>Bibliography.....</b>	<b>97</b>

Table 1: Summary of GMA's enforcement outputs for 2014-15 and 2015-16, as at 30 June .....	37
--	----

Table 2: Comparison of game and related regulators .....	61
--	----

Table 3: Illustration of potential compliance strategies calibrated to compliance postures .....	81
--	----

Figure 1: GMA organisation structure, September 2017 .....	7
--	---

Figure 2: Institutional arrangements for delivery of game management regulatory responsibilities .....	16
--	----

Figure 3: Game licences and game licence holders (as at 30 June).....	21
---	----

Figure 4: Compliance strategy model .....	24
---	----

Figure 5: All Victorian resident hunters by postcode as at 30 June 2016 .....	57
---	----

Figure 6: Protecting the independence of regulatory functions through structural separation .....	75
---	----

Figure 7: Protecting the independence of the regulatory function through operational separation.....	77
--	----

Figure 8: An example of an enforcement pyramid.....	79
---	----

Figure 9: An example of a pyramid of regulatory strategies .....	79
--	----



## Executive Summary

The Game Management Authority (GMA) engaged Pegasus Economics (Pegasus) in July 2017 to provide an independent assessment for the GMA Board. The assessment relates to the effectiveness of the Authority's compliance and enforcement regime, the appropriateness of its operating model and its capacity and capability to deliver its compliance and enforcement obligations. The review does not consider the GMA's other statutory functions, such as game monitoring, research and advice.

The GMA has not been able to effectively fulfil its compliance and enforcement responsibilities. While many hunters are responsible and respect the game hunting laws, non-compliance with the game hunting laws is commonplace and widespread, and the GMA is widely perceived by its external stakeholders and its own staff as unable either to ensure compliance with the game hunting laws, or to effectively sanction offenders when those laws are breached.

The GMA's inability to ensure compliance with the hunting laws has seriously undermined its credibility as an independent and effective regulator and raises questions about the integrity and sustainability of the regulatory regime.

The GMA lacks scale and critical mass, but its resourcing and operating models are not the primary reasons for its lack of effectiveness. The regulatory and institutional frameworks in which the GMA operates are extremely fragmented, and the game hunting laws are widely perceived by internal and external stakeholders to be extremely difficult, if not impossible, to effectively enforce in the field.

As a small statutory body, the GMA is vulnerable to capture by the interests that it is seeking to regulate. There are also tensions and potential conflicts between the GMA's regulatory and other roles that constrains its effectiveness as an enforcement agency. The GMA is not currently perceived by all of its stakeholders as independent or impartial in its administration of the game hunting laws.

The GMA's role as a regulator needs to be clarified and the independence of its licensing, compliance and enforcement functions protected.

The separation of the GMA's regulatory functions from other advisory and promotional activities, and their location in a larger, related regulator, would protect the independence of the GMA's licensing, compliance and enforcement functions and provide access to additional regulatory capabilities and support. In the meantime, the GMA should put in place internal arrangements to further protect the independence of its regulatory functions.

As a publicly funded and accountable regulator, the GMA owes a duty to the community as a whole to ensure the game laws are observed and that minimum standards of responsible and ethical behaviour are maintained. This requires an ability to engage with stakeholders across a wide spectrum of values and interests and to adapt and adjust to changing community attitudes and expectations.

The GMA could more effectively manage the environment in which it operates, including by seeking to have the current licensing arrangements strengthened, working with land managers

to develop more effective methods of controlling access to intensively hunted and sensitive areas, rethinking its approach to regulation and developing more effective strategies for engagement with its stakeholders.

The GMA needs to develop a much more flexible and adaptive form of regulation that is informed by a clearer understanding of the knowledge and compliance postures of the hunters it is seeking to regulate. It also needs much more support and assistance from the hunting organisations in building a more responsible and compliant hunting culture.

Reform will require concerted action by government and non-government stakeholders. While the GMA can and should be a key player in these efforts, the scope of the changes required are beyond the direct authority and capability of the GMA to deliver without the assistance, cooperation and leadership of departments and agencies.

The GMA's current position exposes the Minister and the Board to considerable policy and regulatory risk and if not addressed will contribute to continued non-compliance with the game hunting laws and the erosion of the hunting community's social licence.

## Findings

### *Effectiveness*

- The GMA has not been able to effectively deliver its compliance and enforcement responsibilities.
- Non-compliant behaviours and unsanctioned breaches of the game hunting laws are widespread and commonplace.
- The GMA is regarded as perceived by its external stakeholders and its own staff as unable to positively influence hunter behaviour or effectively sanction illegal or irresponsible behaviours.
- The current licensing regime is ineffective in ensuring a minimum acceptable level of awareness and competence amongst hunters.
- The GMA has made significant investments in the production of high-quality educational materials. However, these products are not well-targeted and their effectiveness in securing more compliant hunter behaviour is uncertain.
- While feedback from hunters on their interactions with GMA staff are generally positive, and hunting organisations are supportive of the regulator, the GMA has not succeeded in gaining sufficient cooperation or support from its stakeholders in achieving the culture of compliance, self-regulation and respect that is critical to the future of hunting and the maintenance of its social licence.
- The GMA is not perceived as independent or impartial by animal welfare and community groups.
- The GMA's reporting and complaint handling procedures do not meet the standards expected of a contemporary regulator.

### *Regulatory governance and approach to regulation*

- There are tensions between the roles that have been allocated to the GMA, and the GMA is sometimes perceived as playing, and occasionally slides into, advocacy and promotional roles that conflict with its responsibilities as a regulator.
- The GMA maintains most of the architecture expected of a contemporary regulator, but there are gaps and weaknesses in its internal governance arrangements and approach to regulation.
- The GMA has a cascading set of policies, operational plans and procedures that provide a sense of purpose and direction, but lacks clearly articulated strategies for improving regulatory compliance.
- Contemporary best practice regulation involves a dynamic approach across regulatory strategies and regulatory tools combined with a high level of organisational agility.
- The GMA's current approach to regulation is poorly targeted.
- While the GMA reviews some events, it does not routinely review and evaluate the effectiveness of its compliance and enforcement efforts.

### *Operating model*

- An independent statutory authority is a high cost model for a small regulator, and the GMA lacks the infrastructure to effectively support the associated governance and reporting obligations.
- As a small statutory regulator with relatively narrow sectoral responsibilities, the GMA is vulnerable to capture by the interests it is seeking to regulate.
- The current operating model constrains the GMA's ability to operate independently, but also provides the GMA with capacity and capabilities to which it would not otherwise have access.
- The accountability and governance frameworks that underpin the operating model are inadequate and out-of-date.
- Coordination across the relevant agencies would be improved by the development of a definitive statement of the accountability framework within which the GMA and its partner agencies are expected to work and detailed and up-to-date agreements or Memoranda of Understanding between the individual agencies in relation to the identification of priorities, the allocation of responsibilities, resource sharing and dispute resolution.
- The requirement to work with Victoria Police restricts the GMA's ability to operate independently, but it is not clear that it limits the GMA's effectiveness.

### *Capacity and capability*

- The GMA lacks the scale and critical mass to effectively enforce the existing game hunting laws within the existing policy and compliance framework.
- There is scope for more flexible funding of the GMA's compliance and enforcement functions.
- However, additional funding alone would not necessarily provide better compliance and enforcement outcomes, or prevent a recurrence of the events that have been experienced during recent duck seasons and elsewhere.
- While the GMA possesses many of the operational compliance and enforcement capabilities required to deliver on its responsibilities, it lacks the higher-level strategic compliance experience and training required to effectively develop and implement an effective compliance strategy or ensure that the available regulatory tools and capabilities are developed and deployed coherently to solve problems, prevent harm and influence behaviour.
- The GMA requires access to skilled and qualified communication and marketing experts who can engage effectively with a dispersed and diverse stakeholder base across a wide range of channels and communications media.
- There is scope for the GMA to more effectively manage the demands on its resourcing, including by seeking tighter land access arrangements and more selective regulation of some game species, rethinking the approach to regulation and re-allocating resources away from relatively expensive enforcement activities toward more cost-effective activities such as information and education.



## Recommendations

### *Effectiveness*

- The GMA should work with land management authorities to develop more flexible arrangements for land access based on permit and ballot systems that are widely deployed in other jurisdictions. Regulatory reform will need to be led by policy agencies.
- Game hunting licences should include more stringent minimum mandatory requirements, including testing for knowledge of the game hunting laws and the obligations and responsibilities of safe and sustainable hunting.
- There should also be a requirement that prospective duck hunters demonstrate their attendance at a Shotgunning Education Program prior to the issue of a duck hunting licence and that similar courses be developed for the holders of other categories of hunting licences.
- Information and educational materials should be made available in languages that are relevant to the hunting community.
- The GMA needs to significantly expand its monitoring and information gathering activities, including by enlisting the support of hunting organisations, animal welfare organisations and land holders in undertaking active and passive monitoring of game numbers and the effectiveness of its compliance and enforcement activities.
- The GMA should review the priority it attaches in its compliance and enforcement activities to protestor management.
- The GMA should seek to engage more constructively with stakeholders across a broader range of interests and values.
- The GMA's stakeholder engagement strategies and programs should be more clearly directed to achieving the active cooperation of its stakeholders in supporting a respectful, responsible and compliant hunting culture.
- The GMA should improve the transparency of its reporting and complaint handling mechanisms, and ensure that arrangements are in place for all complaints to be logged, reviewed by a senior officer and responded to.

### *Regulatory governance and approach to regulation*

- The GMA's role as a regulator should be clarified and the independence of its licensing, compliance and enforcement functions protected.
- The GMA's regulatory functions should be separated from the GMA's advisory and development functions and located in a larger, more broadly-based regulator.
- If this is not possible, the GMA should put in place appropriate governance arrangements, including operational separation, establishment of an Enforcement Committee and appropriate protocols, to provide additional transparency and protect the independence of its licensing, compliance and enforcement functions.
- The GMA should develop a more dynamic approach to compliance and enforcement that is informed by improved information on hunters' understanding of their obligations and better targeted to secure improved compliance outcomes.

- The GMA should develop an annual compliance strategy that sets out specific compliance and enforcement goals, priorities, strategies and performance measures that are to be applied in the upcoming period, and the basis on which those priorities and strategies have been selected and are to be evaluated against.
- The GMA's compliance strategies should be informed by improved measures of the knowledge base and compliance posture of the hunters, game farms and other agents that it is seeking to regulate.
- The GMA's approach to regulation should seek to incorporate a stronger emphasis on compliance based strategies that positively influence hunter behaviours and opportunities for self-regulation and co-regulation where stakeholders can demonstrate their willingness and ability to comply.
- The GMA should regularly review and evaluate the effectiveness of its compliance and enforcement efforts against its intended compliance outcomes, and adjust its strategies as required to achieve better compliance outcomes.
- The compliance strategy should be supported by more transparent processes for tasking and coordination of compliance and enforcement actions and improved reporting on compliance and enforcement outcomes.

#### *Operating model*

- The existing operating model should be supported by a clear accountability and governance framework that provides a definitive statement of the accountability framework within which the GMA and its partner agencies are expected to work and detailed agreements between the individual agencies in relation to the identification of priorities, the allocation of responsibilities, resource sharing and dispute resolution.
- The GMA should seek clarification of the Government's intent regarding the requirement that enforcement operations be undertaken with Victoria Police and, if necessary, refine and clarify the GMA's Standard Operating Procedure in which this policy is reflected.
- The GMA should encourage the participation of volunteer resources from hunting organisations, animal welfare groups and community organisations to assist in the collection of information on the effectiveness of its compliance and enforcement efforts and support safe, responsible and sustainable behaviours in the field.

#### *Capacity and capability*

- The funding model under which the GMA operates should be reviewed. This should include consideration of better ways of managing the demand for the GMA's services, its approach to regulation, and the balance of resources it allocates to protestor management and enforcement activities relative to persuasive strategies to encourage higher levels of compliance.
- The GMA needs to develop the capacity to develop high-level compliance strategies and to apply appropriate regulatory tools and capabilities to solve problems, prevent harm and influence behaviour.
- The GMA should consider completion of the Australian Government Investigations Standards (AGIS) or demonstration of equivalent qualifications training as a mandatory requirement for staff involved in investigations.

- If the GMA is to continue to perform surveillance operations, it should ensure that staff have received appropriate training in safe and effective surveillance techniques.
- The GMA should engage skilled and qualified communication and marketing experts who can engage effectively with a dispersed and diverse stakeholder base across a wide range of channels and communications media.
- The GMA should seek to more effectively manage the demands on its resourcing, including by seeking tighter land access arrangements, examining the possibility of more selectively regulating some game species, exploring opportunities for co-regulation and by re-allocating resources away from relatively expensive enforcement activities toward more cost-effective activities such as information and education.

# 1 Introduction

---

*This section outlines the purpose and background to the project.*

---

## 1.1 Introduction

This document provides an independent assessment of the effectiveness of the Game Management Authority's (GMA's) compliance and enforcement functions, regulatory capacity and operating model.

## 1.2 Background

In response to the events on the opening weekend of the 2017 duck hunting season, the Board of the GMA indicated to the Minister for Agriculture, the Hon. Jaala Pulford, that it would commission an urgent, independent review of GMA's operating model and resourcing levels (Hine, 2017a).

The GMA engaged Pegasus Economics (Pegasus) in July 2017 on a confidential basis to provide an independent assessment for the GMA Board. The assessment relates to the effectiveness of the Authority's compliance and enforcement regime, the appropriateness of its operating model and its capacity and capability to deliver its compliance and enforcement obligations.

The project was undertaken through August and September 2017.

## 2 Scope and methodology

---

*This section sets out the scope of the project, the lines of enquiry and methodology and the parties consulted.*

---

### 2.1 Scope

The focus of this project is on the GMA's legislative and operational approach to compliance and enforcement, its operational regulatory processes, practices, capacity and capability to meet the Authorities legislative obligations.

The GMA sought particular advice on:

- the relevance and appropriateness of GMA's compliance and enforcement policy;
- the effectiveness of GMA's compliance and enforcement regime and activities; and
- a comparative analysis of resource requirements against other Victorian regulatory bodies and other jurisdictions' game management regulators.

This project does not consider the GMA's other research, advisory and land management responsibilities except to the extent that they impinge on its compliance and enforcement functions.

The GMA indicated that the project should assume the current policy for the regulation of game hunting as set out in the *Game Management Authority Act 2014* (Vic) (GMA Act) and other relevant legislation remains unchanged. However, the GMA asked for advice and recommendations on the broader regulatory framework where this appears to constrain the quality of GMA's operational regulation.

### 2.2 Lines of enquiry

The project considered a number of lines of enquiry in relation to the GMA's capacity and capability.

The lines of enquiry include:

- Whether the GMA's operating model is fit for purpose;
- How the GMA's operating model and resourcing compares with other similar regulators;
- The effectiveness of the GMA's compliance planning processes in setting direction, prioritising actions and allocating resources;

- Whether the GMA appropriately deploys an appropriate range of regulatory tools and how it assesses alternative courses of action;
- Whether the GMA's operational delivery of enforcement actions could be improved;
- The quality and reliability of existing reporting and monitoring arrangements;
- The quality of the GMA's relationship with co-regulators and stakeholders, and how effectively it works with these bodies to achieve its regulatory objectives;
- Whether the GMA has access to the mix of skills, experience and resourcing to meet its legislative and other obligations.

Analysis and findings related to these questions were informed by a range of sources including desktop research and formal and informal interviews, discussions and focus groups.

## 2.3 Methodology

This project was conducted in close collaboration with the GMA's senior executive team, external stakeholders and staff and was undertaken in four stages that included consultation, testing and refinement at each stage.

The four stages of the project were as follows:

- stage 1 – initiation, definition and scoping, including a review of publicly available documentation and initial discussions with the Deputy Chair in the Chair's absence) and the CEO;
- stage 2 – information collection and analysis, including reviews of internal documentation, relevant academic and grey literature internal consultations and interviews with a range of external stakeholders;
- stage 3 – synthesis and refinement, in which we formed preliminary views on the effectiveness of the GMA's compliance and enforcement regime and the scope to improve the GMA's effectiveness by changes to its operating model or strengthening its capacity and capabilities, and tested those views in informal discussions with the Deputy Chair, CEO and selected staff; and
- stage 4 – reporting and presentation of findings, in which draft and final reports were provided to the GMA.

A detailed bibliography of documents cited in the review is included at the end of this report.

## 2.4 Consultation

Internal and external stakeholders were consulted in the course of this project.



Executives and staff of the GMA provided information on the current operating model and the GMA's capacity and capability. Several interviews were conducted with the Deputy Chairperson, Director of Game and the Managers of Game Compliance and Policy and Game Services, and their staff. Two workshops were conducted with Senior Game Officers and Game Managers.

External stakeholders offered invaluable insights into the GMA's effectiveness as a regulator and engagement with its external environment. Organisations consulted included Field and Game Australia, Sporting Shooters Association (Vic), Australian Deer Association (Victoria), Animals Australia, the Coalition Against Duck Shooting and the RSPCA. In addition, Regional Victorians Opposed to Duck Shooting contacted the project team and provided useful insights on their experience of the regulator.

Co-regulators and other relevant agencies provided useful information on the overarching regulatory and institutional frameworks within which the GMA operates and the mechanisms and protocols that are in place to support the GMA's compliance and enforcement activities. Interviews were conducted with senior staff of the Victorian Fisheries Authority (VFA), Victoria Police, the Department of Environment, Land, Water and Planning (DELWP) and the Department of Economic Development, Jobs, Transport and Resources (DEDJTR). Parks Victoria did not respond to repeated invitations to be participate.

Feedback on preliminary findings and recommendations were provided on several occasions from late August to the Deputy Chairperson and CEO. A presentation was provided to the Chairperson, Deputy Chairperson and CEO on 13 September.

A draft report was provided for comment on 18 September 2017. A presentation on the findings and recommendations was provided to the Board on 21 September 2017.

## 3 Game Management Authority

---

*This section describes the legislative framework under which the GMA operates, its roles and responsibilities and its operating model.*

---

### 3.1 Legislative framework

Hunting in Victoria is governed by a number of different acts and regulations.

The *Wildlife Act 1975* (Vic) and the *Wildlife Regulations 2013* (Vic) provide for the sustainable use, management and conservation of wildlife. The *Wildlife Act 1975* (Vic) provides the head of power to create hunting regulations and contains various offences, including for endangering public safety. The *Wildlife (Game) Regulations 2012* (Vic) regulate the management of game species and game hunting, including by prescribing the hunting season, bag limits and hunting methods.

The *Wildlife Act 1975* (Vic) and its associated legislative instruments (including closure notices) are jointly administered by the Minister for Agriculture and the Minister for Energy, Environment and Climate Change.

The GMA is established under the *Game Management Act 2014* (GMA Act) and its objectives and responsibilities are set out in that Act. The GMA Act provides for the GMA to undertake the regulation of game hunting in Victoria and deliver services and programs to improve and promote sustainable and responsible game hunting in Victoria, including issuing game licences, managing open and closed seasons for game species and enforcing game hunting laws.

The *Prevention of Cruelty to Animals Act 1986* (Vic) establishes a Code of Practice for the Welfare of Animals in Hunting. The Code aims to prevent cruelty and encourage the considerate treatment of animals that are hunted or used for hunting, and sets down minimum standards as well as recommending animal welfare best practice. The GMA also has obligations under the GMA Act to develop operational plans and procedures to address the humane treatment of animals that are hunted or used in hunting.

Public land management in Victoria is regulated through the *National Parks Act 1975* (Vic), the *Crown Land (Reserves) Act 1978* (Vic), the *Conservation, Forests and Lands Act 1987* (Vic) and the *Land Act 1958* (Vic). The *Wildlife (State Game Reserve) Regulations 2014* (Vic) provide for the management of Victoria's state game reserves.

The use of firearms and weapons by hunters are governed by the *Firearms Act 1996* (Vic), the *Firearms Regulations 2008* (Vic), the *Control of Weapons Act 1990* (Vic) and the *Control of Weapons Regulations 2011* (Vic) (Parliament of Victoria Environment, Natural Resources and Regional Development Committee, 2017, p. 72).

### 3.2 Game Management Authority

The GMA was established on 1 July 2014 as an independent statutory authority responsible for the management and regulation of game hunting in Victoria (Game Management Authority, 2015, p. 5).

Under the GMA Act, the GMA has a number of specific regulatory responsibilities, including:

- issuing Game Licences;
- managing open and closed seasons for game species;
- enforcing game hunting laws; and
- educating and informing hunters on how to hunt legally in Victoria.

The GMA Act also confers on the GMA a role in managing natural resources across Victoria, including:

- the sustainable harvest of game species;
- the humane treatment of animals that are hunted and used in game hunting;
- minimising any negative impacts on non-game wildlife, including protected and threatened species; and
- the conservation of wildlife habitats.

In addition, the GMA Act requires the GMA to perform a range of other research, advisory and land management functions, including:

- working with public land managers to improve the management of State Game Reserves and other public land where hunting is permitted;
- monitoring, conducting research and analysing the environmental, social and economic impacts of game hunting and management;
- working closely with partner agencies, such as the DELWP, Victoria Police and Parks Victoria; and
- making recommendations to relevant Ministers about game hunting and game management, the control of pest animals, declaring public land open and closed to game hunting, open and closed seasons and bag limits (Game Management Authority, 2017f, p. 3).

Under the current machinery of government arrangements, the GMA reports to the Minister for Agriculture. Section 8 of the GMA Act provides that the GMA must exercise its powers and perform its functions subject to any written directions given by the Minister.

### 3.3 Funding

The GMA receives an annual grant of \$4.8 million from the DEDJTR.

The GMA also earns a small amount of revenue from interest and earnings from the sale of goods and services.

In 2015-16, the GMA (2016, p. 44) reported total revenue of \$5.0 million.

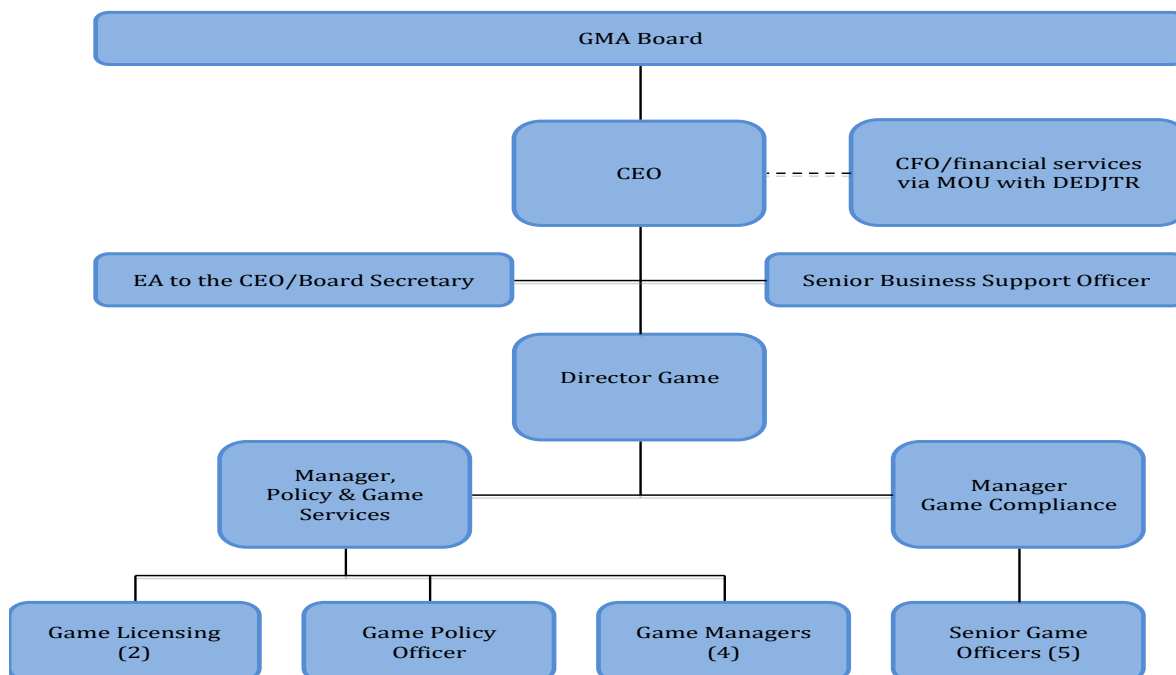
In 2016-17, the Victorian Government also committed \$5.3 million over four years to support safe, responsible and legal hunting through the *Sustainable Hunting Action Plan* (Department of Treasury and Finance, 2016, pp. 37,42,48). It is understood the GMA will have access to around \$1.4 million over four years from this amount.

The funding available to the GMA has been relatively fixed since its establishment in 2014.

### 3.4 Organisation

The GMA currently consists of a seven member board and 18 staff, though a slightly smaller number of employees were actually available for duty during the period of this review. The GMA Act provides for a Board of up to nine members. The organisational structure is arranged as shown in Figure 1 below.

Figure 1: GMA organisation structure, September 2017



As a public body, the GMA has a range of financial and reporting obligations that include the requirement to produce an annual report to Parliament, the financial, accounting and reporting requirements of the Standing Directions of the Minister for Finance, and the responsibilities and obligations of an employing authority.

Support for these and other corporate functions is generally provided by the DEDJTR under a Memorandum of Understanding.

The GMA's compliance and enforcement responsibilities are primarily delivered by the Game Compliance Unit. In total, the GMA generally employs five full-time Senior Game Officers and one Compliance Manager. (One Senior Game Officer resigned during the course of this project.) Four Game Managers are authorised to assist with some enforcement duties on an ad hoc basis, however, their substantive positions focus on monitoring, research and education.

The GMA's Senior Game Officers are located individually at five separate locations throughout the state (Bairnsdale, Traralgon, Alexandra, Swan Hill and Ballarat).

### 3.5 Operating model

The GMA employs a partnership model to deliver its statutory responsibilities in cooperation with other regulators

The regulation of game hunting touches on issues, such as wildlife management, animal welfare, land and water management, firearms regulation and the control of feral species, that are the primary responsibility of a range of other government and non-government agencies, including DELWP, Parks Victoria, DEDJTR, RSPCA and Victoria Police.

These responsibilities mesh and overlap in complex ways that require the GMA to work closely with other regulators and policy agencies to deliver on its statutory obligations. Wildlife counts, for example, are managed in association with the DELWP and Parks Victoria, who also have specific responsibilities for land and wildlife management.

Some GMA services are provided through partner agencies. Game Licences and information are available from DELWP and DEDJTR offices, as well as through the GMA's website.

The GMA also relies on its partner regulators for assistance in delivering a range of its statutory responsibilities, including participation in monitoring and analysis of wildfowl numbers, assistance with monitoring and surveillance tasks throughout the year and access to an extended workforce to manage surge events and provide other support in the field. During peak periods of hunting activity, such as the opening weekend of the duck season, the GMA relies on assistance from partner agency enforcement staff to deliver an adequately resourced compliance response. At these times, the GMA's Senior Game Officers are required to assume a coordination role to task, deploy and oversee the operation of surge staff from partner agencies.

In addition, the GMA is required to work in close collaboration with Victoria Police when dealing with armed or potentially armed hunters. The GMA (2017 April, p. 6) has indicated that “[n]atural resource management (NRM) agency’s [occupational health and safety] policies require Police to be present where firearms are involved”. It is understood this policy has its origins in the late 1990s and early-2000s when then Fisheries and Wildlife Officers were disarmed (Emergency Management Consultancy Services, 2015, p. 5). The GMA was unable to provide a copy of the original NRM agency occupational health and safety (OHS) policies that are understood to form the basis of this requirement. However, it has sought to express what it understands to be the intent of that model in a Standard Operating Procedure (Game Management Authority, 2014).



## 4 Policy and regulatory environment

---

*This section describes the policy and regulatory environment in which the GMA operates and reflects on some of the challenges and constraints that impact on its effectiveness.*

---

### 4.1 Government policies and priorities

While the GMA has certain advisory and regulatory powers, the Government has retained responsibility for the development of the state-wide strategic policy for game management (Parliament of Victoria, 2013, p. 4672).

The Victorian Government (2016) released a *Sustainable Hunting Action Plan* (the *Plan*) in December 2016. The *Plan* sets out a vision that “Victorians will gain from growing the economic, environmental and social benefits of responsible, sustainable and safe hunting, now and into the future” (Government of Victoria, 2016, p. 4). In a foreword to the *Plan*, the Minister for Agriculture, the Hon. Jaala Pulford, indicates that over the life of the *Plan*, the Government will work with its agencies and the community to:

- promote responsible hunting;
- maximise the economic, environmental and social benefits of hunting to Victoria;
- improve hunting opportunities; and
- ensure that game hunting remains sustainable (Government of Victoria, 2016, p. 2).

The *Plan* sets out a number of objectives and strategies to promote responsible hunting, grow the economic and social benefits of hunting, improve hunting opportunities and ensure sustainable hunting. Many of these objectives involve industry development and promotion. The *Plan* indicates that it will be implemented through a partnership approach involving a number of departments and agencies led by the Game Management Authority” (Government of Victoria, 2016, p. 12).

The Sustainable Hunting Action Plan Implementation Plan (Implementation Plan) outlines a slightly different role of the GMA. In the Implementation Plan, DEDJTR rather than the GMA appears to have been allocated the lead coordinating and reporting role (Government of Victoria, 2017, p. 4). The GMA is allocated a primary responsibility for a number of specific actions in the Plan and a secondary responsibility for others.

The Government’s specific expectations of the GMA are set out in a Statement of Expectations. The most recent Statement of Expectations was issued by the Minister in December 2016 (Pulford J. , 2016). The Statement of Expectations provides a guidance on a number of general

performance improvements that the GMA is expected to pursue and indicates that the GMA will “take a lead role” and work collaboratively with other departments and agencies to implement the *Sustainable Hunting Action Plan*. While the Statement of Expectations provides a summary of GMA objectives and functions as set out in the GMA Act, it does not provide guidance on which elements of the *Plan* the GMA would be expected to take a lead on or how it would be determined when GMA leadership is appropriate. This point is expanded on in the next section of this report.

The Statement of Expectations slightly qualifies the GMA’s role in the *Sustainable Hunting Action Plan*, indicating the GMA will “take a lead role *where appropriate*” (emphasis added) and work collaboratively with other departments and agencies to implement the *Plan* (Pulford J. , 2016).

The Minister’s Statement of Expectations also expresses an expectation that the GMA will pursue a number of other initiatives, which include:

- developing an online game licensing system;
- implementing the Waterfowl Conservation Harvest Model;
- developing a game species research strategy; and
- improving announcement to stakeholders when seasonal variations are required (Pulford J. , 2016).

In addition, the Statement of Expectations sets out a number of specific performance improvements and targets that the GMA is expected to achieve, including:

- a reduction in the small business regulatory burden;
- implementation of risk-based compliance strategies, drawing on DEDJTR’s Regulatory Model Project as a guide;
- strengthened stakeholder consultation and engagement;
- clear and consistent regulatory activities and compliance advice;
- agency collaboration; and
- timeliness, including the enhancement of online services and streamlined collection and processing of information (Pulford J. , 2016).

The Statement of Expectations invites advice from the GMA on how it intends to achieve these initiatives (Pulford J. , 2016). The GMA Chairperson responded to the Statement of Expectations on 9 June 2017 with advice on the targets and activities set out in the Minister’s letter and timeframes for these to be achieved (Hine, 2017b). The dates for the delivery of a number of these objectives have passed.

## 4.2 Role clarity

The role of the GMA is set out in legislation, and further articulated through various cascading policy and planning documents.

Introducing the Bill to establish the GMA in 2013, the then Minister indicated the “GMA will be – first and foremost – a regulator that would perform all the compliance, investigative and disciplinary functions related to game hunting in Victoria” (Parliament of Victoria, 2013, p. 4671). The Minister also indicated that, consistent with sound regulatory practice, “a good regulator cannot both regulate and promote the industry” (Parliament of Victoria, 2013, p. 4671).

However, the Minister at the same time indicated that the GMA would be expected to promote sustainability and responsibility in game hunting and outlined additional non-regulatory roles that the GMA would be required to perform, including research and advisory functions on “the environmental, social, cultural and economic impacts of game hunting” (Parliament of Victoria, 2013, p. 4672).

There is a fine distinction between the promotion of sustainable hunting and the promotion of hunting. The then Minister acknowledged the potential for conflicts to emerge when he indicated that the GMA had no “explicit role” in promoting the industry in a statement that left open the space for implicit and tacit understandings of the GMA’s role in promoting opportunities for recreational hunting (Parliament of Victoria, 2013, pp. 4671-4672). While the then Minister indicated in the Second Reading Speech that he had ensured the roles of the GMA would not conflict with one another, he did not outline how that would be achieved or refer to specific provisions in the Act that would protect the GMA from role confusion.

Subsequent events have added to the potential for confusion about the GMA’s role. At the establishment of the GMA, the Department appears to have taken the position the GMA would take the lead policy role on all game management matters (personal communication with Department staff). Since that time, the GMA has been allocated roles in the *Sustainable Hunting Action Plan* that are closer to those of an industry development agency rather than a regulator. As set out above, the *Sustainable Hunting Action Plan*, the Implementation Plan and the Minister’s Statement of Expectations provide different formulations of the GMA’s precise role in implementation of these plans, and leaves the GMA with primary carriage for the audit of State Game Reserves to inform management actions for land over which it has no powers and secondary carriage for a range of industry development and promotional activities (Government of Victoria, 2017, pp. 14, 10, 9).

The GMA Board and management have sought to articulate the GMA’s role in a range of internal and external documents. The GMA’s objectives and responsibilities are articulated for stakeholders and staff in a three-year corporate plan and an annual business plan (Hine, 2017b, p. 3). These documents emphasise the GMA’s role as a regulator. The GMA website also stresses the GMA’s regulatory role, indicating that “[t]he Game Management Authority is an independent statutory authority responsible for the regulation of game hunting in Victoria” (Game Management Authority, 2017).

The Chair of the GMA has sought to stress the primacy of the GMA's regulatory role, also indicating that:

*A key statutory objective of the GMA is to promote sustainability and responsibility in game hunting in Victoria. The GMA is not to advocate for hunting, but instead facilitates hunting in a way that maximizes the opportunity to achieve safe, sustainable, humane and equitable hunting. (Hine, 2017b, p. 3).*

However, the distinction between the promotion of hunting and the promotion and facilitation of sustainable hunting is not always recognised or accepted by external stakeholders. Stakeholders consulted in this review often assumed that the GMA has an explicit or implicit industry development function. Representatives of hunting organisations sometimes criticised the GMA for not being a more effective advocate for their interests while animal welfare bodies questioned the appropriateness of a regulator undertaking industry development activities, but both groups took for granted that the GMA had some sort of industry development function for game hunting.

The GMA's own materials sometime slip between promotion of safe and sustainable hunting and promotion of hunting as a recreational activity. The GMA's website seeks to promote a vision that hunting in Victoria is respected and valued around the world (Game Management Authority, 2017). This sounds uncomfortably like a vision for the promotion of game hunting. The GMA's mission statement on the same website page sets out a role for the GMA as "an authoritative facilitator of sustainable game management and quality hunting opportunities". The GMA's vision and mission statements can easily be interpreted as implying that the GMA has an industry promotion and development role.

These statements cascade into other public and internal documents. In a section of the GMA website encouraging hunters to become involved in conservation, the GMA makes the claim that "[h]unting encourages people to connect with, and to conserve, the natural environment" (Game Management Authority, 2017b). This goes beyond the promotion of sustainable hunting to the promotion of social benefits associated with hunting as a recreational pastime.

The GMA's *Compliance Strategy and Enforcement Guidelines for the 2017 Duck Hunting Season*, asserts that the role of the GMA is to "facilitate the hunting...of prescribed game species of duck" (Game Management Authority, 2017a, p. 10). In that document, the GMA's objective of facilitating sustainable hunting has slipped to a broader objective of facilitating hunting that leaves the GMA open to a perception of apprehended bias. The objective of facilitating hunting is used in the document to explain the GMA's involvement in disputes between hunters exercising "the legal right to hunt" and "the activities of animal welfare protesters [which] are, in many cases, designed to disrupt hunting." The same passage refers to "the possession of game and protected wildlife" by hunters without noting that the destruction or possession of protected wildlife would itself constitute an offence under the game laws that the GMA is obliged to enforce.

The GMA has an obligation under section 6(h) of the GMA Act to "monitor, conduct research and analyse the environmental, social and economic impacts of...hunting." It would be expected that an independent regulator charged with research into the economic and social impacts of hunting

would seek to explore a range of perspectives on the issues in a way that informed a balanced approach to regulation and added to public understanding.

However, the GMA's general power to conduct research appears to have been applied to promote one side of a complex debate about the economic and social benefits of game hunting. The GMA regularly draws in its public and internal documentation to an assessment of the economic benefits of game hunting prepared by the former Department of Environment and Primary Industries (DEPI) (2014) and provides a copy of the report on its website. The *Hunting Manual*, for example, claims that hunting generates hundreds of millions of dollars of direct and indirect economic activity (Game Management Authority, 2017, p. 4). An internal review of the 2017 opening of the duck season opening included a statement under the heading "Goals" that "duck hunting continues to contribute to the social, economic and environmental wellbeing of the state" (Game Management Authority, 2017g). The report to the Minister on the opening weekend of the duck hunting season also claims that "regulating hunters and hunting activity contributes to sustainable recreational, social, environmental and economic benefits" (Game Management Authority, 2017f, p. 3).

The findings of the DEPI study have been challenged by other research bodies (Parliament of Victoria Environment, Natural Resources and Regional Development Committee, 2017, p. 91). The GMA materials that have been cited do not acknowledge the criticisms that have been made of this study or provide references to studies that present other conclusions. It is reasonable, given the nature of GMA Act, for the GMA to promote safe and sustainable hunting, but to assert that duck hunting contributes to the social, economic and environmental well-being of the state, and to seek to achieve this as a stated goal of regulation, seems to move the GMA beyond its primary role as a regulator into an advocacy and promotional role for the game hunting activity that it is charged with regulating.

The then Minister indicated in the Second Reading Speech for the GMA Bill 2013 that the GMA would be first and foremost a regulator. This is as it should be. However, the then Minister at the same time also went on to articulate other roles for the GMA. Tensions in the GMA's are embedded in the organisation's DNA. However, the GMA appears to have exacerbated these tensions and is sometimes perceived as playing, and occasionally slides into, advocacy and promotional roles.

The GMA Amendment Bill 2017 recently introduced into the Victorian Parliament proposes additional functions for the GMA, including explicit objectives to optimise the social, cultural and economic benefits of game hunting and support the development of recreational and commercial game hunting, that would add further tension to the GMA's role as a regulator.

There is a fine distinction between promotion of sustainable hunting and promotion of hunting as a recreational pursuit that brings benefits to the State. There is scope to clarify the role of the GMA and insert protections into the governance and operating models to ensure the GMA is seen by stakeholders as independent and impartial. Once clarified, the GMA needs to be careful to maintain role clarity to protect its reputation as an independent and impartial game manager and regulator.

### 4.3 Regulatory and institutional environment

The GMA operates within a complex, fragmented and sometimes contradictory institutional environment.

At least five agencies have a role in managing game hunting:

- DEDJTR is responsible for game hunting and animal welfare policy and coordinating the preparation of legal instruments to regulate game hunting;
- DELWP is responsible for broader wildlife policy, land management and status policy, waterbird monitoring and managing non-parks and reserves public land;
- Parks Victoria is responsible for managing activities on the parks and reserves estate, including State Game Reserves;
- Victoria Police is responsible for firearm licensing, possession, use and ownership, and is responsible for maintaining public order, including leading protestor management; and
- the GMA is the operational regulator responsible for advising Ministers on wetland closures and other matters, research, including harvest monitoring and bird and wetland monitoring and compliance and enforcement activities, including education, information and enforcement.

Relevant parts of the *Wildlife Act 1975* (Vic) and associated regulations are enforced principally by Authorised Officers from DELWP. Authorised Officers from DELWP, Parks Victoria and members of Victoria Police also assist in the enforcement of game laws.

These agencies operate out of three portfolios and report to separate Ministers. Their powers and responsibilities in relation to game management overlap and intersect with one another and with the powers of the GMA, and in a policy sense are sometimes contradictory. The recent Victorian Parliamentary inquiry into the control of invasive animals on Crown land pointed to tensions between existing game management arrangements, the management of public lands and the control of invasive animals (Parliament of Victoria Environment, Natural Resources and Regional Development Committee, 2017, p. 230).

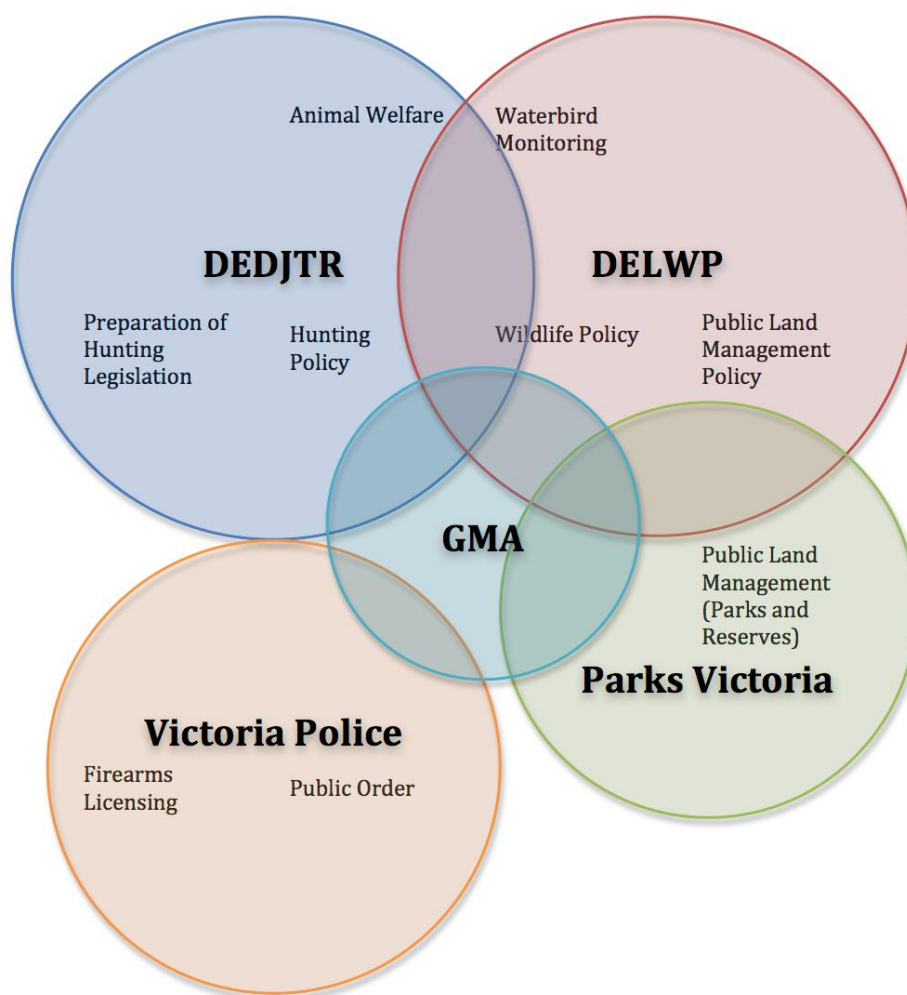
The overlapping responsibilities of different agencies, and the GMA's reliance on information and support from its partner agencies, can create difficulties for the GMA in delivering on its regulatory responsibilities. Wildlife monitoring on public land is the responsibility of at least three separate agencies: DELWP, Parks Victoria and the GMA. The GMA relies on information from its partner agencies to make assessments of the sustainability of game numbers and to advise on the management of upcoming hunting seasons. However, the GMA (2017f, p. 10) has suggested that DELWP and Parks Victoria have under-invested in their game monitoring responsibilities, placing an increasing burden on a very small number of GMA officers to collect field data, despite the much larger capacity of its partner agencies, and exposing the GMA to risks where important issues requiring action are potentially not being identified.



Difficulties of this kind are not unusual between agencies managing complex whole of state operations, and it is important to recognise that GMA's partner agencies have much broader policy and delivery responsibilities than the GMA, even if they are larger and appear better resourced. However, the coordination of the activities of the relevant departments and agencies currently relies on informal arrangements and shared understandings.

An illustration of the fragmented and overlapping responsibilities for game management is provided in Figure 2 below.

*Figure 2: Institutional arrangements for delivery of game management regulatory responsibilities*



Coordination across the relevant agencies would be improved by the development of a definitive statement of the accountability framework within which the GMA and its partner agencies are expected to work and detailed and up-to-date agreements or Memoranda of Understanding between the individual agencies in relation to the identification of priorities, the allocation of responsibilities, resource sharing and dispute resolution.

It is, however, doubtful that the GMA currently has the capacity or institutional leverage to develop an appropriate set of accountability documents, and until more sustainable arrangements can be developed it will continue to rely on the goodwill of other agencies.

#### 4.4 Community and stakeholder context

The GMA operates in a highly contested regulatory space in which stakeholders across a broad range of values and interests have strongly held and often divergent opinions about the value and rectitude of hunting as a recreational activity.

Game hunting is a cultural tradition that has been undertaken for many centuries. People participate in hunting for a variety of reasons; while the primary interest for some hunters is the taking of game as a source of food, others hunt primarily for companionship or to pursue interests that are incidental to hunting. These interests can include the development of shooting skills, training and hunting with dogs, the experiences of camping and the outdoors, learning about the ecology and behaviour of game and other wildlife, and cooking and eating game (Department of Primary Industries, 2012, p. 14).

Proponents of recreational shooting argue the wider community and industry also benefit from game hunting. Industries associated with the manufacture, maintenance, importation and retail sale of firearms, ammunition, and camping, boating and off-road motor vehicle equipment receive an economic benefit from the purchase of goods by recreational shooters. Some hunters also use dogs to assist in hunting which creates a market for the dogs themselves, dog food, training and housing accessories and veterinary care. Rural townships and regional businesses may also benefit from an influx of hunters during hunting seasons, where food, accommodation, hunting accessories and fuel are purchased.

A study commissioned in 2013 by the then Victorian Department of Environment and Primary Industries (DEPI) (2014, p. 24) estimated that hunting generates \$439 million in economic activity each year in Victoria. This includes \$294.7 million on game hunting and \$144.4 million on pest hunting. The study estimated that approximately 40 per cent of expenditure took place in Melbourne and 60 per cent in regional areas.

Some proponents of game hunting also claim that sport hunting can assist in the conservation of the natural environment and the control of invasive animals (Parliament of Victoria Environment, Natural Resources and Regional Development Committee, 2017, p. 91). The general community may benefit from the proper conservation and maintenance of game resources and their habitats and from controlled and safe hunting methods. However, this is a complex issue. Hunting organisations have a variety of goals, and some proponents of game hunting argue for the control and management of breeding populations of invasive animals such as deer rather than eradication of the entire stock of animals. Indeed, it could be argued there is an inherent conflict between feral animal control and the objectives of sustainable game hunting, which is directed at ensuring the continued supply of a stock of animals to support future hunting opportunities.

The economic and social benefits of recreational hunting have also been contested. Various organisations have challenged the DEPI study, arguing the methodology was seriously flawed (Parliament of Victoria Environment, Natural Resources and Regional Development Committee, 2017, p. 91). The Australia Institute (2012, p. 12) has suggested that if hunting were not permitted, the same money would be spent within the Victorian economy anyway, although on a different range of goods and services. The Australia Institute argued that opportunity costs, such as duck hunting deterring other tourists from visiting those areas, were not factored into the estimate of \$439 million worth of economic benefits.

The potential for recreational game hunting to contribute to the control of feral animals has also been challenged. The Invasive Species Council has argued that recreational hunting is not an effective means of controlling invasive animals (Parliament of Victoria Environment, Natural Resources and Regional Development Committee, 2017, p. 224). Sport hunting is a relatively random process and can be selective in its targets (for example, selecting large trophy males rather than the breeding population of females). Where sport hunting is not undertaken as part of a structured program of feral animal control, the impacts are largely incidental to the primary purpose of sport shooting, are not measured in any systematic way and will be unlikely to achieve clear wildlife goals and outcomes.

Submissions to a recent Victorian Parliamentary Inquiry into the control of invasive animals on Crown land, did, however, suggest that, while opportunistic or ad hoc ground shooting is generally not an effective means of invasive animal control, “[a]ccredited volunteer shooters can provide a positive contribution to biodiversity outcomes where this contribution is managed in a strategic, systematic way and is integrated with other management actions” (Parliament of Victoria Environment, Natural Resources and Regional Development Committee, 2017, p. 224).

While sport hunting has many supporters, many members of the community object to game hunting in principle and to aspects of the practice of game hunting as it has been expressed in Victoria. Some groups and individuals are opposed to game hunting in Victoria, particularly duck hunting. For example, the RSPCA, Coalition Against Duck Shooting, Animals Australia and Birds Australia all publicly oppose duck hunting and publicise their policies on their websites.

Different groups and individuals have different reasons for opposing hunting, and even those who identify the same issues may prioritise them in a different order. It is, however, possible to identify a number of common objections:

- suffering caused to game animals;
- collateral damage to non-game (including endangered) species;
- risks to other users of public land where hunting occurs; and
- ineffectiveness in controlling pest species populations.

Submissions to the recent Parliamentary inquiry into the control of feral animals raised concerns about irresponsible and illegal hunters trespassing on private property, hunting in areas where

hunting is not permitted, hunting without the required licence, spotlighting on public land and shooting on private land without permission (Parliament of Victoria Environment, Natural Resources and Regional Development Committee, 2017, p. 92). Stakeholders consulted in this project pointed to the adverse impacts of hunting on the amenity, safety and comfort of adjoining landholders. Private landholders have a reasonable expectation that the GMA will assist in managing the impacts of game hunting on their property and adjoining public or private land.

Game hunting in Victoria is a legally sanctioned activity that involves the licencing of hunters to enjoy access to Crown land to pursue hunting and harvesting activities. There are inherent conflicts between the rights of hunters to pursue their chosen recreational pursuit and the legitimate rights of others to pursue their own lawful activities in shared public spaces. The continuation of hunters' rights depends on a negotiated and contingent social licence rather than on any permanent or inalienable right to hunt.

Recent events have raised questions about the public perception of the GMA's effectiveness as a regulator and whether the social licence extended to hunters can and should be maintained.

At the Koorangie State Game Reserve (the Marshes, or Koorangie Marshes) on the opening weekend of the 2017 duck season, hunters were observed by the GMA to engage in illegal, unethical and irresponsible behaviour. According to the GMA (2017f, p. 5), illegal behaviour included early shooting, the destruction of protected species, hunting from a moving boat and littering while unethical and irresponsible behaviour included shooting at birds beyond hunters' effective shooting skill distance, which often results in wounding, failure to recover shot birds and the dumping of shot birds. Animal welfare groups have pointed to other alleged breaches of the law and lapses in ethical hunter behaviour. Only one infringement notice was issued to a hunter for shooting before the legal hunting time and four additional infringement notices were subsequently issued to four hunters for failing to retain a wing on a game duck. Eleven banning notices were issued to protestors.

The failure to ensure compliance with the game hunting laws, or to effectively sanction offenders when the game hunting laws are breached, is not a new phenomenon. Prominent hunters have bragged about their illegal hunting behaviours on social media and not been prosecuted. At the Box Flat swamp during the 2013 duck hunting season, some 226 protected birds were illegally slaughtered and 840 game ducks abandoned on one private wetland (Game Management Authority, 2017 April, p. 7). The GMA's predecessor failed to secure any successful prosecutions arising from these incidents.

As the regulator, the GMA has an obligation to ensure that minimum standards of responsible and ethical behaviour will be maintained. Events such as those occurred at Box Flat in 2013 and at the Koorangie State Game Reserve in 2017, and many similar events that have not been as well publicised, cause dismay in the wider community and threaten the public confidence that gives the GMA legitimacy.

The environment in which the GMA operates poses unique challenges. Game hunting often occurs in remote and inaccessible areas where illegal behaviours are difficult to observe. It is therefore

easier to find the effects of illegal and irresponsible behaviours than to detect the perpetrators. However, illegal hunting occurs on shared public land and on public land that adjoins or is close to private land, and other users of these spaces have a legitimate expectation that they will not be confronted by the results of illegal and irresponsible hunting behaviours.

Communities are increasingly well informed about public affairs and have high expectations of regulators. They expect regulators to effectively administer the law, and to reflect prevailing community standards. The GMA is in the difficult position of regulating an activity that is very highly regarded by its advocates and practitioners but opposed on moral and ethical grounds by other stakeholders, and it cannot afford to be seen to be indifferent or inactive in enforcing the law.

As a public, statutory regulator, the GMA owes a duty to the community as a whole, not just hunters, to ensure the game laws are observed and that minimum standards of responsible and ethical behaviour are maintained. This requires an ability to engage with stakeholders across a wide spectrum of values and interests and to adapt and adjust to changing community attitudes and expectations.

The GMA (2017f, p. 7) has noted in its review of the opening of the 2017 duck hunting season that a failure to change and respond to community expectations and standards will continue to see the future of duck hunting challenged by those who oppose it and the broader community which reasonably expects sustainable and responsible conduct.

To fulfil its statutory responsibilities and obligations to the community as a whole, the GMA requires a flexible and responsive approach to compliance and enforcement and a capacity to operate across a wide spectrum of values and interests to ensure that it retains the confidence of the community that provides its social licence to operate.

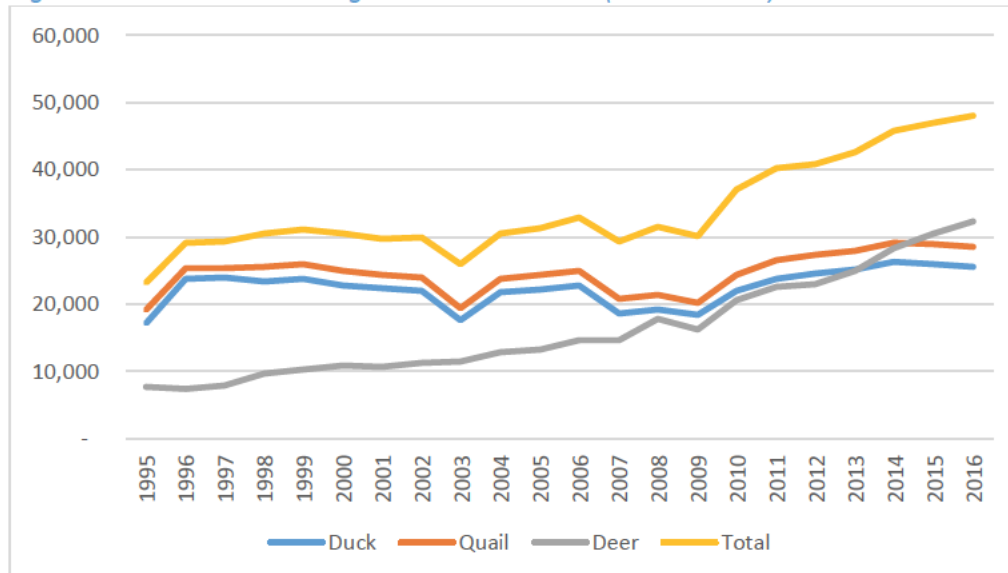
#### 4.5 Long-term demand

The GMA is experiencing significant long-term growth in the demand for its services.

There are approximately 48,000 licenced game hunters in Victoria (Game Management Authority, 2016b, p. 4). As at 30 June 2016, there were 32,306 licenced deer hunters, 25,646 licenced duck hunters and 28,545 licenced quail hunters (Game Management Authority, 2016b, p. 21). A number of these hunters are licenced to hunt more than one species. In 2016 there were 48,023 individual licence holders (Parliament of Victoria Environment, Natural Resources and Regional Development Committee, 2017, p. 85).

The total number of licence holders have increased over the past 20 years, as shown in Figure 3 below.

Figure 3: Game licences and game licence holders (as at 30 June)



Source: Game Management Authority, *Game Licence Statistics, Summary Report – 2016*, p.7.

Between 30 June 1996 and 30 June 2016, there has been a 65 per cent increase in game licence numbers. Despite some fluctuation from year-to-year due to the cancellation or reduction in the length of the duck season or the application of lower bag limits, game licences with duck and quail entitlements have increased by 9 per cent and 12 per cent respectively.

However, game licences with a deer entitlement have increased by 336 per cent over the same period, and have been less prone to short-term fluctuations.

On the other hand, funding for the GMA has been approximately static since its establishment in 2014.



## 5 Approach to compliance and enforcement

---

*This section assesses the effectiveness of the GMA's approach to compliance and enforcement.*

---

### 5.1 Compliance policies, strategies and planning

The GMA has a well-developed regulatory architecture, but there are gaps in the framework and the GMA's approach to regulation lacks the responsiveness normally expected of a contemporary regulator.

The GMA's approach to compliance and enforcement is set out in the GMA Compliance Policy (Game Management Authority, 2016a). The Compliance Policy describes the general framework on which the GMA bases its compliance activities. It is a very high-level document that is intended to provide guidance to the Victorian public on the compliance approach that will be taken by GMA in undertaking its regulatory activities (Game Management Authority, 2016a, p. 7).

The Compliance Policy articulates the GMA's approach to its compliance obligations. The Chairperson has described the Policy as:

*... a risk-based, intelligence-led approach to delivering safe, consistent, effective and efficient compliance services. It recognizes the need for maximizing voluntary compliance through education, support and incentives, monitoring compliance through random inspections, audits, patrols and intelligence gathering, and responding to non-compliance by investigating suspected breaches of the law and enforcing those. (Hine, 2017b, p. 3).*

The Compliance Policy indicates that it will be reviewed by the GMA Board on an annual basis or more frequently to reflect changes in the compliance and operational focus of the GMA. The document on the GMA website was last revised in August 2016 and was due for revision on 1 July 2017.

The Compliance Policy is supported by a cascading set of planning and operational documents. These include compliance and operational plans for major events and sensitive compliance and enforcement actions. A detailed *Compliance Strategy and Enforcement Guidelines for the 2017 Duck Hunting Season* was prepared in advance of the 2017 duck hunting season (Game Management Authority, 2017a). This document sets out the compliance objectives and strategies and enforcement guidelines intended to be applied across the state.

The Guidelines are underpinned by more specific operational plans for the various regions covered by the GMA. Other compliance plans are prepared for specific compliance activities, such as the management of hog deer hunting on Snake Island (Game Management Authority, n.d.). These

documents provide more detailed advice and guidance for staff on the specific purpose and execution of these operations, roles and responsibilities, advice on administration and logistics and guidance on the range of penalties that may be applied for specific offences and penalty procedures for specified offences.

The GMA also maintains a Manual of Procedures and a suite of Standard Operating Procedures (SOPs), which set out procedures, instructions and guidelines for managing a range of compliance issues. SOPs are an important tool in managing risks and ensuring a consistent approach to operational activity. They help to ensure the safety of GMA staff and members of the public. SOPs provide Authorised Officers with detailed guidance to ensure compliance staff operate in a consistent, predictable and professional manner.

A recent independent review of the GMA's risk management for game compliance pointed to gaps and deficiencies in these documents (Emergency Management Consultancy Services, 2015, p. 10). That review found the SOPs were dated and inaccurate in a number of respects. Feedback from staff also suggested that while the SOPs were useful documents, they were dated and could not always be relied upon. Staff were aware of the SOP on managing interactions with armed hunters but agreed that they interpreted the SOP and applied it in the field in different ways.

The independent review indicated that a Game Officer review of the SOPs should be undertaken "without delay" (Emergency Management Consultancy Services, 2015, p. 10). The GMA indicated the SOPs were reviewed on a rolling program over three-year cycles. However, that program appears to have slipped, as some SOPs provided for the purposes of this project have not been updated since 2014.

The GMA has indicated that it takes a risk-based and intelligence-driven approach to its compliance and enforcement activities (Hine, 2017b, p. 3). In describing its approach to compliance and enforcement, the GMA (2015, p. 18) says that it considers the likelihood of non-compliances occurring and the consequences of the actions, establishes priorities, assigns tasks, and plans and delivers operations.

There is no doubt the GMA sets compliance and enforcement priorities and that it plans its enforcement operations very thoroughly. The Compliance Policy, for example, establishes a hierarchy of compliance priorities that emphasise public safety and sustainability (Game Management Authority, 2016a, p. 12), and these priorities are reflected in the more detailed instructions (Game Management Authority, 2017a, p. 16) and operational plans (Game Management Authority, 2017e, p. 6).

However, the strategies that underpin the GMA's operations and the basis on which it establishes priorities are less certain. It is not clear, for example, why the GMA consistently prioritises actions against protestors over competing compliance priorities in relation to hunters, or how the GMA decides to allocate its available funds between education and information, or between monitoring and enforcement. The GMA (2017f, p. 13) acknowledges the importance of hunter behaviour in determining the overall effectiveness of the GMA's regulatory regime, indicating that "compliance is an individual choice", and seeks to influence hunter behaviour in various ways, but it does not

have clearly articulated processes for choosing one compliance and enforcement strategy over another or for determining the relative allocation of resources to alternative compliance and enforcement activities. Nor is there evidence of any considered assessment of the potential to adopt elements of alternative co-regulatory or self-regulatory strategies.

In contemporary regulatory models, informed monitoring for non-compliance is used to determine whether the regulatory design is having its desired effect on the target population (Parker, 2000, p. 537). While the GMA Chairperson refers in his letter to the Minister on the Statement of Expectations to “a risk-based, intelligence-driven” Compliance Policy (Hine, 2017b), the GMA has very limited data on which to base its compliance and enforcement strategies and there is little evidence that its current strategies have been informed by any systematic analysis of the willingness or ability of its regulated stakeholders to comply with their lawful obligations, or the impact of its existing regulatory activities. Indeed, the GMA’s compliance priorities appear to have remained relatively stable over time. GMA’s approach to regulation relies on a limited number of educational and informational products and a relatively strong emphasis on deterrence-based enforcement activities.<sup>1</sup>

A capable, contemporary regulator pursues compliance strategies across a spectrum of activities from information and awareness through education to enforcement, which take the form of advice, warnings, notices or sanctions, and which are informed by knowledge of the compliance postures and behaviours of regulated entities. These activities are often described in terms of a pyramid of enforcement strategies, and example of which is provided below in Figure 44.

Figure 4: Compliance strategy model



Source: WA Department of Mines, Industry Regulation and Safety (2017)

<sup>1</sup> Deterrence can be regarded as the effect of a sanction or the threat of its imposition in inhibiting the behaviour of the sanctioned person or of others who would commit like behaviour (Blumstein, Cohen, & Nagin, 1978, p. 16). A deterrence-based model of enforcement assumes that most regulated entities are rational economic actors that act to maximise their utility (Rechtschaffen, 1998, p. 1186).

The GMA has limited access to strategic intelligence and does not routinely report on or evaluate the effectiveness of its compliance and enforcement strategies. The GMA is aware of the need to make better use of intelligence data to inform its enforcement approach and has taken steps to part-fund an analyst in the Victorian Fisheries Authority's Strategic Intelligence Unit. However, the GMA needs to extend this approach to inform its activities across a broader range of the compliance spectrum and engage in a broader range of compliance strategies, including the consideration of the potential effectiveness of co-regulation and self-regulation strategies.

The GMA's effectiveness as a regulator would be enhanced by the development of a compliance strategy that sets out the specific compliance and enforcement goals, priorities, strategies or performance measures that are to be applied in the upcoming period, and the basis on which those priorities and strategies have been selected and are to be evaluated against.

A contemporary regulator would also consider a range of potential regulatory strategies and interventions, including self-regulation, co-regulation, and a stronger emphasis on compliance based strategies that positively influence hunter behaviours (Ayers & Braithwaite, 1992, p. 39). These suggestions are developed in more detail in section 8.4 of this report.

## 5.2 Licensing

The GMA (2015, p. 15) administers both recreational and commercial licences under the *Wildlife Act 1975* (Vic). This section of the report deals only with recreational game licences.

In Victoria, hunters are required to purchase a game licence to hunt game species on public land.

To hunt game birds, including ducks, hunters must pass the waterfowl identification test. This test involves a series of multiple-choice questions based on video footage of waterfowl in flight. This requirement is intended to ensure that only hunters that are able to demonstrate adequate identification skills are able to hunt ducks. The effectiveness of the current test has been questioned by external stakeholders and by Game Managers and Senior Game Officers.

To hunt sambar deer with the aid of hounds, hunters must pass the hound-hunting test. This requirement is designed to ensure hunters using hounds are aware of the legal, ethical and safety obligations when hunting. The test includes multiple-choice questions on licencing requirements, hunting seasons, legal hunting methods, safe firearm handling practices, ethical responsibilities and other information relevant to hound hunting.

In addition to standard game licences, special licence categories are available for juniors (12 to 17 year-olds), game-bird farm hunting and international visitors who reside outside Australia. To hunt non-game species, such as pest animals (including European rabbits and hares, foxes and feral or wild goats, pigs, dogs and dingoes), a hunter only requires a firearm licence (Parliament of Victoria Environment, Natural Resources and Regional Development Committee, 2017, p. 71).

Outside of the open season for hunting hog deer, balloted hunting periods are also managed by the Blond Bay Hog Deer Advisory Group (Parliament of Victoria Environment, Natural Resources

and Regional Development Committee, 2017, pp. 75-76). The ballot is used to select hunters to hunt for free-ranging hog deer on Blond Bay State Game Reserve, on sections of the Boole Poole Peninsula and on Snake Island.

Licencing provides one of the means by which a regulator may manage the potential risks, or harms, that it is seeking to regulate.

Licencing systems generally describe a set of regulations that limit an activity to individuals or entities who meet state-established criteria (Svorny, 1999, p. 296). People may be denied access to an activity if they do not meet established criteria or if legal limits on supply have been met. Where the activity itself is regulated, as in the case of game hunting, licencing may be used to maintain compliant behaviour through the suspension or revocation of licences where licence holders are found to be acting outside the prescribed set of permissible activities. Outcome assessments can also be used to discipline errant individuals, as occurs with licence point demerit systems.

The GMA's licencing arrangements should ensure that prospective game hunting licence holders have a clear understanding of the basis on which hunting will be conducted and provide a means of encouraging and reinforcing more compliant hunting behaviours. However, with the exception of duck hunter identification skills and hound hunter knowledge skills, applicants currently seeking a licence to hunt game are not required to prove any knowledge of the law, demonstrate even a basic understanding of safe and responsible hunting practices or possess any hunting competence.

By contrast, the GMA (2017 June, pp. 2-3) has recognised that international standard practice involves requiring hunters to acquire a basic level of knowledge and/or skill through a licencing regime that includes some form of basic training and/or testing.

Under the current arrangements, the GMA is providing education and awareness programs to hunters only after they have acquired a licence to hunt, which does not provide any strong incentive for hunters to participate, and field officers are forced to respond to incidents that may arise from simple ignorance of the hunting laws and rules of ethical hunting that could have been tested prior to licencees entering the field. The current arrangements are analogous to VicRoads providing driver education only after a licence has been allocated to drive on a public highway.

This leaves the GMA vulnerable to criticism that it has not done enough to mitigate the risks that are attached to game hunting on shared land, and places additional pressure on other compliance and enforcement measures to influence the behaviour of hunters after they have been issued with licences.

Animals Australia and the Coalition Against Duck Shooting have argued for mandatory target shooting accuracy tests and an annual waterfowl identification test to reduce the number of birds left injured or dying. Hunters are currently required to pass a waterfowl identification test once to get their licence, but their shooting accuracy is never tested (Wahlquist, 2017). Empirical evidence suggests that duck wounding is related to the proficiency of the hunter and can be reduced with appropriate training. Information collected in the development of the Shotgun Education

Program indicated that experienced shooters involved in a 'train the trainer' trial caused an average of 29.4 per cent wounding before the training and that was reduced after a week of intensive training to 5.1 per cent (Animal Welfare Advisory Committee, 2008). While it is unlikely that a practical level of mandatory training for hunters would achieve these results, the evidence suggests that it would contribute in a positive way to the GMA's compliance objectives.

In relation to the proficiency of recreational hunters, the Parliament of Victoria Environment, Natural Resources and Regional Development Committee (2017, p. 148) has recently observed that:

*Recreational hunters range from beginners to the very experienced. Mr Bob Gough, who has designed accreditation programs for shooters, noted that not all recreational hunters practice enough. As a result, he indicated, only 33 per cent of recreational hunters seeking to be part of the Parks Victoria program pass the required accreditation test for that program.*

The RSPCA also informed the Parliament of Victoria Environment, Natural Resources and Regional Development Committee (2017, p. 148) that:

*... [recreational] hunters have highly variable skill levels and there is no shooting competency test required to acquire a hunting licence. In a survey of hunters carried out by the University of Queensland in 2012, 58% of 6,892 hunters said they had not done any accredited hunter training.*

The current licensing arrangements are ineffective in ensuring a minimum acceptable level of awareness and competence amongst hunters, and leaves the GMA exposed to criticism that it is not fulfilling its statutory obligation to promote the sustainability and responsibility of game hunting in Victoria.

There are also issues surrounding the adequacy and robustness of the current licensing database, which is not fully supported and has limited scope for additional functionality. We understand the GMA is currently developing a process to renew the Game Licensing System and the intention is that adequate functionality will be built into any new system to facilitate broad testing requirements.

Options for improving the current licensing arrangements are canvassed in sections 8.5 and 8.6 of this report.

### 5.3 Surveillance, monitoring and information gathering

Monitoring and reporting on compliance with the game laws and investigating non-compliance are core roles for a regulator.

The GMA recognises the importance of these functions. The Compliance Policy states that:

*A core function of the GMA is to determine and report on levels of compliance with current standards and laws, and maintain a credible deterrent for non-compliance. Monitoring compliance and investigating non-compliance is therefore a key role for the GMA. (Game Management Authority, 2016a, p. 12)*

However, the Compliance Policy provides little additional information on the relative priority to be attached to this function, or how monitoring and information is to be carried out.

The GMA (2016, p. 22) has indicated that it regularly monitors intensively hunted areas and wetlands that have been closed, re-opened or had significant threatened waterbird species. Monitoring is undertaken principally by GMA staff with some assistance from DELWP and DEDJTR staff.

The GMA also has access to systematic hunter bag survey data provided by the Arthur Rylah Institute for Environmental Research. These reports are based on interviews with hunters in the field. The reports provide information on harvest rates, and are therefore relevant to the GMA's responsibilities for sustainable game management, but they also provide information on compliance with hunter bag limits and evidence of the destruction of protected and threatened species and unrecovered and illegally shot birds.

A single shoreline survey was carried out in 2014 on Loddon Weir, North West Region, with a single shot and unretrieved duck reported (Arthur Rylah Institute for Environmental Research, 2015, p. 17). Three shoreline surveys were carried out in 2015 recording a total of 24 shot and unretrieved ducks: Lake Connemara in Barwon South West Region where 20 ducks were recorded as being shot and not retrieved by hunters, Toolondoo Reservoir in the Grampians with three ducks and Lake Murphy in Loddon Mallee with one duck (Arthur Rylah Institute for Environmental Research, 2015, p. 7). However, the report also noted that shoreline surveys were only carried out at these three wetlands. The 2016 report indicated that reports of wounded and unretrieved ducks came from Parolas, Reedy Lake and Toolondo Reservoir, involving a total of 38 ducks (Arthur Rylah Institute for Environmental Research, 2016). Staff also collected 122 unretrieved, dead ducks from Lake Buffalo and Parolas. In addition, four wounded Banded Stilts were seen by Gippsland staff near Hollands Landing (Arthur Rylah Institute for Environmental Research, 2016, p. 13).

The original conception of the Hunter's Bag Survey was that it would be conducted widely across Victoria to provide an adequate sample to allow defensible estimates of the opening weekend take (Arthur Rylah Institute for Environmental Research, 2016, p. 20). For example, in 1992 Hunter's Bag Surveys were conducted at a total of 110 wetlands. This is in stark contrast to the effort expended on Hunter's Bag Surveys in recent years; 14 wetlands surveyed in 2014, 21 in 2015 and 20 in 2016.

The Arthur Rylah Institute has noted that the limited data collected in recent years severely reduces the value of the Hunter's Bag Survey in assessing the impact of duck hunting on waterbird populations. Nevertheless, it points to concerning levels of non-compliance with the game hunting laws and the ethics of responsible hunting behaviour.



There is a good case for a more systematic and inclusive approach to monitoring and information gathering. The 2015 report from the Arthur Rylah Institute (2015, p. 17) indicated that a much larger sample of shoreline surveys is required, along with better quantification of search efforts, to ensure that shoreline surveys provide useful information for monitoring compliance with the game hunting laws and animal welfare issues. The 2016 report on the Hunters' Bag Survey recommended that a statistical power analysis be conducted on the accumulated data to derive estimates of the sample sizes required to achieve a scientifically robust estimate of opening weekend harvest (Arthur Rylah Institute for Environmental Research, 2016, p. 20).

The GMA has argued that it has limited resources and needs to be selective in its surveillance and monitoring activities. The GMA's report to the Minister on the 2017 opening of the duck hunting season indicated that "given the current resource constraints and higher priority duties for staff conducting game enforcement, there are currently no plans [to] divert resources into searching wetlands for unrecovered game or illegally shot non-game wildlife" (Game Management Authority, 2017f, p. 12). The GMA makes the point there is no legal requirement to recover shot birds nor is it illegal to discard harvested game ducks and that the recovery of illegally shot protected wildlife after the fact provides very little in the way of forensic evidence to prosecute an offender.

This is certainly the case. However, the GMA (2017d, p. 3) has expressed a management objective of facilitating responsible and sustainable hunting of game duck throughout Victoria and providing advice for the education of hunters, focussing on responsible hunting and firearm safety. The GMA also has an obligation under the GMA Act to develop plans and procedures to address the humane treatment of animals that are hunted or used in hunting. The value in collecting unrecovered birds may be minimal to successful prosecutions, but shoreline recovery can provide invaluable information on the extent of wounding of ducks and the incidence of illegally shot protected wildlife, and thereby inform future compliance activities.

The GMA's reluctance to allocate resources because of the poor return on prosecutions suggests a preference for enforcement activity over information and awareness activities. However, as the GMA does not have a clearly articulated process for determining the relative priority of different compliance and enforcement activities, or for allocating resources across competing demands, it is difficult to assess the basis upon which it has been decided to attach a lower priority to the collection or counting of unrecovered birds.

Senior Game Officers are responsible for monitoring hunter behaviour and compliance through surveillance and monitoring of hunter behaviour, either in the field or through other means (e.g. monitoring social media). The GMA (2017f, p. 9) has argued that the capacity of its Senior Game Officers to undertake enforcement-related surveillance activities is constrained by the operating model that requires them to work closely with Victoria Police. The GMA has pointed out that combined operations can take weeks or months to organise and often Police are called away or are unable to attend at the last moment due to the need to respond to other incidents which are of greater operational priority for them. This results in frustration for committed and hard-working staff and represents a waste of scarce resources for all of the agencies involved.

Senior Game Officers and Game Mangers indicated that they therefore generally carry out surveillance operations to gather intelligence before contacting Victoria Police to develop an enforcement operation. However, those activities appear to be undertaken on the basis of a largely opportunistic basis driven by local knowledge and the leads and information collected by the Senior Game Officers through their extended local networks. This is a relatively unsystematic approach to surveillance and by its nature is not closely controlled or monitored. While a tasking and coordination committee was established by the GMA and operated for some time, it has not met for some time and now appears to be defunct. It is unclear whether there has been a sufficient return on these activities to justify the resources that have been allocated.

An independent assessment of the risk management of GMA's compliance activities in 2015 indicated that "no formal training had ever been delivered on effective surveillance techniques" (Emergency Management Consultancy Services, p. 17). A detailed record of training records provided by the GMA indicates that surveillance training has still not been provided.

The GMA has some access to intelligence databases maintained by other agencies. GMA has access to a Victorian Fisheries Authority (VFA) intelligence database during normal office hours under a Service Level Agreement (SLA) developed with the VFA's predecessor organisation Fisheries Victoria. GMA management value this arrangement, but have questioned whether access would continue on the current terms given the GMA and VFA have now both been established as independent statutory bodies. In addition, DELWP also has an intelligence database for game related information reports, but GMA does not have formal access to this. There is some sharing of intelligence between VFA and DELWP but there is no formal arrangement in place. Senior Game Officers also have access to third party information through VicRoads for vehicle registration details and telecommunications providers for phone records through VFA, but this access is restricted to during office hours only.

The GMA also has access to the police law enforcement database (LEAP) through the VFA. Access to LEAP is considered to be a critical success factor in the intelligence gathering and operational planning strategy for enforcement operations (Emergency Management Consultancy Services, 2015, p. 24). It is understood that discussions with Victoria Police regarding an MOU to document how the agencies work together in accessing and using this information are continuing.

While the GMA has access to these databases, the value that it obtains is limited by its lack of any developed analytical capability. The GMA does not currently have access to a dedicated compliance investigator to identify, plan and lead targeted investigations into criminal activity or a dedicated crime data analyst to interpret officer information reports, game crime statistics and reports from the public (Game Management Authority, 2017 April, p. 8). Without this capability, it is difficult to see how the GMA could hope to maintain a risk-based and intelligence-led compliance and enforcement framework.

The GMA recognises the gap and has entered into an arrangement with the VFA and the biosecurity function of DEDJTR to both part-fund a shared intelligence analyst to be located in the VFA Strategic Intelligence Unit.

The GMA needs to significantly expand its monitoring and information gathering activities, including by enlisting the support of hunting organisations, animal welfare organisations and land holders in undertaking active and passive monitoring of the effectiveness of its compliance and enforcement activities. Further discussion of options to engage more effectively with hunting and community stakeholders is provided in section 8.7.

## 5.4 Awareness, information and education

The GMA recognises the importance of awareness, information and education in influencing the compliance behaviour of hunters.

The Compliance Policy says that “the GMA plays a major role in educating hunters about the relevant legislation and regulations to ensure responsible, safe, sustainable and humane game hunting” and asserts that “education and awareness are the most effective ways of promoting compliance and are central to the GMA’s responsibility to enforce the law” (Game Management Authority, 2016a, pp. 10-11).

The GMA has placed considerable emphasis on developing awareness, information and education products and services.

The products include:

- the *Game Hunting in Victoria (Hunting Manual)*, which outlines the current laws, firearms safety, hunting methods and equipment, ethics, survival skills and provides improved education and training for game hunters;
- a Duck Wise DVD which aims to improve understanding and identification of waterbird species, minimise non-game species being taken and how to be a more humane, effective and efficient hunter along with information on firearms safety;
- a Game Hunting App, on which hunters can check when, where and how they can legally hunt game;
- the RESPECT: *Hunt Responsibly* program, which is aimed at achieving appropriate behaviours by hunters;
- Fact Sheets on the GMA website, media releases and promotional stickers; and
- attendance by Game Managers and Senior Game Officers at local events, including local shows, hunting group meetings, Landcare meetings and community meetings.

Some of these programs predate the GMA’s existence. The RESPECT program was originally developed by the former Department of Environment and Primary Industries in response to events on Box Flat Swamp in 2013, where almost 1,000 game and non-game birds were illegally killed, and inherited by the GMA (2015, p. 16) on its establishment in 2014. Various strands of the RESPECT: *Hunt Responsibly* program have included the distribution of fact sheets, stickers, the

placement of signs at duck hunting wetlands during duck hunting seasons, the issuing of badges to hunters who were observed acting in a responsible manner and the screening of an advertisement during the television hunting program *Beyond the Divide* (Game Management Authority, 2015, p. 17; 2016, p. 16). The GMA delivers the program with the assistance of other government and non-government bodies.

### **Box Flat**

*On the opening of the 2013 duck-hunting season on Saturday, 11 May, a large number of birds were shot by hunters at the Box Flat private wetland, near Boort. The Age reported that over 800 duck carcasses were left at the site, 147 of which belonged to a single endangered species (Editorial, 2013). The GMA has subsequently reported that almost 1,000 game and non-game birds were illegally destroyed (2015, p. 16). Besides the ducks, a number of other birds were also shot, including whistling kites and black swans. According to The Weekly Times, there were three locations where carcasses were deliberately hidden, but the majority of the bodies were simply left in the water (McLennan C. , 2015).*

*It was widely reported in the aftermath of the 2013 events that a similar event had occurred the previous year, but had never been made public. Moreover, the Department of Sustainability and Environment had received an anonymous tip-off the previous Wednesday, advising that Box Flat should be watched on the opening weekend of the season (Fyfe, 2013). The GMA was aware of this notification, but chose to concentrate attention and resources on potential protester activity at Woolshed Swamp (Fyfe, 2013). GMA compliance officers did arrive at Box Flat later in the morning, but according to a local landowner, most of the birds had already been shot by then. The Age also reported that the compliance officers, although present, had made no shoreline inspections on the Saturday, only identifying the first carcass of an endangered species on the morning of the following Sunday.*

*The number of illegally shot and unrecovered birds prompted a strong response from the hunting community, as well as conservationists and animal welfare activists: Field and Game Australia's police director, Rod Drew, said, "It's terrible. It's absolutely disgraceful". Rod Drew, however, also suggested that protestors could have shot the ducks themselves, "to bring the shooters into disrepute", and said that they should be investigated (Fyfe, 2013). An investigation was subsequently conducted in an attempt to identify those responsible, but no names were ever released to the public, nor were any prosecutions ever undertaken (Milman, 2014).*

The GMA's predecessor organisation (Game Victoria) also developed a Shotgunning Education Program (SEP) designed to address waterfowl wounding and animal welfare concerns by improving the proficiency of gamebird hunters. Game Victoria engaged the world's leading expert ballisticians to assist in the development of a comprehensive and complete program of education, capacity building and delivery. A standardised training program and manual was developed in 2012-13 with the intention that field workshops would be delivered by more than 20 expertly

trained volunteers from Field and Game Australia and the Sporting Shooters' Association of Australia (Department of Environment and Primary Industries, 2013, p. 34).

The content of the GMA's information and educational products is of very high quality. The *Hunting Manual* was received very positively by recipients who provided feedback to the GMA and has been praised by external stakeholders consulted during this review. Hunters who have taken part in the SEP have been almost unanimously enthusiastic about their experience (Andrews Group, 2017, p. 11). These products and services represent a very large investment by a small regulator with limited resources. The GMA has advised the *Hunting Manual* cost in the order of \$300,000 to produce and distribute and the SEP cost the GMA's predecessor in the order of \$250,000.

Despite the large investments made, and the wide distribution of the products, it is difficult to ascertain their effectiveness in influencing hunter behaviour and compliance with the game laws. While the GMA maintains data on the number of products distributed, hits on the website, and so on, there is no evidence of the GMA having any systematic evaluation of the effectiveness of these products in positively influencing hunter behaviour.

The GMA's Game Managers and Senior Game Officers also provide practical and constructive advice in the field on how to comply with the law as a routine part of their duties and undertake a considerable amount of outreach activity. The GMA provided stands at the 2016 Seymour field day and the Wild Deer Hunting, Guiding and Fishing Expo located in Bendigo. The GMA also maintained stands at the Victorian Hound Hunters hound registration day in Tallarook and attended numerous other game and community events. This work represents a significant effort by Game Managers and Senior Game Officers who are often obliged to undertake considerable out of hours travel to attend these events.

In addition to regular events, Game Managers seek to communicate the GMA's messages through gun clubs, gun shops and community groups. Attendance at public events such as shows and field days provides opportunities to reach a wider audience, and is a very effective way of increasing the visibility of the GMA. However, the balance of events attended by the GMA is heavily directed toward existing, well-organised hunting organisations. In 2016, the GMA (2016, p. 16) reported that it attended 66 hunting organisation meetings, but only 14 community groups meetings, 10 animal welfare group meetings and 1 conservation group meeting. Engagement with non-English speaking community groups was minimal.

The meetings with hunting organisations included a number of Field and Game Association "Duck Fever" nights. These meetings can involve up to 4000 hunting association members over a number of evenings across Victoria prior to duck season. They provide a forum, which GMA has capitalised on, to increase hunter education and raise product awareness of the GMA enforcement role, thereby reducing potential non-compliance (Emergency Management Consultancy Services, 2015, p. 19). Hunting associations indicated that GMA attendance at these events is highly valued, and they would welcome additional sessions. However, the effectiveness of GMA attendance at these meetings has not been formally evaluated and there is scope for the GMA to reflect on the

perception that its involvement in meetings described as “duck fever” nights might have on external perceptions of its regulatory independence.

There is scope for the GMA to improve the targeting and delivery of its flagship educational products. SEP field days are conducted as hands-on, one-day workshops in regional locations across Victoria. The field days are coordinated and delivered by Field & Game Australia (FGA) and the Sporting Shooters’ Association Australia (SSAA) at their shooting range facilities throughout the state. The take-up of the program since being handed over to the hunting organisations has been disappointing. While the SEP had a reasonable number of enrolments in its first year, numbers decreased steadily to about 60 in 2016, causing many sessions to be cancelled (Andrews Group, 2017). The GMA commissioned a report in 2017 from the Andrews Group on the attitudes and perceptions that game hunters have towards shotgun education programs, and the SEP field day in particular.

The Andrews Group (2017) found that past participants felt that the SEP was not effectively marketed by FGA and the SSAA, despite many being members. While the Andrews Group was not asked to report on the effectiveness of the program in changing hunter behaviours, they did report that participants agreed that the workshop was very useful for the development of shotgun skills and safety techniques and promoting safe, ethical, responsible and efficient hunting practices.

While the experience of workshop participants was overwhelmingly positive, there are questions about the levels of participation and targeting of the program. It is doubtful the participation of 60 hunters in the program in 2016 represents good value for money for the taxpayer investment in the program or that it could have had a significant influence on the behaviour of the in excess of 20,000 licenced and unlicenced duck hunters who did not participate in the program. The targeting of the program has also been poor. The Andrews Group (Andrews Group, 2017, p. 11) found that all past participants of the workshops who attended the focus group were very experienced hunters, finding that “typically, they had been hunting for decades and/or since they were children”. The program may have been more effective if it had been targeted at inexperienced hunters, or hunters whose skills or knowledge of shotgun technique had been identified, perhaps through compliance activities, as requiring improvement.

The targeting of the *Hunting Manual* could also be improved. The *Hunting Manual* was published in an English language version only, and was distributed in hard-copy to all licence holders. While the GMA has received unsolicited comments on the *Manual*, to date the GMA has not surveyed recipients of the *Manual* to solicit feedback from recipients or sought to review the effectiveness of the document in improving compliance with the game hunting laws. One stakeholder consulted during this review complimented the GMA on the quality of the document, but suggested that it was probably studied most carefully by hunters who were already knowledgeable and generally compliant with the game laws.

The GMA is likely to gain a better return on its investment by focusing its educational materials on hunters who are willing to improve their knowledge. The *Manual* is a high-quality product and deserves to be studied carefully by experienced and inexperienced hunters alike, but

inexperienced hunters and hunters requiring additional knowledge would benefit more from the *Manual* than their more experienced and knowledgeable peers. At present, hunters who do not respond well to written materials or do not have strong English language skills would have limited access to the information presented in the *Hunting Manual*.

Hard copy distribution of the *Manual* to all licensed hunters was a relatively high cost distribution option. An electronic version of the *Manual* has now been posted on the GMA website. However, there is a question of whether the GMA could have achieved a better return on its investment if it had only published the document in electronic form. There is also scope for the GMA to increase the return on its investment on the *Manual*, extend its useful life, and reinforce the useful guidance in the document by re-presenting extracts in the form of simple quizzes or information bites on the GMA website or Game Hunting Victoria App.

Hunting organisations indicated they would be prepared to assist the GMA with its awareness, information and education activities. This would assist in extending the limited resources of the GMA by making use of the information channels and networks already established by the hunting organisations. The recent review of the GMA's risk management of its compliance activities also advocated this approach, arguing that "a clear opportunity exists to enhance compliance throughout the hunting community, and therefore an associated reduction in risk to [Game Officers] is through effective publication of educational information" (Emergency Management Consultancy Services, 2015, p. 19).

There is an opportunity for the GMA to work more closely with its stakeholders in raising awareness of the principles of responsible hunting and providing information and education on hunters' obligations. However, the GMA (2017f, p. 13) has indicated that only 50 per cent of game licence holders belong to hunting organisations and that only a portion of those will play an active role and actively access their resources. The GMA also needs to be careful to ensure the information it provides through hunting organisations is respected, and that programs developed at taxpayer expense are responsibly managed and delivered. Hunting organisations consulted in this review acknowledged that they had not promoted or marketed the SEP effectively. Game Managers also pointed to concerns about the misuse of some GMA educational materials within certain gun clubs.

The GMA has broad responsibilities to the Victorian community and cannot rely on hunting organisations to provide information to non-members and unlicensed hunters, who are probably in greater need of the information and education that the GMA can provide. In consulting external stakeholders in the course of this review, many stakeholders demonstrated a sophisticated understanding of the game laws and the GMA's roles and responsibilities as a regulator. However, this was not always the case, and there is a role for the GMA in ensuring that its stakeholders better understand its purpose and functions. The GMA should actively seek out and engage with a broader range of stakeholders to ensure there is a good understanding of the game laws and the GMA's role and responsibilities as a regulator.

At present, the GMA's awareness, information and education programs are only provided in English language versions. It is difficult to judge the impact of this on the effectiveness of its



materials as the GMA has limited information on the demographics of hunting licence holders. However, it is unlikely that non-English speakers, or hunters with limited English language skills, would have any effective access to these materials.

The GMA has virtually no presence on social media. While it maintains an App it does not have Facebook, Twitter, Instagram or Snapchat accounts.

There is scope to use the GMA's existing information and education products more strategically to support other regulatory tools. For example, the *Hunting Manual* and other products could be drawn to support on-line testing materials and could be linked to licensing. The SEP could also be employed as an element of a mandatory testing regime for some licence categories or for access to some wetlands.

The GMA has limited information on the effectiveness of its awareness, information and educational materials. However, the poor targeting of the materials, widespread non-compliance with the game hunting laws and the close similarities between the events at Box Flat in 2013 that prompted the development of the RESPECT program and the events at the Koorangie Marshes in 2017 implies the GMA's information and educational products have not been as effective as they might have been.

The GMA (2017f, p. 13) has stated that creating a culture of compliance, self-regulation and respect is critical to the future of hunting and the maintenance of its social licence. However, while the GMA provides high quality class education and training materials, it is currently unable to measure the impact of these materials on hunters' understanding of the laws or their behaviours in the field. This will need to be addressed if the GMA is to be a more effective regulator of the hunting laws.

## 5.5 Enforcement

GMA's *Compliance Policy* states the GMA addresses non-compliance by objectively and assertively securing conformity with the law, where enforcement refers to the use of influence, authority and statutory methods to compel compliance with the law (Game Management Authority, 2016a, p. 12).

Enforcement activities are generally provided by the GMA's Senior Game Officers, supplemented by suitably authorised Game Managers and volunteers from other agencies in peak events, accompanied where appropriate by Victoria Police.

Where non-compliance is found, GMA seeks to achieve compliance using a range of sanctions, such as official warnings, infringement notices and licence suspensions and cancellations. The GMA's operational plans provide guidance for Authorised Officers in the application of sanctions and penalties in relation to specific offences. These include written warnings, notices of infringements or prosecution. Any sanctions imposed as an outcome of court proceedings are, of course, at the discretion of the courts.

Commonly detected offences include the unauthorised entry to wetlands by protestors, failure to retain a wing on a game duck, failure to hold a game licence, the illegal spotlighting of deer and the illegal use of toxic shot (Game Management Authority, 2015, p. 18).

Table 1 below provides key enforcement outputs by the GMA for 2014-15 and 2015-16.

*Table 1: Summary of GMA's enforcement outputs for 2014-15 and 2015-16, as at 30 June*

<b>Activity</b>	<b>2014-15</b>	<b>2015-16</b>
Total licences issued	47,007	48,023
Written warnings issued	7	27
Infringement notices issued	61	17
Banning notices issues	7	1
Exclusion orders (issued by courts)	1	0
Game licences suspended	1	4
Game licences cancelled	1	4
Authorisations/permits suspended	0	0
Authorisations/permits cancelled	0	1
Court proceedings	21	26

Sources: GMA (2016, p. 18; 2016b, p. 21)

As the recent Victorian Parliamentary Inquiry into the Control of Invasive Animals on Crown Land observed, these figures indicate that very small numbers of recreational hunters have been found by the GMA to have not complied with the rules (Parliament of Victoria Environment, Natural Resources and Regional Development Committee, 2017, p. 93). However, this is not the same as saying the numbers indicate the actual number of infringements of the hunting laws are small or that the GMA has been effective in its compliance and enforcement actions.

The former Department of Primary Industries (2012, p. 41) observed that as “game hunting is often undertaken in areas that are not easily observed...the number of warnings, infringements and prosecutions could be regarded as a minimum measure of the extent of the problem.”

The low number of successful enforcement outputs reported by the GMA is at odds with the well-documented evidence of large-scale non-compliance with the game laws at peak events such as the opening of the duck season.

### **Koorangie State Game Reserve**

*The 2017 duck hunting season opened on Saturday 18 March.*

*An estimated 2,000 hunters were present at Koorangie State Game Reserve over the opening weekend of the season (Game Management Authority, 2017f, p. 5). Hunters were observed by the GMA engaging in illegal and/or unethical or irresponsible behaviours. The illegal behaviours included early shooting, shooting protected species, hunting from a moving boat and littering. Unethical/irresponsible behaviours included shooting at birds beyond the hunters' effective shooting skills distance (which often results in wounding), failing to recover shot birds and dumping of shot birds.*

*Members of the public subsequently collected and presented 810 birds recovered mainly from the Koorangie State Game Reserve (Game Management Authority, 2017f, p. 6). This included 635 unrecovered/discarded game ducks and 173 protected wildlife, including 21 threatened Blue-billed Duck and 68 threatened Freckled Duck. The GMA has indicated that departmental staff also collected a small number of unrecovered game and protected species. Several days later, members of the public presented a further 436 dead game and protected birds. These included 44 Freckled Duck, 15 Blue-billed Duck and 28 other non-game birds that were mostly collected from the Koorangie Marshes.*

*The following week, pits containing the bodies of almost 200 dead ducks were discovered. The ABC program 7.30 reported claims that the pits were proof that hunters were exceeding their bag limit and dumping the bodies (Day, 2017). Bag numbers averaged only 5.9 ducks on the opening day.*

*Despite the extent of non-compliance with the game laws observed by GMA enforcement staff, Authorised Officers and members of Victoria Police, eleven banning notices were issued to protestors and one infringement notice was issued to a hunter for shooting before the legal hunting time. Infringement notices were subsequently also issued to four hunters for failing to retain a wing on a game duck. The GMA has indicated that while some additional video material will be scrutinised for offences, it is unlikely that a significant number of further offences will be processed (Game Management Authority, 2017f, pp. 5-6).*

The events at Koorangie Marshes, and earlier similar events at Box Flat in 2013, represent significant failures of a state regulatory agency to enforce the laws for which it is responsible and have seriously undermined the GMA's credibility as an independent and credible regulator. The GMA's Senior Game Officers and Game Managers have suggested that similar events are likely to have occurred across the state, though perhaps not on the same scale. These failures were not isolated events and they point to systemic deficiencies in the overall regulatory framework and GMA's approach to compliance and enforcement.

There are numerous reasons for the GMA's failure to effectively enforce the game laws at peak events. The GMA (2017f, pp. 8-10) has pointed to its own limited capacity and an operating model that compels it to rely on other regulators and enforcement agencies. The GMA (2017f, p. 7) has argued that it is chronically under-resourced. While the GMA (2017f, p. 11) acknowledges that it received strong support from its partner agencies for the opening of the 2017 duck hunting season, it has suggested that many of the surge staff that it is forced to engage are becoming increasingly inexperienced in the function. Co-regulators also indicated to the review team that their staff are becoming less effective in enforcement of the hunting laws as time goes by. While temporary access to experienced Wildlife Officers was effective while the GMA was a part of the former Department of Environment and Sustainability, with changes in functions and priorities, DELWP staff are increasingly unfamiliar with the conditions under which surge events are managed as more experienced Wildlife Officers retire or move on in their careers.

The GMA (2017f, p. 11) has also suggested that its enforcement efforts on the opening weekend of the duck hunting season were diverted from their core task of regulating hunting by the presence of large numbers of protestors, though management of protestor activity had been identified in planning documents as an objective for the GMA's compliance activity event (Game Management Authority, 2017a, p. 16), so this should not have been unexpected, and it is not otherwise clear why it was necessary to divert "all available game enforcement officers ...to assist Police" in this activity (Game Management Authority, 2017f, p. 11).

The choice to prioritise action against protestors was a management decision reflected in operational planning prior to the event and was not forced upon the GMA (2017d, p. 3). It is difficult to understand why the GMA would attach a higher priority to protestor management than to the enforcement of the hunting laws for which it has the primary responsibility. Senior Game Officers and Game Managers expressed frustration with the priority attached to protestor management and indicated they could be more effective if they were able to focus on hunters. This reinforces the comments of a spokesperson for a hunting organisation, who said after the events at the Koorangie Marshes that "[c]harging the small number of hunters acting illegally and confiscating their firearms on the spot would have a much greater and more immediate effect on protecting non-game species than all the protestors' antics" (Wahlquist, 2017).

Senior Game Officers and co-regulators consulted in this review referred to the difficulties of collecting information and establishing a chain of evidence that would support a prosecution in relation to many of the offences that were observed at Koorangie Marshes. All stakeholders agreed the requirement to work closely with Victoria Police on enforcement actions and the Police's own requirements relating to working on or near water severely limits the GMA's capacity to effectively enforce the game laws in the circumstances that apply on the wetlands during the opening weekend of the duck hunting season.

While the opening of the duck hunting season poses challenges, the GMA's failure to effectively enforce the hunting laws is not restricted to the opening weekend of the duck hunting season. Feedback from hunting organisations, the GMA's co-regulators, animal welfare bodies and

community organisations has suggested that unsanctioned non-compliance with the hunting laws is commonplace and widespread. Senior Game Officers and Game Managers also indicated that they were aware of repeated instances of non-compliance in relation to deer hunting and hunting for deer with hounds that they were unable to pursue as a consequence of the GMA's operational policies and resource constraints.

The GMA's official enforcement statistics appear to understate the extent of non-compliance with the game hunting laws. It is, however, difficult to judge the precise extent of non-compliant behaviour that escapes the GMA's enforcement efforts. The Inquiry into the Control of Invasive Animals on Crown land noted that concerns about irresponsible and illegal hunters were raised during the inquiry (Parliament of Victoria Environment, Natural Resources and Regional Development Committee, 2017). The Committee also reported that a number of hunters acknowledged some of the problems with illegal and irresponsible hunters, but saw them as a minority. The Committee concluded that with no available data on the incidence of illegal and irresponsible hunting, it was difficult to assess the prevalence of the problem (Parliament of Victoria Environment, Natural Resources and Regional Development Committee, 2017, p. 93). Issues with the quality of the GMA's information and monitoring capabilities are discussed in more detail in section 5.3 of this report.

GMA staff feel that many hunters hold the organisation in contempt and openly flout the hunting laws. One hunting organisation indicated that hunters disregard the GMA's enforcement officers and will openly engage in illegal behaviour in front of them, in the knowledge that GMA Authorised Officers are not able to approach them in the absence of a Victoria Police officer. He suggested that poor behaviours would continue until the GMA was able to hold illegal and irresponsible hunters to account. He observed that his licence had only been checked by the GMA (and its predecessors) once in his thirty years' of hunting experience. Facebook posts by individual hunters detailing their illegal hunting exploits only reinforce the impression of widespread non-compliance.

One hunting organisation consulted in this review summed up the GMA's enforcement performance as "woefully inadequate." By any standard, the GMA has failed to deliver on its responsibility to enforce the hunting laws.

## 5.6 Reporting

Measuring and reporting on performance is an essential element of an effective approach to regulation (Australian National Audit Office, 2014, p. 27). Reporting on compliance and enforcement actions and their outcomes contributes to the transparency and accountability of the function and supports performance management and evaluation.

## External reporting

### *Statutory reporting*

The GMA Compliance Policy acknowledges the importance of reporting but focuses mostly on the GMA's reporting to Parliament through the Annual Report and responses to the Minister's Statement of Expectations (Game Management Authority, 2016a, p. 21). The GMA has provided an annual report to Parliament each year that has included information on compliance and enforcement activities.

These are informative documents, but they provide a minimum acceptable level of transparency in relation to the GMA's compliance and enforcement activities. The publication entitled *Administering Regulation: Achieving the right balance - Better Practice Guide* produced by the Australian National Audit Office (ANAO) (2014), suggests that in addition to reporting externally on performance through an annual report to the Parliament, regulators may also find benefit in publishing performance information more frequently on their websites.

The ANAO (2014, p. 27) argues that regular monitoring and reporting may assist in managing stakeholders' expectations in relation to the regulatory process and aid management in monitoring and assessing operational performance. At present, the GMA does not routinely publish performance information on its website, though it does publish an annual compendium of Game Licence Statistics.

### *Complaints handling*

Well-defined and independent complaints handling procedures can enhance transparency and accountability in regulatory administration. Arrangements for handling complaints need to reflect the complexity of the regulatory environment and provide an effective avenue for regulated entities or other stakeholders to seamlessly provide feedback and lodge formal complaints (Australian National Audit Office, 2014, p. 23).

A number of external stakeholders suggested to the review that they had made representations to the GMA about the effectiveness of the compliance and enforcement regime that had not been responded to.

In its Compliance Policy, the GMA (2016a) commits to undertake an assessment of all complaints about activities or conduct of the GMA or GMA Authorised Officers, with subsequent investigation and corrective or preventative action taken where necessary. The Compliance Policy indicates that each complaint will be logged and reviewed and, depending on the details, allocated for investigation and action. Information about the progress and results of a complaint will be provided to the complainant, and the outcome will be communicated at the end of the investigation process.

The GMA has advised that it does not have a formal process in place for handling complaints against Authorised Officers. However, the GMA has advised that it is in the process of developing a low-cost process that will allow for central records to be maintained and for external

investigation where this is required. The GMA reports annually on complaints in its Annual Report, but this only relates to formal complaints regarding Authorised Officers. Given the GMA's size, the most cost-effective approach would be to piggy-back off the arrangements already in place within DEDJTR.

At present the GMA does not have a formal process for handling general complaints from the public about the regulatory regime or its regulatory performance.

The GMA is a small agency and does not have the resources of many larger regulators. The question of what constitutes a complaint can also be difficult to ascertain. A contact that the source considers to be a formal complaint may be perceived by the recipient as a complaint, a piece of intelligence about non-compliant activities, a request for assistance or general feedback. Nevertheless, the GMA is a public regulator and has an interest in obtaining as much information as possible from its stakeholders on its performance and the general regulatory context.

Many regulators have a central process in place to deal with general complaints about their performance. Complaints can be a useful source of feedback on the overall regulatory regime, agency performance or just changes in community sentiment. Feedback should be actively monitored and brought to the attention of senior executives and managers so that it can be responded to and inform future decision-making. If there is doubt about the intentions of the source, then they should be contacted so their intentions can be clarified.

The GMA should develop a formal system for recording, monitoring and responding to general complaints from the public about the regulatory regime and the GMA's performance as a regulator.

## Internal reporting

### *Strategic reporting*

The Minister's Statement of Expectations refers to the need to report on the performance improvements set out in the letter, including details of specific targets and activities, and a clear timetable for these to be achieved (Pulford J. , 2016). The Statement does not, however, set out any expectations or requirements in relation to internal reporting.

The *Administering Regulation: Achieving the right balance - Better Practice Guide* publication suggests that access to and analysis of key management information, such as workload statistics and costing targets, facilitates day-to-day operational and resource management (Australian National Audit Office, 2014, p. 27). While the ANAO acknowledges that identifying measures of regulatory effectiveness is particularly challenging for many regulators, it argues that it is important that effectiveness and efficiency indicators are defined, measured and reported for internal management and external accountability purposes.

The GMA does not routinely generate internal management reports on the effectiveness of its compliance and enforcement activities. Statistics on the compliance and enforcement activities of



Game Managers and Senior Game Officers are compiled and maintained for publication in the Annual Report and Game Licence Statistics, and may be accessed by senior executives and managers from time to time, but the information is not routinely provided on a monthly or quarterly basis to the CEO or the Board. In the absence of this information, it is difficult to see how the GMA Board and CEO could be fully informed of the outcomes of compliance and enforcement activity overall, or be in a position to adjust compliance and enforcement strategies to better achieve the Authority's compliance objectives.

In a fully effective contemporary regulator, a compliance strategy or compliance plan would set out the specific compliance and enforcement goals, strategies and performance measures that are to be applied in the upcoming period and would then report against the achievement of the goals on a regular periodic basis to allow adjustments to be made to the priorities, strategies or operational methods as feedback is obtained on the success of the agreed compliance strategies. This of course requires time and resources, and Senior Game Officers and Game Managers pointed to the distraction that reporting can involve for officers who are already over-stretched in terms of the geographic areas they are expected to cover.

There is scope, however, to improve the quality of reporting on the effectiveness of the GMA's compliance and enforcement to the CEO and the GMA Board, especially as much of the information is already collected for publication in the Annual Report and the Game Licence Statistics.

#### *Operational Reporting*

The GMA's operational reporting is more developed, but has not always worked effectively. At present, operational plans include requirements for updates and reporting from field staff. The South West Operation Plan for the 2017 Duck Season Opening, for example, set out a requirement that situation reports were to be completed by specified times on each of three nominated days (Game Management Authority, 2017e, p. 12).

The GMA acknowledges that these arrangements were not sufficient to ensure the Minister, the GMA Board and senior executives received timely or accurate information on hunter behaviours or the GMA's compliance efforts on the opening weekend of the 2017 duck season. A summary report provided to the Minister at the conclusion of the opening weekend did not report the extent of the unrecovered game ducks or the damage to protected wildlife. The Minister's comments in response to questions in Parliament were therefore at odds with the actual events at the Koorangie Marshes (Game Management Authority, 2017f, p. 12). The GMA (2017c, p. 6) has proposed a series of changes to operational reporting arrangements. However, this work is still in progress.

## **5.7 Conclusions**

The GMA is not effectively delivering its compliance and enforcement responsibilities.

While many hunters are law-abiding and responsible, non-compliance with the game hunting laws is commonplace and widespread.

The GMA does not maintain any clear measure of hunters' understanding of the game hunting laws or the requirements of ethical and responsible hunting, or their willingness to comply.

The GMA has well-developed policies, plan and procedures, but its approach to regulation is relatively static and it lacks well-articulated strategies for improving regulatory compliance. The GMA should develop a more systematic approach to the development, implementation and review of its compliance strategies.

The current licensing arrangements are ineffective in ensuring a minimum acceptable level of awareness and competence amongst hunters. A more effective licensing regime is likely to improve hunters' understanding of their obligations and increase voluntary compliance with the game hunting laws. It would also reduce the pressures on an already over-stretched enforcement function.

Licensing should involve more stringent minimum requirements, including testing for knowledge of the game hunting laws and the obligations and responsibilities of safe and sustainable hunting.

The GMA has made significant investments in the production of high-quality educational materials. However, the delivery of these products has not been efficient or well-targeted. The oversight and management of the SEP has been deficient.

The GMA should do more to review and evaluate its compliance and enforcement efforts.

The GMA under-invests in monitoring and intelligence and should work with stakeholders to improve its access to data on game numbers and the effectiveness of its compliance and enforcement programs.

The GMA also needs to consider ways of better ways of managing the demand for its services, its approach to regulation, and the balance of resources it allocates to locally based and isolated enforcement activities relative to persuasive strategies to encourage higher levels of compliance. A small number of well planned, intelligence informed strategic operations can deliver a strong deterrence message in the context of persuasive strategies.

The GMA also needs to improve the transparency of its reporting mechanisms.

## 6. Operating model

---

*This section considers the impact of the GMA's operating model on the effectiveness of its compliance and enforcement functions.*

---

### 6.1 Institutional form

The GMA's institutional form has an impact on the effectiveness of its compliance and enforcement functions.

GMA's 18 staff are currently oversighted by a Board of seven, though for most the GMA's existence as a statutory body the Board has included nine members.

The Board sets the strategic direction and business objectives of the Authority and ensures that these are consistent with the Authority's legislative and regulatory framework (Game Management Authority, 2015, p. 9). The Board maintains an Audit and Risk Committee and until recently a Remuneration Committee.

Board meetings are held regularly throughout the year as necessary for the Board to discharge its obligations. In 2014-15, the Board met eight times, the Audit and Risk Management Committee four times and the Remuneration Committee once (Game Management Authority, 2015, p. 9). In 2015-16, the Board met seven times, the Audit and Risk Committee 6 times and the Remuneration Committee twice (Game Management Authority, 2016, p. 9).

These structures impose a range of direct costs and overheads. GMA staff are required to report to and assist in servicing the meeting needs of the Board and its various committees. The GMA has estimated the corporate overheads associated with its status as an independent statutory regulator represent the equivalent of two to three full time staff. This is not a large number in absolute terms, but for an authority with 18 employees, it represents a significant proportion of the overall workforce that is not available for other activities.

The GMA also incurs other costs not normally borne by a departmental regulator. As noted in section 3.4, these costs include the requirement to produce an annual report to Parliament, the financial, accounting and reporting requirements of the Standing Directions of the Minister for Finance, and the responsibilities and obligations of an employing authority. The GMA has no dedicated in-house resources to support these obligations. Some corporate support is provided by the DEDJTR under a Memorandum of Understanding. However, there is no Service Level Agreement that adequately describes the services the GMA receives, the agreed level and standard of those services and the performance indicators that would enable the GMA to evaluate whether it is receiving value for money or consider other arrangements.

The GMA has indicated the absence of dedicated in-house resources to meet its reporting and financial obligations imposes a burden on the CEO and senior management that distracts them from the direction and oversight of the GMA's compliance and enforcement program. While departmental regulators share some of these responsibilities and may be required to contribute to products such as annual reports, the responsibility for delivery generally rests with a separate corporate group and the costs are spread across a much larger number of staff.

The GMA lacks the size and critical mass to effectively service its corporate model and support its compliance and enforcement functions. The game management and enforcement teams are small and spread across five locations in shared state government offices around the state. The fragmentation of the team limits the scope to develop, or to gain economies, from the more strategic elements of compliance, including intelligence gathering, planning, collaboration, education and communication.

The small size of the compliance and enforcement teams restricts the GMA's capacity to refresh its capabilities through the regular injection of younger, more recently educated staff who could bring new approaches to the way in which the GMA approaches its compliance and enforcement activities. The independent review of the GMA's risk management pointed to some of the training and induction challenges associated with the GMA's lack of scale, and the constraints this imposes on the GMA's recruitment and development options (Emergency Management Consultancy Services, 2015, p. 17).

While the GMA has attempted to co-locate Game Managers and Senior Game Officers where possible, and the staff have access to support from other state government employees, the GMA's compliance and enforcement staff do not have access to the career structures and development opportunities of compliance and enforcement staff in larger regulators. The GMA is also exposed to duty of care issues in relation to employees who are often required to work in the field alone while potentially exposed to hunters with firearms, hounds and/or other weaponry.

Some of these risks could be mitigated by centralising the compliance and enforcement functions in Melbourne or a regional centre. This would facilitate tasking and coordination of compliance and enforcement activities and provide additional support for the Game Managers and Senior Game Officers. However, it would also reduce the GMA's regional footprint across regional Victoria and potentially interrupt GMA's access to local information and intelligence. There is no perfect solution.

The GMA Chairperson has drawn attention to constraints on the GMA's operational flexibility, arguing that "[g]iven the breadth of responsibilities placed on the GMA through the Game Management Authority Act 2014, there is no scope for the Authority to reprioritise to increase its enforcement resources, including staffing levels" (Game Management Authority, 2017f, p. 8). While there can be doubt about the extent to which the GMA is able to reallocate priorities to make better use of the resources available, the Chairperson is right to point to rigidities and inflexibilities attached to the current model.

The GMA's small size and independence handicaps the performance of its compliance and enforcement functions. A number of authorities have argued that larger regulators are likely to be more efficient and effective than a smaller regulator. The New Zealand Productivity Commission (2014, p. 251) has argued that larger and broader-based regulatory agencies provide economies of scale and scope and are more efficient than smaller agencies. A survey of British regulators as part of the Hampton Review (2005, pp. 6-7) also found that smaller agencies were more expensive to run, with higher average per-staff and per-inspection costs. Larger organisations may also be better placed to attract, retain and develop capability, apply more sophisticated risk assessment and compliance approaches, and allocate scarce professional resources more effectively (New Zealand Productivity Commission, 2014, p. 251). The Victorian State Services Authority has also suggested that larger, broad-based regulators are also less prone to capture than smaller, more narrowly-focused regulators (State Services Authority, 2009, p. 67).

An independent statutory authority is a high cost model for a small regulator. Inflexibilities inherent in the model limit the GMA's effectiveness as a compliance and enforcement agency.

## 6.2 Regulatory governance

When the then Minister for Environment and Primary Industries referred in the Second Reading Speech to ensuring that the functions of the GMA do not conflict with one another (Parliament of Victoria, 2013, p. 4671), he did not elaborate on how the independence of those functions was intended to be achieved in the GMA.

The three most common governance structures generally employed for independent regulators are:

- governance board model – the board is primarily responsible for the oversight, strategic guidance and operational policy of the regulator, with regulatory decision-making functions largely delegated by the chief executive officer (CEO) and staff;
- commission model – the board itself makes most substantive regulatory decisions; and
- single member regulator – an individual is appointed as regulator and makes most substantive regulatory decisions and delegates other decisions to its staff (Organisation for Economic Co-operation and Development, 2014, p. 69).

The GMA Board represents something of a hybrid between a governance board and a commission.

As explained at section 3.2, the GMA's compliance and enforcement functions are amongst a number of functions that are vested with the Board. While for practical purposes these functions report through line managers to the CEO (see Figure 1 on page 7), the Board may direct, seek information or terminate any compliance or enforcement matter.

The powers and obligations of the GMA Board impose unusual burdens for Board members and contributes to the potential for role confusion. As Board members appear to be personally responsible for the conduct of compliance and enforcement actions, the current arrangements can also give rise to perceptions that the GMA's compliance and enforcement function lacks

independence. This is an important exposure for a regulator that may include participants in the regulated activity and office holders of organisations in the regulated domain.

Many regulators provide a degree of operational separation for the enforcement function. These arrangements can include:

- the location of a clear accountability for enforcement functions outside the Board;
- clear and explicit compliance and enforcement strategies;
- transparent mechanisms for determining compliance and enforcement priorities and allocating resources, including a Tasking and Coordination Committee and Enforcement Committee with an external representative;
- protocols to maximise the protection of information relating to licensing, investigations enforcement activities; and/or
- operational separation of regulatory responsibilities from other functions.

The GMA has few of these protections. While there is a Manager of Compliance, the responsibilities for compliance and enforcement are in practice split between two Managers, both of whom are responsible through the CEO to the Board. While the GMA has previously maintained both a Tasking and Coordination Committee and an Enforcement Committee, it is understood that both committees have fallen into disuse.

It is understandable that the GMA would want to streamline its processes, and to avoid cumbersome committee structures as far as possible. However, these processes provide additional transparency around the enforcement function and offer some protection for the integrity of enforcement actions and the information associated with these activities.

To improve transparency and protect the independence of the enforcement function, the GMA should ensure that there is a clear separation between the Board and the intelligence gathering, investigations and enforcement functions.

By way of understanding the importance of these protections, it is worth reflecting on the important differences between the establishment of the GMA and the Victorian Fisheries Authority (VFA) in relation to the operational independence of the regulators' compliance and enforcement functions.

Under the *Victorian Fisheries Authority Act 2016* (Vic) (VFAA), a number of protections have been built into the statute to guard against regulatory capture. The VFAA establishes ineligibility criteria for appointments to the VFA Board, as well as conditions on directors exiting office. In this respect, under section 22 of the VFAA directors to the VFA Board cannot be appointed if they are:

- a member of the Fisheries Co-Management Council, Licensing Appeals Tribunal or Commercial Fisheries Licensing Panel; or
- is a holder or associated with a person or entity who is the holder of a current commercial fishery licence or aquaculture licence; or
- a senior or executive officer of a representative body; or

- within the period of 2 years before the appointment, had been the holder of a cancelled, suspended or discontinued commercial fishery licence or aquaculture licence.

Under section 33 of the VFAA, a person who ceases to be a director of the Board must not, at any time during the next 2 years:

- apply for or hold a commercial fishery licence or aquaculture licence; or
- be appointed as a senior officer or executive officer of a representative body.

The prohibition of persons holding an office or possessing a commercial licence within the fishing industry provides some protection for the regulator from the risk of direct industry capture. These protections do not apply in relation to appointments to the GMA Board. In appointing members of the GMA Board, the Minister must ensure that the Board has requisite experience or knowledge relating to game hunting and game and wildlife management, including pest animal management (section 10 of the GMA Act). However, the GMA Act does not specifically preclude office holders or commercial licence holders from appointment to the Board and does not prevent Board members from applying for or holding a commercial game-farm licence or from being appointed as a senior office holder or executive officer of a representative body.

The VFAA also provides for some operational separation between the Board and the VFA's compliance and enforcement functions. Under the VFAA, the VFA board employs a Chief Executive Officer (CEO) in consultation with the Minister. The VFA CEO in turn is the employer of all VFA staff. The role of the CEO includes responsibility for the day-to-day management of the authority, as well as exercising enforcement and compliance powers assigned to them under the *Fisheries Act 1995* (Vic). While this falls short of an absolute separation of the functions, this arrangement provides some operational independence for the VFA's compliance and enforcement activities from its other functions, and seeks to maximise information security associated with these activities, particularly to ensure the safety of officers in the field (Parliament of Victoria, 2016, p. 3595).

The Organisation for Economic Co-operation and Development (OECD) (2014, p. 72) has argued that the governing body of a structurally independent regulator should be insulated from inappropriate stakeholder, ministerial or industry influence. The former State Services Authority (2009, p. 55), the predecessor of the Victorian Public Sector Commission, observed that where stakeholder engagement is required, this should be undertaken through consultation mechanisms rather than through representational membership as part of management structures.<sup>2</sup>

The State Services Authority (2009, p. 67) recommended that regulators should be sufficiently broad in scope to minimise the risks of duplication, gaps and capture by industry and that they should be structured around broad themes in preference to narrowly scoped industry or sector-specific regulators. According to the Victorian State Services Authority, the consolidation of regulators could be based on:

---

<sup>2</sup> The Victorian Public Sector Commission replaced the State Services Authority on 1 April 2014.



- administration of regulation with similar objectives; or
- administration of regulation applying to related activities.

An arrangement that would have met the OECD principles and the requirements of the State Services Authority would have located the GMA's regulatory responsibilities with a statutory office holder, supported by staff employed by a larger, broad-based regulator. Fundamental change of this nature to the GMA's statutory model is arguably out of scope for this review. However, the terms of reference do invite reflection on changes to the operating model and broader institutional arrangements that would improve the effectiveness of the GMA's compliance and enforcement function.

Given the risks to the GMA's regulatory integrity that arise from the potential for role conflict and the potential in the GMA's governance structures for industry capture, the GMA should consider options for strengthening the independence of its compliance and enforcement functions. This could include internal governance arrangements, or structural or operational separation.

### 6.3 Partnership arrangements

The GMA employs a partnership model to provide its regulatory services.

To some extent, the model has been forced on the GMA by the regulatory and institutional framework in which it is embedded. The regulation of game hunting touches on a broad range of issues that are the primary responsibility of other government and non-government agencies, including DELWP, Parks Victoria, DEDJTR, RSPCA and Victoria Police. These responsibilities mesh and overlap in complex ways that require the GMA to work closely with other regulators and policy agencies to deliver on its statutory obligations.

The GMA would not be able to operate independently, even if it were resourced to do so.

#### Extended workforce

The GMA relies on its partner regulators for assistance in delivering a range of its statutory responsibilities, including participation in monitoring and analysis of wildfowl numbers, assistance with monitoring and surveillance tasks through the year and access to an extended workforce to manage surge events and provide other support in the field.

The GMA (2017f, p. 10) has indicated that it received strong support from its partner agencies in managing the opening of the duck hunting season in 2016, though this has not always been the case. Co-regulators consulted in this review expressed an understanding of the constraints under which the GMA operates and a strong commitment to supporting the GMA. However, the GMA has noted the commitment to assist is only voluntary and, should staff choose not to assist or the priorities of their own agency prevent them from assisting, capacity will be greatly reduced, limiting the ability to adequately enforce duck hunting regulations at key times. This creates uncertainty and presents a risk of not being able to provide an adequate enforcement response.

The GMA (2017c, p. 5) has also noted that it can only provide limited training and support for officers from other agencies who volunteer to assist at surge events.

The most effective surge staff are those who work in full-time compliance roles, such as DEDJTR Agriculture Victoria biosecurity officers, Fisheries Officers or DELWP Wildlife Officers (Game Management Authority, 2017f, p. 8). However, given their only infrequent exposure to working in game enforcement and the absence of mandatory refresher training, their effectiveness is compromised. Co-regulators indicated to this review that while willing, their most experienced and effective Authorised Officers were retiring and that more recent recruits were less comfortable with the regulation of hunting, and therefore less effective, than the staff they were replacing. One officer indicated that some volunteer staff were visibly distressed by the conditions on some wetlands during the duck hunting season and the agency would need to reflect upon its duty of care and responsibility to its own staff before committing staff to support the GMA in future.

While external agencies seem generally willing to make staff available to assist with surge activities, the GMA has suggested they do not provide adequate support for some other activities. DELWP is notionally responsible for coordinating the Summer Waterfowl Count prior to the start of the duck hunting season to, among other things, locate concentrations of rare or threatened species or breeding waterbirds so as to ensure that appropriate management action can be taken to prevent illegal destruction or disturbance.

However, the GMA claims that it often conducts the majority of counting. As noted in section 5.3, the decline in the number of wetlands being surveyed is also a concern. The GMA (2017f, p. 10) has indicated that currently only about 120 wetlands are counted, compared with a long-term average of approximately 350 and a historic high of 700. The GMA has pointed out that at present Parks Victoria plays no role in pre-season monitoring or in-season monitoring of closures or the need for closures. This creates risks where important issues requiring action are potentially not identified.

Our discussions with stakeholders suggests there is considerable goodwill between the GMA and its partner agencies. However, other agencies also have broader responsibilities and resource constraints and their participation in the GMA's activities rely to a large extent on the informal arrangements and shared understandings developed by officers over many years.

The GMA has indicated that coordination of major surge events such as the opening of the duck season is managed through a working group chaired by the GMA while other formal briefings and meetings with partner agencies also occur at various times throughout the season. Senior Game Officers and Game Managers suggested that other agency participation in GMA activities at other times of the year relies to a large extent on relationships that have built up over many years with their counterparts, often based on their shared experiences as Wildlife Officers. While helpful, these arrangements seem an inadequate long-term solution to the challenges of managing appropriate tasking and coordination of activities in such a complex environment.

Coordination across the relevant agencies would be improved by the development of a definitive statement of the accountability framework within which the GMA and its partner agencies are expected to work and up-to-date agreements or Memoranda of Understanding between the individual agencies in relation to the identification of priorities, the allocation of responsibilities, resource sharing and dispute resolution.

It is doubtful the GMA currently has the capacity or institutional leverage to develop an appropriate set of accountability documents. It is understood that DEDJTR has committed to undertake preparation of an “Accountability framework” to clearly articulate the roles and responsibilities of agencies involved in game management. The GMA should seek the assistance of DEDJTR in accelerating work on this project.

This model provides the GMA with capacity and capabilities to which it would not otherwise have access, but also constrains the GMA’s effectiveness as an enforcement agency as the GMA is relying on resources that it cannot control or fully rely upon. The existing operating model could, however, be made more effective if it were supported by a clearer accountability framework.

### Operating with Victoria Police

The GMA is required to work in close collaboration with Victoria Police when dealing with armed or potentially armed hunters. The GMA (2017 April, p. 6) has indicated that “[n]atural resource management (NRM) agency’s [occupational health and safety] policies require Police to be present where firearms are involved”. It is understood this policy has its origins in the late 1990s and early-2000s when then Fisheries and Wildlife Officers were disarmed (Emergency Management Consultancy Services, 2015, p. 5).

The requirement to work with Victoria Police is frequently referred to in discussions with Game Managers, Senior Game Officers and external stakeholders as a constraint on the effectiveness of the GMA’s enforcement activities. The GMA has pointed out that combined operations can take weeks or months to organise and Police are then often called away or are unable to assist at the last moment due to the need to respond to other incidents which are of greater operational priority for them.

The GMA has also indicated that the reliance on Victoria Police leaves the GMA exposed to changes in Victoria Police policies and procedures over which the GMA has little or no control. The GMA has suggested that Victoria Police occupational health and safety requirements do not permit its officers to enter the water unless they are Water Police. The GMA (2017f, p. 9) has also indicated the adoption of a two-up policy by Victoria Police has further restricted the availability of Police to assist with enforcement activities.

The GMA was unable to provide a copy of the original NRM agency occupational health and safety (OHS) policies that form the basis of the requirement to work with Victoria Police. However, it has sought to express what it understands to be the intent of that model in a Standard Operating Procedure (Game Management Authority, 2014). The Standard Operating Procedure employs a risk-based operational response table that provides recommended control options for a range of

activities and scenarios. The approach in the Standard Operating Procedure is sophisticated and proportional.

However, it is evident that the approach is not well understood by some internal and external stakeholders. In workshops, Game Managers and Game Officers offered different interpretations of the policy and applied it differently to similar scenarios. The policy is also expressed differently in official GMA documents:

*“any compliance activities targeting armed hunters will require the assistance of VicPol. Education or surveillance activities will be judged on their merits” (Game Management Authority, n.d., p. 5)*

*“Natural resource management (NRM) agency’s OHS policies require Police to be present where firearms are involved “ (Game Management Authority, 2017 April, p. 6).*

*Current OHS policy requires Game and other Authorised Officers to be accompanied by armed Victoria Police Officers when dealing with anyone in possession of a firearm or who is likely to be in possession of a firearm. (Game Management Authority, 2017f, p. 9)*

The independent review of the GMA’s risk management of its compliance and enforcement function provides yet another slightly different interpretation of the policy: “[i]t is current GMA policy that Game Officers must be partnered with an armed member of Victoria Police whenever they deal with armed or potentially armed hunters” (Emergency Management Consultancy Services, 2015, p. 5).

It is difficult to encapsulate a dynamic risk approach in a single short statement, but the variations in expression of the policy in these statements points to genuine uncertainties in the minds of GMA enforcement staff and their co-regulators and a lack of clarity in the way that the policy is interpreted and applied in the field. This carries obvious operational risks, especially when there are high levels of inter-operability between agencies. It is also likely to have contributed to the reluctance of Game Managers and Game Officers to pursue compliance and enforcement activities in the field.

Some GMA staff argued that the requirement to operate with Victoria Police ought to be removed so that the GMA could operate as an independent enforcement agency. That also seems to be the view of the GMA Chairperson, who has advised the Minister that “the current compliance enforcement operational model that requires one regulator (GMA) to depend upon the presence of another regulator (Victoria Police) to fulfil its regulatory responsibilities is inappropriate and unsustainable” (Hine, 2017a). Other staff argued that the requirement to undertake higher risk enforcement activities with a Victoria Police officer was prudent and that they would be concerned about their exposure to risk if they were not accompanied by Police.

A number of staff suggested the policy was sometimes interpreted too narrowly and was susceptible to cherry-picking. They suggested that their operational enforcement effectiveness could be improved if the policy were clarified and refined rather than removed altogether. The GMA has advised that staff have received recent training on the policy, though that does not seem to appear on the record of training for Authorised Officers provided to this review. The Standard Operating Procedure in which this policy appears does not appear to have been updated since 1 July 2014 (Game Management Authority, 2014).

There appears to be some scope to clarify the Government's intent with regard to the requirement that enforcement operations be undertaken with Victoria Police and to refine and clarify the GMA's Standard Operating Procedure in which this policy is reflected. Appropriate training and support should also be provided for GMA staff and co-regulators on the interpretation and application of this policy.

An independent review of the GMA's management of risks in the compliance and enforcement function in 2015 concluded that access to a firearms would be a reasonable control measure to mitigate the risks faced by a Game Officer in the field (Emergency Management Consultancy Services, 2015, pp. 28,30-31). However, that review noted that this would "create some challenges for the GMA" associated with the development and implementation of Standard Operating Procedures, training, accreditation and re-accreditation, storage and handling of firearms and the associated costs (Emergency Management Consultancy Services, 2015, p. 30). The review also acknowledged that simply providing firearms and removing the need to work with police "does not automatically increase efficiency" (Emergency Management Consultancy Services, 2015, p. 31).

The current operational requirement to work with Victoria Police limits the GMA's ability to operate independently. However, it is not clear that it unreasonably constrains the GMA's effectiveness as an enforcement agency. At present, the requirement to be accompanied by Victoria Police officers only seems to apply to higher risk enforcement activities involving medium to high consequences or multiple offenders deemed to be high risk. It doesn't automatically apply to all enforcement actions.

Routine access to firearms may allow GMA staff to undertake some operations that are currently not able to be undertaken due to the unavailability of Victoria Police. However, firearms would impose additional costs and constraints on the GMA's operational effectiveness. If the GMA were to undertake independent, high-risk enforcement operations, its operational planning would be more complex, staff would require significant additional training and support, and they would likely be required to work two-up, further reducing the number of GMA enforcement teams across the state.

In addition, confrontations with armed offenders on matters involving moderate to high consequences would expose GMA staff to additional risks and raise complex duty of care issues for the Board and senior executives. It is conceivable that faced with these hazards, the GMA

would be more, rather than less, reluctant to engage in hard-edged enforcement actions with potentially aggressive or unstable offenders.

Importantly, senior officers of GMA's partner regulators indicated that they would be less likely to make their staff available for joint operations if GMA Authorised Officers were armed.

In the absence of a change in the current policy regarding operations with Victoria Police, the GMA should re-consider the priority that it currently attaches to deterrent-based enforcement activities and seek to influence hunter behaviours through other more compliance-based approaches.

## 6.4 Conclusions

An independent statutory authority is a high cost model for a small regulator. Inflexibilities inherent in the model limit the GMA's effectiveness as a compliance and enforcement agency.

As a small statutory regular with relatively narrow sectional interests, the GMA is vulnerable to capture by the interests it is seeking to regulate.

There is a need for more transparency in GMA's governance of its compliance and enforcement functions and for strengthened governance measures to protect its independence.

The current operating model provides the GMA with access to essential capacity and capabilities, but also constrains its effectiveness as an enforcement agency. The model could be supported by a more effective accountability and governance framework. The GMA should seek the assistance of DEDJTR in accelerating work on a more appropriate accountability framework.

The requirement to work with Victoria Police certainly restricts the GMA's ability to operate independently, but it is not clear that it limits the GMA's effectiveness.

There is some uncertainty about the intention and application of this policy, and the GMA should seek clarification of the Government's intent with regard to the requirement that enforcement operations be undertaken with Victoria Police and to refine and clarify the GMA's Standard Operating Procedure in which this policy is reflected. Appropriate training and support should also be provided for GMA staff and co-regulators on the interpretation and application of this policy.

## 7 Capacity and capability

---

*This section assesses the GMA's capacity and capability to meet its compliance and enforcement obligations.*

---

### 7.1 Introduction

Capacity and capability are slippery concepts.

A common understanding of capacity might refer to the availability of a resource (physical, human or information) while capability might refer to the nature or quality of that resource. Examples of capabilities could include management abilities, surveillance and monitoring techniques or skills in communication and stakeholder management.

However, in practice the terms are blurred. They can mean different things to different people and are sometimes used interchangeably. In an organisational context, capacity and capability only have meaning and relevance in the context of the capacities and capabilities that are relevant to the organisation's mission and purpose.

The capacity and capability that a regulator requires are not absolutes, but are related to its function, how it interprets its mission, its regulatory philosophy, the business model that it adopts and the environment in which it operates. A regulator managing low risks in an environment where the regulated agents are generally well-informed and generally compliant with the laws can operate a permissive regulatory strategy that requires capacity and capabilities that are very different from a regulator managing high risks in a non-compliant environment.

The assessment of the GMA's capacity and capability that follows is informed by the discussion of the GMA's role, legislative and regulatory environment and operating model outlined in previous sections of this report. If the regulatory environment or operating model were to be changed, there would be flow-on consequences for the capacity and capabilities required by the GMA.

The discussion of capabilities focuses on workforce capabilities, as organisational capabilities, such as policy and planning processes, regulatory architecture, systems and processes are discussed in detail in sections 5 and 6 of this report.

### 7.2 Financial, staffing resources and other assets

The GMA is a small agency with a core workforce of 18 staff (though several of those staff were not operational through the period of this review).

The head office comprising the CEO and senior managers is located in Melbourne and Game Officers and Game Managers are located in five regional locations around the State. Field staff are accommodated in shared offices with other Victorian government agencies.

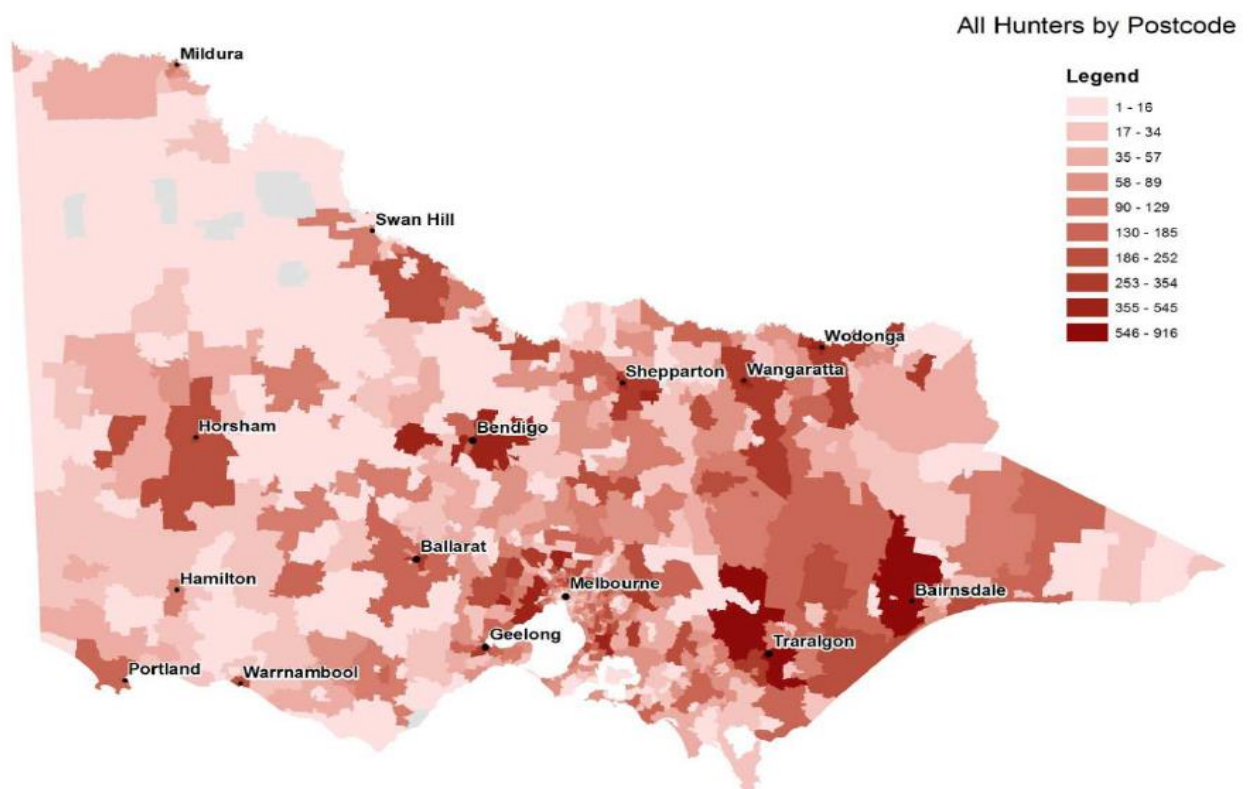


It is not clear what advantage, if any, the GMA derives from its location in Melbourne. Current costs of rental space for GMA staff in Melbourne are around three times the cost the GMA currently pays for staff located in regional Victoria.

A regional location would be cheaper, and would provide the GMA with greater access to the regional communities and stakeholders that are most directly affected by the activities that it regulates.

This can be seen in Figure 5 below that shows most hunters are located outside of the Melbourne metropolitan area. Hunting areas, of course, are almost exclusively outside Melbourne.

*Figure 5: All Victorian resident hunters by postcode as at 30 June 2016*



Source: GMA (2016b, p. 14)

One or two regional hubs would provide an improved working environment for staff, who could be co-located with their peers and managers, and would facilitate the management of integrated responses. Compliance and enforcement activities in particular would gain from access to local knowledge and opportunities for engagement with local communities.

As noted in section 3.3, the GMA (2016, p. 44) receives an annual grant of \$4.8 million from DEDJTR. In 2015-16, the GMA reported a total revenue of \$5.0 million.

In 2016-17, the Victorian Government also committed \$5.3 million over four years to support safe, responsible and legal hunting through the *Sustainable Hunting Action Plan* (Department of Treasury and Finance, 2016, pp. 37,42,48). It is understood that, of this amount, around \$1.4 million over four years will be available to the GMA.

At 30 June 2016, the GMA (2016, p. 32) held assets of \$7.0 million, including \$4.9 million in cash and deposits and \$0.4 million in property, plant and equipment. The GMA also held \$1.7 million in accounts receivable. Liabilities were reported as \$3.4 million, leaving a net asset position of \$2.5 million.

Employee expenses in 2015-16 totalled \$2.3 million (Game Management Authority, 2016, p. 31).

### 7.3 Capacity and scope of responsibilities

The GMA has a very wide remit and a broad range of research, advisory and regulatory responsibilities.

It operates in an extremely complicated legislative and institutional framework in which a number of public agencies retain fragmented and overlapping responsibilities for management of issues related to game management. The partnership arrangements and mechanisms for coordinating actions between these agencies are cumbersome (Game Management Authority, 2016, p. 19) and require attention to support and maintain.

As noted in sections 4.1 and 4.2 of this report, the Government has added to the GMA's general statutory responsibilities a number of policy, research and operational tasks through the *Sustainable Hunting Action Plan* and Ministerial Statements of Expectations. These include a lead responsibility for implementation of the *Plan* and the coordination of other agency inputs. The Minister's Statement of Expectations also expresses an expectation the GMA will pursue a number of initiatives, including the development of an online game licensing system, implementation of a Waterfowl Conservation Harvest Model, development of a game species research strategy and a number of other specific performance improvements and targets (Pulford J. , 2016).

These commitments would stretch a policy agency with greater resources than are available to the GMA. They are additional to the GMA's ongoing obligation to ensure compliance with the game hunting laws across Victoria.

The GMA is required to enforce a population approaching 50,000 licenced game hunters over more than 8 million hectares of public and private land available for game hunting. In addition, the GMA is required to cover private land that may be hunted with the permission of the landowner/manager and enforce illegal hunting that may occur on other areas of the public land estate which are closed to hunting (Game Management Authority, 2017f, p. 7). Private landholders also have a reasonable expectation that the GMA will assist in managing the impacts of game hunting on their land, whether that hunting takes place on their land or on adjoining public or private land.

The GMA's compliance and enforcement capacity is stretched extremely thinly across a vast geographic area that includes remote and inaccessible areas in which hunter behaviours are extremely difficult to observe. Periods of peak hunter activity (like opening weekend of the duck hunting season) place further pressure on the GMA's capacity.

The difficulty of ensuring compliance with the game hunting laws across the state within current resourcing levels may be illustrated by the imbalance of resources available to the GMA on the opening weekend of the 2017 duck hunting season. Opening weekend of the duck season records the highest rate of hunter activity for any period of the hunting season. Surveys suggest that up to 60 per cent of the state's 26,000 licensed hunters are active over this period (Game Management Authority, 2017f, p. 4).

To enforce the hunting laws on the opening weekend of the 2017 duck hunting season, the GMA (2017 April, pp. 4-5) had access to its own staff of 5 Game Officers and 5 Game Managers and around 150 additional staff from the GMA, Victoria Police, Parks Victoria, DEDJTR and DEWLP. While these staff were experienced in their own fields, they were mostly volunteers and were only partially trained in enforcement of the game hunting laws (Game Management Authority, 2017f, p. 10; Game Management Authority, 2017c, p. 5). It is understood that only some of these staff were authorised to undertake enforcement actions.

The GMA ensured that enforcement and survey staff were present at 40 major wetlands across the state. In addition, priority areas of private property were targeted. Approximately 4,900 hunters were present at patrolled wetlands. This constituted 33 percent of the estimated total number of active hunters.

An estimated 2,000 hunters were present at the Koorangie State Game Reserve over the opening weekend of the duck season. Approximately 120 protestors were also present. The GMA was able to deploy 15 Authorised Officers from across the natural resource management agencies, 12 members of Victoria Police, one video camera operator and three bag survey staff. Additional Authorised Officers were deployed throughout the region to Boort (6), Donald (4), Loddon River (2), Mildura (2) and Gunbower (2). All Authorised Officers were accompanied by Victoria Police (Game Management Authority, 2017f, p. 5).

Given the circumstances, it is difficult to argue that the GMA did anything other than deploy the available resources efficiently and effectively across the state to manage its enforcement responsibilities as best it could. However, the resources available were manifestly inadequate to effectively enforce the game laws for which the GMA is responsible within the existing policy and compliance framework (see section 5.5), and in similar circumstances it could be expected that similar outcomes would be achieved.

The GMA's compliance and enforcement capacity is stretched extremely thinly across a vast geographic area that includes remote and inaccessible areas in which hunter behaviours are extremely difficult to observe. A comparison of the GMA's responsibilities and resource levels with other similar organisations is set out in Table 2.

The most similar agency to the GMA in Australia with respect to its role and accountabilities is the New South Wales (NSW) Game Licensing Unit (GLU), within the NSW Department of Primary Industries. The GLU is the successor to the former NSW Council. It has responsibility for game licensing, game enforcement, hunter education, research and advice to government on game hunting matters.

The GLU has a total of 33 staff (compared with 18 GMA staff), which includes 14 game officers (compared to GMA's five). Despite the significantly higher level of resourcing, the GLU has only 19,000 licenced hunters (compared to Victoria's 50,000) and hunting is available on 2 million hectares of public land (compared to Victoria's 8 million). Access to land for hunting purposes is also more tightly controlled through a system of permits and balloting arrangements (see section 8.5).

The Tasmanian Game Management Unit oversighted 1,158 duck licences in 2016 (compared with 25,646 duck licences in Victoria), and 15,007 licences overall (compared with 48,023 licences in Victoria) but has 11 staff including six wildlife rangers compared to GMA's 18 staff including five Game Officers.

The GMA has too few staff to effectively enforce the game laws for which it is responsible.

*Table 2: Comparison of game and related regulators*

REGULATOR	FORM OF REGULATOR	GOVERNANCE ARRANGEMENTS	SCOPE OF POWERS	FUNDING SOURCES	RESOURCES	NUMBER OF LICENCE HOLDERS
Fisheries Victoria	Statutory	Chairperson, Vice chairperson, board of 6 additional Directors (5-8 Directors specified in Act)	Licensing, education of rights and obligations, monitoring and assessment of fisheries for sustainability, administration of fishing-related grants	Funding from the Recreational Fishing Licence (RFL) Trust Account disburses revenue derived from the sale of RFLs. Total disbursements of \$7.45 million in 2015-16. (Department of Economic Development, Jobs, Transport and Resources, 2016).	\$2.24 million provided in 2015-16 to Fisheries Enforcement and Education Branch from the RFL Trust Account (Department of Economic Development, Jobs, Transport and Resources, 2016). 64 full-time field enforcement staff in 2017 (Department of Economic Development, Jobs, Transport and Resources, 2017).	294,051 RFLs sold in 2015-16 (Department of Economic Development, Jobs, Transport and Resources, 2016). Some 800,000 fishers but various exemptions provided (Pulford J. , 2017).
NSW Game Licensing Unit	Departmental (NSW Department of Primary Industry)	Game Licensing Unit (GLU) within the Fisheries Branch of the NSW DPI, subsidiary to Director General, Deputy Director	Game licensing and compliance, education, research and advice to government.	\$6 million in funding per annum, \$4.5 million provided from the NSW Government and \$1.5 million from hunting	GLU has a total of 33 staff including 14 game officers. (Personal correspondence with GLU)	There were 19,124 recreational game hunting licence holders in April 2017 (RMCG, 2017, p. 6).

		General (Fisheries), and Secretary		licence revenue. (Personal correspondence with GLU)		
SA Fauna Permits Unit	Departmental (Department of Environment, Water and Natural Resources	In 2015-16 was part of the Customer and Corporate Services Group.	Issues permits for hunting purposes (general hunting, duck and quail hunting).	Departmental. Not listed separately in Annual Report or Budget documents.	Four offices (based in Adelaide, three regional offices). Staffing unclear, although compliance and enforcement appears to be incidental to other wildlife management functions.	9,145 permits issued for hunting purposes in 2015- 16 (Department of Environment, Water and Natural Resources, 2016)
Tas. Game Management Unit (GMU)	Departmental (Department of Primary Industry, Parks, Water and Environment)	As at July 2017, unit part of the Wildlife Management Branch within Corporate Heritage and Lands division.	Primary contact for all forms, permits, and licences related to Tasmanian fauna.	Departmental. Not listed separately in Annual Reports or Budget documents.	GMU has offices in Hobart and Launceston and has 11 staff in total including 6 wildlife rangers (Department of Primary Industries, Parks, Water and Environment - Wildlife Management Branch, 2017).	7,582 wallaby, 5,114 deer, 1,158 duck, 834 short- tailed shearwater bird, 230 quail, and 89 King Island Pheasant hunting licences in 2016. (Department of Primary Industries, Parks, Water and Environment - Wildlife Management Branch, 2017)

New Zealand Fish and Game Council (Fish and Game New Zealand)	The collective brand name of 12 regional Fish and Game Councils and the New Zealand Fish and Game Council.	Fish and Game Councils are regionally autonomous bodies governed by elected Fish and Game councillors who are elected every three years by adult full season licence-holders across the respective region. The New Zealand Fish and Game Council is made up of one representative from each of the regional councils. Annual report delivered to Minister for Conservation.	Administers sports fishing and game-bird resources in New Zealand. Note that deer hunting on public land is managed separately by the Department of Conservation.	Licence fees and levies, interest, research income, magazine contributions, and guidebook advertising. (New Zealand Fish and Game Council, 2016)	\$3.7 million in revenue in 2016, of which \$3.5 million from levies. Six council staff listed in Annual Report, plus seventeen representatives from regional councils (New Zealand Fish and Game Council, 2016). In addition, 52 warranted staff rangers and 220 warranted honorary rangers operate around the country, with a maximum of 30 in any one of the 12 Fish and Game regions (personal correspondence).	Around 36,000 bird hunting licences sold by Fish and Game New Zealand in 2016 (Cavanagh, 2016). For the 2013/14 fishing season, Fish and Game New Zealand issued the equivalent of 78,440 whole-season fish licences for adults (Statistics New Zealand, 2015).
---	--	---	---	--	---	---



## 7.4 Funding model

The GMA is currently funded by an annual grant from the DEDJTR. The funding provided to the GMA through DEDJTR has been virtually static since its establishment in 2014.

In addition to the fixed grant, some small amounts have been earned by GMA on interest and the sale of services, and supplementation has been provided by the Government for new commitments related to the *Sustainable Hunting Action Plan*.

This current funding model is unusual, as independent statutory authorities are generally funded by direct appropriation from Parliament, or by a mix of parliamentary funding and fees or levies. For 2017-18, funding for the GMA is provided within a DEDJTR program “Sustainably Manage Fish, Game and Forest Resources” of \$89.9 million (The State of Victoria, Department of Treasury and Finance, 2017, pp. 130-131).

The GMA’s resources have remained relatively fixed since 2014, despite significant increases in external demand for its services. As shown in section 4.5, deer licence numbers have increased by over 300 per cent since 1996 and around 10 per cent since the GMA (2016b, p. 7) was created.

DEDJTR officers indicated that by maintaining the GMA’s grant in nominal dollar terms, the department had protected the GMA from funding cuts that had been applied to other agencies of government over the past several years. However, they also acknowledged that the GMA’s funding base had been established at a time when its home department was seeking savings across all of its activities and that the initial level of funding extended to the GMA had not been calculated on a zero base assessment of the resources required to effectively fulfil its functions as a stand-alone agency.

The current funding model for the GMA, in which funding is static and external demand is growing, is not sustainable. Previous sections of this report have also pointed to significant gaps in the GMA’s regulatory capabilities, such as a more effective licensing system and more systematic monitoring and intelligence capabilities, that are currently beyond the GMA’s capacity and will require additional investment.

Some game management agencies in other jurisdictions have traditionally been funded or part-funded from licence fees. As shown in Table 2, the Victorian Fisheries Authority, the NSW Game Licensing Unit and the New Zealand Fish and Game Council all receive a proportion of their revenue from licence fees.

In the GMA’s case, however, at their current levels, licence fees would not provide a sustainable funding source for the GMA. The recent Victorian Parliamentary Inquiry into the Control; of Invasive Animals on Crown Land recently calculated that revenue from game licence fees totalled \$2.50 million in 2015-16 (Parliament of Victoria Environment, Natural Resources and Regional Development Committee, 2017, p. 81).

Licence fees could potentially be used to supplement the GMA’s existing revenue base. There is an argument that, as the game licence provides privileged access to a common pool resource that is owned by the Crown, it is reasonable for licencees to pay a fee commensurate with the value of the resource that they are extracting from the common pool.

However, cost recovery arrangements for a regulator need to be approached with caution. The Productivity Commission has argued that cost recovery for regulators can encourage undesirable practices such as regulatory creep, gold plating and cost padding (Productivity Commission, 2001, p. 96). Regulatory creep occurs where additional regulation is imposed without adequate scrutiny. Cost padding refers to the imposition of unnecessary costs on those being regulated instead of, for example, seeking efficiency savings (Productivity Commission, 2001, p. 98). Gold plating involves providing a

higher level of service than is required to meet clients' needs or to satisfy government objectives (Productivity Commission, 2001, p. 97).

There are perverse incentives in funding a regulator from licence fees. If the GMA were funded from licence fees, there would be an incentive for the GMA to maximise its revenue by encouraging the public to take up hunting licences, lowering the standards required to obtain a licence, or resisting the imposition of more stringent testing or proficiency standards before licences are allocated. It is important for the credibility and public acceptance of the regulatory regime that the GMA be seen to be maintaining a position on licence arrangements that best meets its statutory obligations and regulatory objectives. Licensing arrangements should be regarded as a form of regulatory control that supports sustainable game management and responsible hunting behaviour rather than as a source of revenue.

The GMA's unusual funding arrangement places an obligation on DEDJTR to ensure that the grant it provides from its program allocation is, at a minimum, sufficient to meet the GMA's statutory obligations. One option open to the GMA would be to canvass with DEDJTR the potential to develop a funding formula in which the GMA's funding is adjusted in proportion to changes in underlying demand as measured by an agreed driver such as licence fees or wildfowl counts, adjusted as necessary for expected improvements in efficiency over time. Re-calibrations of the funding base could be undertaken on an annual or triennial basis. A triennial basis would reduce workload and provide greater medium-term certainty.

The GMA would need to be aware that funding could be adjusted up or down, as the underlying numbers vary over time.

In the absence of a longer-term solution to its resourcing, the GMA may need to consider measures to reduce external demands on its resources or re-allocating resources away from relatively expensive enforcement activities toward more cost-effective activities such as information and education. These and other options are canvassed in section 8 of this report below.

## 7.5 Workforce capabilities

One of the core functions of a regulator is to manage its workforce capabilities.

Regulators need to have a clear understanding of their role and function, and the skills and capabilities required to achieve the government's desired policy objectives. This knowledge can guide a regulator's workforce planning, including the training, development and retention of its officers, and the targeted recruitment of persons with the skills required to fill identified gaps (Australian National Audit Office, 2014, p. 23).

The GMA is fortunate in the quality and commitment of staff at the policy and operational levels. Staff consulted in this review were unfailingly professional, constructive and committed to their work. A recent independent review of the GMA's compliance function commented that "interviews with both internal and external stakeholders indicated that the current cadre of Game Officers are extremely capable, well-chosen and well-trained personnel, capable of approaching most situations in a calm and non-antagonistic manner in order to carry out their duties" (Emergency Management Consultancy Services, 2015, p. 14). The experience of this review was that similar comments could be made about Game Managers and Game Officers.

The GMA provided evidence that it takes the recruitment, development and training of its compliance and enforcement very seriously. Game Officers and Game Managers generally have many years' experience in law enforcement or in related regulators. Most of the staff also have relevant advanced

qualifications. The GMA provides regular training and development opportunities for its compliance and enforcement staff. The GMA Annual Report identifies the mandatory training requirements for GMA Authorised Officers and summarises the training undertaken (Game Management Authority, 2016, p. 19). The GMA also maintains a skills and training matrix for its compliance officers that documents the training and development received (Game Management Authority, n.d).

As the GMA does not have a full-time training officer, the provision of training for compliance and enforcement staff generally requires the diversion of at least one officer from the field for a period to develop and coordinate the training. That so much has been achieved is a credit to the managers and staff involved.

There are, however, some gaps, either in the documentation or in the training received. The GMA (2016, p. 19) Annual Report indicates that 6 monthly refresher training in Client Interaction and Defensive Tactics Level is mandatory for all Authorised Officers. However, it is not apparent from the training matrix that this training has been provided for all the Authorised Officers in the past 12 months. Much of the training and development documented in the GMA's skills and training matrix appears to relate to the practical field-craft required of an enforcement officer working in remote locations: 4WD skills, chainsaw proficiency, first aid, radio communications and so on. While these are required skills for GMA Authorised Officers, they do not cover all the capabilities that might be expected of a fully capable regulator.

The review found less evidence that the GMA possesses the higher-level strategic compliance experience and training required to effectively develop and implement an effective compliance strategy or ensure that all of the available regulatory tools and capabilities are developed and deployed coherently to solve problems, prevent harm and influence behaviour.

The ANAO (2014, pp. 23-24) has suggested that while technical proficiency, formal technical qualifications and industry experience are important for regulatory officers, regulators also require skills in a broad range of areas, including:

- risk and quality management—the design and application of the regulator's risk and quality management systems and procedures are enhanced when officers have practical experience in applying the relevant national and international standards;
- stakeholder engagement—stakeholder confidence in a regulator's performance is enhanced when the regulator communicates effectively;
- communication—well-developed communication and inter-personal skills enable officers to establish productive and professional relationships with regulated entities and other stakeholders and develop an engagement approach where there is an ongoing, longer-term relationship;
- team management—skills and experience in leading multi-discipline teams assist in maximising the individual contributions of each discipline and the collective output of the team;
- data analysis and management—quality information is a key component of effective regulatory administration;
- audit and inspection—the quality of a compliance assessment is enhanced when it is conducted by officers who are trained, or have experience, in auditing techniques;
- legal and criminal investigation—officers with appropriate legal and investigative skills help to ensure that regulatory powers are exercised effectively; and
- contract management—officers with experience in handling contracts contribute to effective management of outsourced regulatory activities.

It is not clear at present the GMA's compliance and enforcement staff possess all of these skills, or, if they do, that the GMA can demonstrate through an appropriate competency log or skills matrix that they have received appropriate training and support in the application of these skills and qualifications in their work.

Given the GMA's operating model, the ability to effectively manage across a distributed network of stakeholders is a core capability for the GMA. GMA compliance and enforcement staff have demonstrated a capacity to establish networks with officials in other agencies and to make use of those relationships to enlist support across a range of operational activities. Game Managers and Game Officers have also generally established warm relationships with hunting organisations and with hunters. However, relationships with other stakeholders are not as strong, though some of the GMA's compliance staff have worked assiduously to build better relationships with animal welfare groups and other stakeholders.

The reliance on personal networks is both a strength and potential vulnerability for the GMA. Game Managers and Game Officers are able to draw on these relationships to support their compliance work by accessing resources at relatively short notice. However, access to the resources is informal, often unfunded, and cannot be relied upon. It is also vulnerable to changes in personnel or policies and practices in other agencies. Compliance staff have indicated the management of other agencies have already questioned the current informal arrangements that exist between their officers and the GMA.

The GMA needs to put more emphasis in its recruitment and training on the ability to manage and communicate with influence across a broad spectrum of values and interests. The GMA will also need to work over time to develop more robust accountability frameworks with other agencies. These frameworks will need to be supported by staff with strong communication and contract management skills.

Communications and marketing are a notable gap in the GMA's current workforce capabilities. At present, only one GMA staff member has formal qualifications in communications, and that person is not employed on marketing activities. Section 5.4 of this report commented on the limited number of channels through which the GMA communicates with stakeholders, and its reliance on English language materials. To be effective in its compliance activities, the GMA needs access to skilled and qualified communication and marketing experts who are able to engage effectively with a dispersed and diverse stakeholder base across a wide range of channels and communications media.

The GMA should act quickly on the finding of the external review it commissioned on the risk management of its compliance function that "a dedicated communications officer focused social media and multi-lingual educational material delivery would greatly assist" the GMA's engagement with external stakeholders (Emergency Management Consultancy Services, 2015, p. 1).

In assessing the capabilities of the GMA's enforcement officers, the review had regard to the Australian Government Investigations Standards (AGIS) and, in particular, the sections dealing with investigations management.

Compliance with AGIS is mandatory for all Australian Government agencies involved in investigations (Australian National Audit Office, 2014, p. 24). Australian Government policy requires that investigations be carried out by appropriately qualified and experienced personnel supported by a suitable level of managerial oversight. Officers undertaking such investigations are required to meet the competency requirements set out in the Australian Government Investigations Standards.

The AGIS outlines recommended minimum standards for:

- investigation policy and performance measurement;

- prosecution policy;
- access to legislation;
- investigator qualifications agency relationships;
- ethical standards; and
- media issues.

AGIS required qualifications are:

- Certificate IV in Government (Investigation), to be obtained before an officer is primarily engaged as an investigator; otherwise the officer should be under the supervision of a qualified investigator; and
- Diploma of Government (Investigation), for staff primarily engaged in the coordination and supervision of investigations.

The GMA training matrix recognises the Certificate IV as a development option for compliance and enforcement staff. However, the matrix does not recognise any training received under this heading in the previous year. It is recognised that GMA's enforcement staff may have completed professional development to a similar standard of the AGIS in their previous employment. However, it would nevertheless be useful to recognise this knowledge and provide refresher training as required to keep that knowledge up-to-date.

The GMA should consider completion of the AGIS or demonstration of equivalent training as a mandatory requirement for staff involved in investigations.

Game Officers indicated to this review they routinely carry out surveillance operations to gather intelligence before contacting Victoria Police to develop an enforcement operation. However, the independent review of the GMA's risk management of its compliance functions indicated that no formal training had ever been delivered on effective surveillance techniques (Emergency Management Consultancy Services, 2015, p. 17). There is no indication in the training matrix that this training has been provided since that time, or that any refresher training is offered in surveillance techniques.

As noted in section 5.3, the GMA currently lacks any developed analytical capability to analyse and interpret surveillance and intelligence data. This is a critical capability for an effective, contemporary regulator. Without this capability, it is difficult to see how the GMA could hope to maintain a risk-based and intelligence-led compliance and enforcement framework. The GMA recognises the gap and has entered into an arrangement with the VFA and the biosecurity function of DEDJTR to part-fund the share of an intelligence analyst to be located in the VFA Strategic Intelligence Unit. This is a step in the right direction, but it is probably insufficient to provide the full capability required to support the GMA's compliance and enforcement functions.

If the GMA is to continue to perform surveillance operations, it would be desirable to ensure the staff likely to be involved have received appropriate training in safe and effective surveillance techniques, either from Victoria Police, or the VFA or some other high-quality provider.

## 7.6 Conclusions

The current funding model is not sustainable. The resources available to the GMA are manifestly inadequate to effectively enforce the game laws for which the GMA is responsible within the existing policy and compliance framework. In addition, there is no provision in the current funding model for adjustments based on changes in external demand for the GMA's services.

There is scope for more flexible funding of the GMA's compliance and enforcement functions. The GMA's unusual funding arrangement places an obligation on DEDJTR to ensure that the grant it provides from its program allocation is, at a minimum, sufficient to meet the GMA's statutory obligations.

However, additional funding alone would not necessarily provide better compliance and enforcement outcomes, or prevent a recurrence of the events that have been experienced during recent duck seasons and elsewhere.

While the GMA possesses many of the operational compliance and enforcement capabilities required to deliver on its responsibilities, it lacks the higher-level strategic compliance experience and training required to effectively develop and implement an effective compliance strategy or ensure that all of the available regulatory tools and capabilities are developed and deployed coherently to solve problems, prevent harm and influence behaviour.

The GMA should consider completion of the Australian Government Investigations Standards (AGIS) or demonstration of equivalent qualifications training as a mandatory requirement for staff involved in investigations.

If the GMA is to continue to perform surveillance operations, it would be desirable to ensure that the staff likely to be involved have received appropriate training in safe and effective surveillance techniques, either from Victoria Police, or the VFA or some other high-quality provider.

To be effective, the GMA needs access to skilled and qualified communication and marketing experts able to engage effectively with a dispersed and diverse stakeholder base across a wide range of channels and communications media.

In the absence of a longer-term solution to its resourcing, the GMA may need to consider measures to reduce external demands on its resources or to undertake a significant rethink of its current approach to regulation, including the re-allocation of resources away from relatively expensive enforcement activities toward more cost-effective activities such as information and education.

## 8 A more effective regulator

---

*This section sets out some strategies and actions that could improve the effectiveness of the GMA's compliance and enforcement efforts.*

---

### 8.1 Introduction

There are many strategies and actions that could improve the effectiveness of the GMA's compliance and enforcement functions.

Some of the available approaches would require additional resources. The development of a more effective licensing system would have establishment and ongoing costs the GMA is unlikely to be able to afford given its current asset base and sources of revenue. The development of a more dynamic and adaptive approach to regulation is unlikely to require a large amount of capital, but would require a significant investment of executive and senior management time and attention to develop and maintain. It would, however, allow for more effective targeting of the available resources. Other initiatives simply involve changes to existing documentation and procedures and are unlikely to require any additional funding.

This section sets out a number of possible strategies and actions the GMA could pursue to support its compliance and enforcement functions. The options are not presented as an integrated "take it or leave it" package, but rather provide a menu of strategies that could be pursued either individually or collectively, depending on the GMA's assessment of its authorising environment, its appetite for change and what it considers to be practically achievable given its resources and capabilities.

### 8.2 Rethinking the case for regulation

There is a threshold question for the GMA to consider regarding the rationale for game regulation and whether there are alternative approaches to game management that would avoid or reduce the need for direct regulation by a government agency.

The growth in deer licences and the consequent increase in demand for GMA regulatory services is placing pressure on the GMA's limited capacity and placing pressure on the GMA's ability to provide effective compliance and enforcement services across all types of game. Deer hunting is difficult to regulate because it takes place in relatively remote and isolated locations, and it carries risks for the GMA's compliance and enforcement officers because of the circumstances in which deer hunting takes place and the nature of the firearms and other weapons employed.

The regulation of game hunting has been justified on the basis that it is a common-pool resource that seeks to overcome the 'tragedy of the commons' (Department of Primary Industries, 2012). A commons refers to any set of resources that a community recognises as being accessible to any member of that community. A common-pool resource typically consists of a core resource which defines the *stock variable*, while providing a limited quantity of extractable fringe units, which defines the *flow variable*. While the core resource is to be protected or managed in order to allow for its continuous exploitation, the fringe units can be harvested or consumed.



Commons are vulnerable to being depleted or extinguished through competition for access to the shared resource. The conflict between private consumption and the common good has been described as the *tragedy of the commons* by Garrett Hardin (1968, p. 1244):

*Ruin is the destination toward which all men rush, each pursuing his own best interest in a society that believes in the freedom of the commons.*

Solutions suggested to overcoming the tragedy of the commons include enclosing the commons (or turning it into private property) and government regulation. Another approach is through collective action through the establishment of a common property regime.

Game animals in Victoria are generally managed through government regulation. Typically, game species are common and occur in relatively large numbers, have a high replacement potential, mature quickly and can breed at an early age, have high rates of turnover, are fast escapers, wary in nature and have good table qualities (Department of Primary Industries, 2012, p. 14). In order to manage the stock of native ducks as well as quail (largely the native stubble quail), open seasons for native game birds are timed to coincide with peaks in population levels and avoid periods of vulnerability (e.g. breeding, moulting), stress (e.g. food shortages or extremes in weather) and low populations (Department of Primary Industries, 2012, p. 17).

While native game birds are regarded as a common-pool resource worthy of protection subject to management through government regulation, it is questionable whether deer should be properly considered as a common-pool resource. Deer were introduced to Victoria in the 1860s for recreational hunting purposes and were also released or escaped from deer farms between the 1970s and 1990s (Parliament of Victoria Environment, Natural Resources and Regional Development Committee, 2017, p. 20).

An invasive species is a species that spreads through human activities beyond its accepted normal distribution and threatens valued environmental, agricultural or other social resources by the damage it causes (The State of Victoria, Department of Primary Industries, 2010). Invasive animals of concern on Crown land in Victoria include deer (Department of Environment, Land, Water and Planning; Department of Economic Development, Jobs, Transport and Resources; & Parks Victoria, 2016, p. 1).

Deer are known to have significant impacts on native biodiversity and agricultural values (Department of Environment, Land, Water and Planning; Department of Economic Development, Jobs, Transport and Resources; & Parks Victoria, 2016, p. 13). Increases in the impacts of deer on high value environmental assets across Victoria have been observed over the last decade, an example of which is damage to Alpine Sphagnum Bogs and associated ferns, an endangered ecological community listed under the *Environment Protection and Biodiversity Conservation Act 1999* (Vic) and the *Flora and Fauna Guarantee Act 1988* (Vic).

Deer can cause a number of other environmental impacts through browsing and grazing, antler rubbing, trampling, trail creation, and wallowing (Department of Environment, Land, Water and Planning; Department of Economic Development, Jobs, Transport and Resources; & Parks Victoria, 2016, p. 13). Primary production is impacted by deer through loss of crops, damage to farm infrastructure and increased risk of livestock disease including foot and mouth (Parks Victoria, 2013). Deer can also compete with native fauna for food, such as hog deer that compete with kangaroos, wallabies and wombats for food on Wilsons Promontory (Parliament of Victoria Environment, Natural Resources and Regional Development Committee, 2017, p. 36).

Seven species of deer (sambar, red, sika, rusa, chital fallow and hog deer) are listed as game and are consequently protected wildlife under the *Wildlife Act 1975* (Vic) (Department of Environment, Land,

Water and Planning; Department of Economic Development, Jobs, Transport and Resources; & Parks Victoria, 2016, p. 13). As such, deer are given the same protection as native animals (Parliament of Victoria Environment, Natural Resources and Regional Development Committee, 2017, p. 56).

The reduction in biodiversity of native vegetation by sambar deer is listed as a potentially threatening process under the *Flora and Fauna Guarantee Act 1988* (Vic) (Department of Environment, Land, Water and Planning; Department of Economic Development, Jobs, Transport and Resources; & Parks Victoria, 2016, p. 20). All other species of deer are declared pest animals under the *Catchment and Land Protection Act 1994* (Vic).

In response to community concern about the impact of deer on private land, a Governor in Council Order was made under the *Wildlife Act 1975* (Vic) in 2013 to unprotect deer on all private land. This allows landowners to control deer on their property without the need for a game licence or an Authority to Control Wildlife. However, deer remain protected on public land in Victoria, and there is concern from Crown land managers that the status of deer as protected wildlife is at odds with their mandate to control them as a key threatening process.

The Environment, Natural Resources and Regional Development Committee of the Victorian Parliament (2017, p. 23) has recently found:

*The population of deer in Victoria has increased alarmingly in recent decades, causing a number of problems for native ecosystems and agricultural enterprises. While there is some debate about whether or not the population will continue to increase, deer will continue to be a problem, regardless of marginal increases or decreases in the population.*

Under section 5 of the GMA Act, GMA has as one of its objectives “to promote sustainability” in game hunting in Victoria. Similarly, section 1A of the *Wildlife Act 1975* (Vic) has as one of its purposes “the sustainable use of and access to wildlife.” It would appear that sustainability in this context refers to ensuring that the population of deer for hunting purposes does not decline. This interpretation is consistent with the 2012 regulation impact statement on the *Wildlife Game Regulations 2012* (Vic) which state the nature of the sustainability problem was to avoid overharvesting (Department of Primary Industries, 2012, p. 27).

However, sustainability is more commonly linked with the concept of Ecologically Sustainable Development (ESD) which has been defined as:

*... using, conserving and enhancing the community's resources so that ecological processes, on which life depends, are maintained, and the total quality of life, now and in the future, can be increased. (Ecologically Sustainable Development Steering Committee, 1992)*

This definition was endorsed by the Council of Australian Governments in December 1992 and encompasses the protection of biological diversity and the maintenance of essential ecological processes.

As noted in section 4.3 of this report, there is a tension between the conservation of game species and the control and management of invasive species. Invasive deer represent a threat to native flora and fauna. Attempts to maintain sustainable deer populations for the purposes of game hunting in turn pose a threat to ecologically sustainable development. In this case, there are questions about the potential conflicts of different state agencies and the value of the role that the GMA currently plays in managing the deer population.

While game animals are generally managed in Victoria by government as common pool resources, it is possible to construct arrangements that would allow deer hunting to be managed by landholders and hunting associations through a “common property regime.” This refers to a social arrangement in which a common-pool resource is managed through the construction of property rights. In common property regimes, the resource is managed by a community of members, often in return for a fee payable for exclusive access to the resource. Thus, in a common property regime, a common-pool resource has the appearance of a private good from the outside and that of a common good from the point of view of an insider. The resource units withdrawn from the system are typically owned individually by the appropriators.

### ***Local co-regulation of game hunting in Switzerland***

*Nine of the 26 cantons of Switzerland operate a game hunting common property regime known as lease hunting (chasse affermée) (Federal Office for the Environment, 2015). The canton leases the different hunting territories to local associations of hunters for a period of six to eight years, and delegates them responsibility for monitoring and managing the fauna on their territory (Nahrath, 2000, pp. 2-3).*

*The local association rents a hunting territory (an affermage) from the local community on which the territory is located (Nahrath, 2000, p. 6). Expenses and benefits are shared between all the members of the local association. Admission or exclusion are subject to the approval of all members of the hunting association. At the end of the contract period the contracts are reattributed by the commune (sometimes through the system of selling by auction).*

*The hunting association is accountable to the canton and the local community for the use and management of the hunting territory as well as of the wildlife living within it (Nahrath, 2000, p. 7). More particularly, the association is responsible for monitoring the resource (statistics, qualitative state), monitoring and management of hunters (behaviour, weapons, quotas, distribution and accomplishment of common tasks), and the territorial protection of wildlife. Enlarged associations exist which are responsible for the management and hunting of the most mobile species.*

*As an incentive toward effective management of the resource, the hunting association has to bear half the costs of the damage caused by fauna to agriculture (Nahrath, 2000, p. 7).*

As the experience in Switzerland demonstrates, there is scope to develop alternative, lower cost approaches to the regulation of game hunting for deer through co-regulatory arrangements with landholders, hunting associations and community groups. There are numerous ways in which these or similar arrangements could be constructed. While the arrangement could be organised entirely between the landholder and a hunting organisation, it would also be possible for the GMA to accredit these arrangements, or to construct the licensing, testing and permits permit regime and accredit stakeholder associations to manage the regime, consistent with government policies and Codes of Practice, and subject to regular auditing of performance.

A focus on the regulation of game for which there is a clearer role for government would remove a significant component of the external growth in demand for the GMA's services and allow the GMA to allocate its limited resources toward compliance and enforcement activities in relation to threatened and endangered species for which there is a clearer role for government.

### 8.3 Protecting the independence of the GMA's regulatory functions

The small size of the GMA and the costs associated with a staff of 18 servicing a Board of 7 constrains the effectiveness of the GMA as an operational regulator. Previous sections of this report have also pointed to the tensions inherent in the GMA's current functions, responsibilities and the expectations of its stakeholders.

The GMA's regulatory functions are capable of being delivered through other institutional models. Prior to 2013, the GMA operated as a unit within a Department of State; most recently as part of the Fisheries and Game function in what is now DEDJTR, and prior to 2012 as part of a Wildlife and Game function in what is now DELWP.

Regulatory activities can be located with an independent regulator, a Minister or an officer of a Department of State. According to the OECD (2012) *Recommendations of the Council on Regulatory Governance*, independent regulatory agencies should be considered in situations where:

- there is a need for the regulator to be independent to maintain public confidence;
- both government and non-government entities are regulated under the same framework and competitive neutrality is therefore required; or
- the decisions of the regulator can have a significant impact on particular interests and there is a need to protect its impartiality.

Where regulatory integrity is very important and there is likely to be a high level of risk (or perceived risk) to the regulator's integrity, a substantial degree of independence and distance from executive government might generally be warranted.

It is not clear in GMA's case that these conditions apply. As a regulator, the GMA needs to be seen as objective and impartial, but the nature of the GMA's activities do not generally seem to require a separation from the exercise of Ministerial powers in order to maintain public confidence. Indeed, several critical powers that are relevant to the GMA's effectiveness as an operational regulator remain with Ministers, including decisions as to whether to intervene to cancel or restrict a duck hunting season and the land management powers relevant to the declaration of game hunting areas and the closure of lands for hunting purposes. Other enforcement functions have long been, and continue to be, located in the portfolio Department without any apparent concerns about political interference.

As the GMA is not involved in determining the competing claims of government and non-government hunters, the second of the OECD three principles, which relates to the question of competitive neutrality, is not relevant.

The third of the OECD principles relates to the need to ensure the impartiality of the regulator. An arms-length arrangement can provide some assurance the regulator is immune from the political pressures that powerful interest groups can exert on politicians. However, these principles do not address the risk that a small statutory regulator may be unduly influenced or captured by a powerful stakeholder group. Given that the duck hunting season automatically occurs each year unless intervention is made by a Minister, it is even more important that the GMA, as the primary advisory body relied on by the Minister, is not seen to be acting on behalf of particular interests.

While the GMA is tasked with the regulation of sustainable and responsible hunting, the decisions of the GMA can impact on a broad range of interests and values, including conservation, land and water management, and animal welfare. There are risks to perceptions of the regulator's independence and integrity if it appears too closely aligned to one interest to the exclusion of others. Indeed, animal welfare organisations have suggested that previous appointments to the Board, and the public

positions adopted by members of the current Board, raise doubts about the credibility of the GMA as an independent and impartial regulator of the game laws.

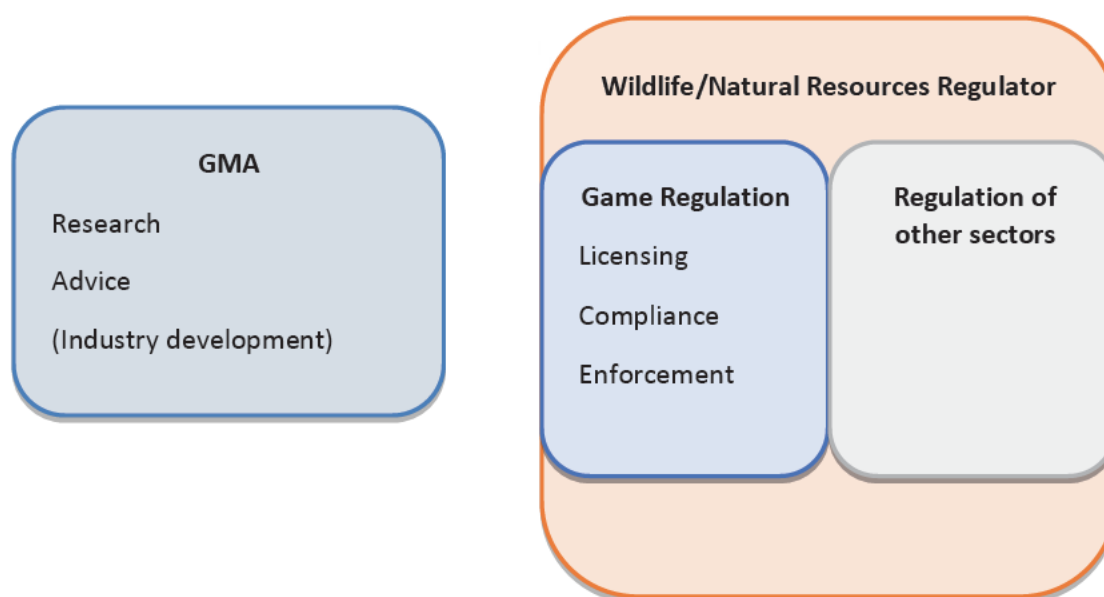
### Options for structural separation

There are a number of options for structural separation of the GMA's regulation and compliance functions.

Given the range of competing interests that are touched on by the decisions of the game regulator, the location of the game management function within a Department of State under the general direction of an accountable Minister would provide equal or greater confidence in the impartiality and objectivity of the regulator when compared to the location of those functions in a statutory authority dominated by sectional interests.

Indeed, the Dunn review of the former NSW Game Council concluded that licensing, education and enforcement functions of the *Game and Feral Animal Control Act 2002* (NSW) should be delivered alongside relevant policy and legislation functions by an appropriate Department (IC Independent Consulting, 2013, p. 4).

*Figure 6: Protecting the independence of regulatory functions through structural separation*



Licensing, education, and enforcement are mainstream service delivery functions that could be more effectively delivered by a Department of State.

The State Services Authority suggested in 2009 that Victorian Government regulatory agencies could be consolidated over the long term into regulatory clusters, including a natural resources regulator (2009, p. xiv). The benefits of incorporating the compliance and enforcement function of the GMA into a larger entity with broad regulatory responsibilities could include:

- greater efficiency, arising from economies of scale and scope (New Zealand Productivity Commission, 2014, p. 251). Larger and broader-based agencies are likely to be more efficient to

run.<sup>3</sup> Larger organisations may also be better placed to attract, retain and develop capability, apply more sophisticated risk assessment and compliance approaches, and allocate scarce professional resources more effectively; and

- reduced administrative burdens, inconsistency or complexity for regulated entities (New Zealand Productivity Commission, 2014, p. 251). A reduction in the number of regulatory agencies may create opportunities to streamline processes, share practice across similar regulatory issues and access risk and compliance-related information across related regulatory regimes.

GMA's compliance and enforcement functions could also potentially be subsumed into the VFA.

As a larger regulator, the VFA has access to resources and capabilities that are not available to the GMA. The VFA has a well-developed regulatory architecture and the systems, processes and extended workforce required to support the GMA's licensing, compliance and enforcement requirements. The VFA also has a credible enforcement capability and an enviable reputation as a regulator. The statutory protections built into the *Victorian Fisheries Authority Act 2016* would also help protect the integrity and independence of the GMA's regulatory functions.

The regulation of game hunting shares some common features with the regulation of fishing, as both activities are related to the harvesting of natural resources, and there is some commonality in the stakeholders, as many hunters are also recreational fishers. The regulation of fishing and game were co-located within the Department of Environment and Primary Industries prior to establishment of the GMA. The core skills required for Authorised Officers in game management and recreational fishing remain very similar.

The VFA retains considerable expertise in game management. Victorian Fisheries Officers currently undertake training in relation to game management as part of their induction and the VFA generally provides 20 or so officers each year for game management during the duck season. The VFA also provides intelligence services for the GMA and the GMA's part-funded intelligence analyst will be located within the VFA's Strategic Intelligence Unit.

The seasonality of the compliance and enforcement work of the GMA and the VFA is also complementary. The peak workload for the GMA occurs in early autumn to the end of June during the duck and quail open hunting seasons, which is outside the peak summer fishing season. Integration of the agencies' workforces would provide efficiencies of scale and scope that would benefit both organisations.

Location of the GMA's regulatory functions in a larger, related regulator would protect the independence of the GMA's licensing, compliance and enforcement functions and provide access to the regulatory capabilities and support necessary to ensure their effectiveness.

### Operational separation

If the GMA's regulatory functions are to remain in the GMA, the Board should put internal arrangements in place to protect the independence of its licensing, compliance and enforcement functions.

---

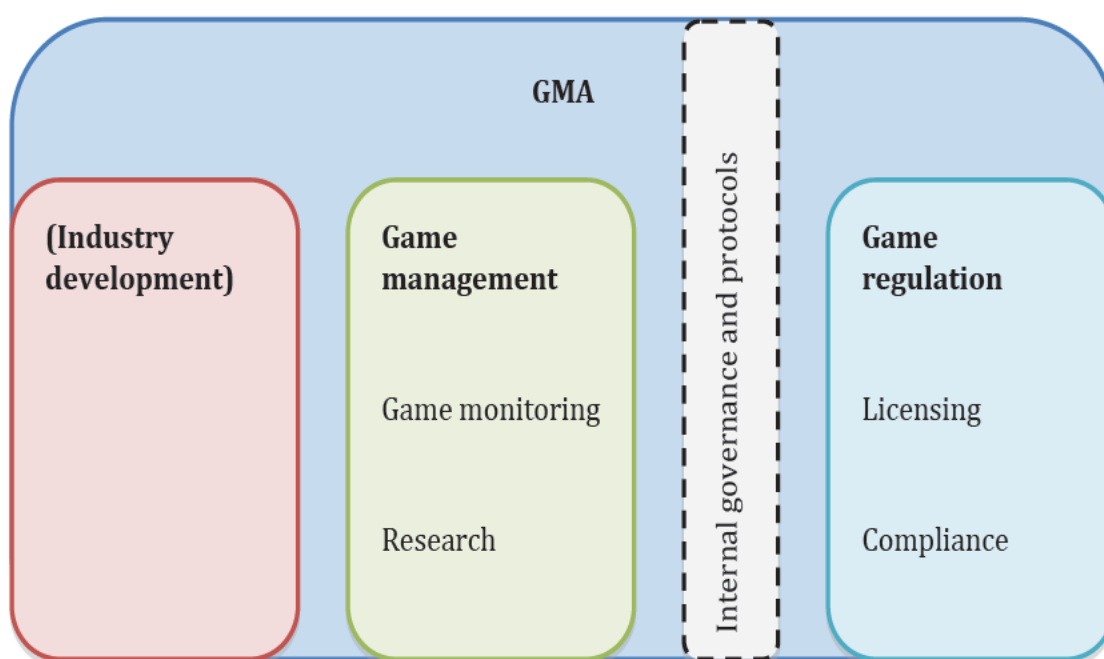
<sup>3</sup> See Hampton (2005, pp. 6-7).

At a minimum, the research and advisory functions of Game Managers should be separated from their compliance and enforcement functions and a separate management and reporting line for enforcement functions should be provided direct to the CEO.

These arrangements should be supported by:

- the location of a clear accountability for enforcement functions with the CEO rather than with the Board;
- clear and explicit compliance and enforcement strategies;
- transparent mechanisms for determining compliance and enforcement priorities and allocating resources, including a Tasking and Coordination Committee and Enforcement Committee with an external representative;
- protocols to maximise the protection of information relating to licensing, investigations enforcement activities; and
- operational separation of licensing, compliance and enforcement activities from other advisory and promotional activities.

*Figure 7: Protecting the independence of the regulatory function through operational separation*



Operational separation supported by strengthened governance arrangements is critical to protecting the independence of the GMA's regulatory functions if these functions are to remain within the GMA. These refinements would become even more critical if the GMA were to be given more explicit responsibilities for industry development.

#### 8.4 Approach to regulation

Contemporary best practice regulation involves a dynamic approach across regulatory strategies and regulatory tools allied with a high level of organisational agility (Black & Baldwin, 2010; Sparrow, 2000; New Zealand Productivity Commission, 2014).



The GMA's current approach to regulation is relatively inflexible and poorly targeted. The current approach relies on a number of broadly applied and relatively expensive flagship educational products and a large investment in on-the-ground enforcement. As discussed in section 5 of this report, these products are not well-targeted and their effectiveness in securing more compliant hunter behaviour is uncertain. While the content of the materials is excellent, the materials do not appear to have been developed or delivered with any clear information on the hunting community's understanding of the game hunting laws or their willingness to comply. The materials are in any case mostly disseminated through the hunting associations and they are not accessible to hunters from non-English speaking backgrounds. The available evidence and anecdotal information suggests that the materials are mostly consumed by responsible hunters who are already largely compliant.

An effective regulatory regime requires effective sanctions for non-compliance (Parker, 2000, p. 541). As outlined in section 5.5 of this report, the GMA's current enforcement efforts have not succeeded in providing effective sanctions against non-compliance or in deterring non-compliant behaviours. This reflects a number of factors, including the resources available to the GMA, the very low level of penalties that are applied to breaches of the game hunting laws (compared, for example, with the penalties for protestors trespassing on declared hunting lands), the GMA's reluctance to prosecute given the difficulties in establishing a chain of evidence and the intrinsic challenges of enforcing activities that often occur in remote and inaccessible locations.

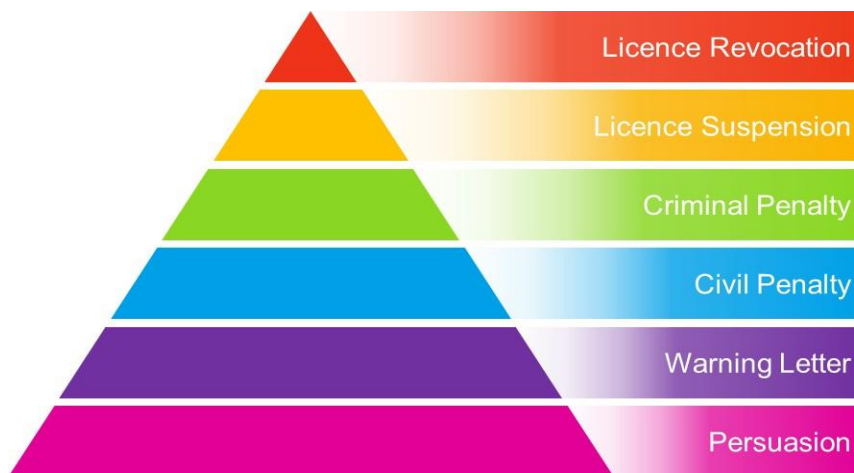
The GMA should consider pursuing a compliance-oriented mode of regulation that is more responsive to the attitudes and understandings of the hunters it is seeking to regulate. A compliance-oriented mode of regulation is aimed at securing compliance rather than punishing non-compliance. This is achieved through the provision of incentive for agents to comply voluntarily, and increasing the ability of private actors and organisations to encourage compliance through self-regulation, internal management systems, and market mechanisms where possible. Though it remains necessary to punish breaches of the rules, this ceases to be the first or primary regulatory tool (Parker, 2000, p. 539).

In regulatory studies, 'compliance' refers to the range of behavioural and attitudinal responses that individuals and firms display in response to regulation (Parker & Lehmann Nielsen, 2017, p. 218). Compliance has been described as a process that bridges the world of the regulated and the world of the regulator (Braithwaite V. , 2017, p. 28). From the perspective of the regulated agent, it incorporates an understanding of what a regulator wants us to do, the purpose behind the regulation, whether or not we agree with it, what we think of its implementation, and what our attitudes and behavioural intentions are with regard to the regulatory request. From the perspective of the regulator, compliance asks what we have done to elicit adherence to the regulation.

Compliance-oriented regulatory approaches are related to the theory of responsive regulation developed by Professor Ian Ayres of Yale Law School and Professor John Braithwaite of the Australian National University (1992) and the pyramid of enforcement strategies. Responsive regulation is a dynamic model in which persuasion and/or capacity building are tried before escalation up the pyramid towards increasingly severe levels of punishment (Braithwaite J. , 2017, p. 118). Responsive regulation rejects a regulatory approach based mostly on persuasion as well as punishment, and takes into account the motivational postures of the actors it is seeking to regulate (Ayres & Braithwaite, 1992, p. 24).

Models of responsive regulation are often thought of in terms of a regulatory pyramid such as the enforcement pyramid set out below in Figure 8.

Figure 8: An example of an enforcement pyramid



Source: Ayres and Braithwaite (1992, p. 35)

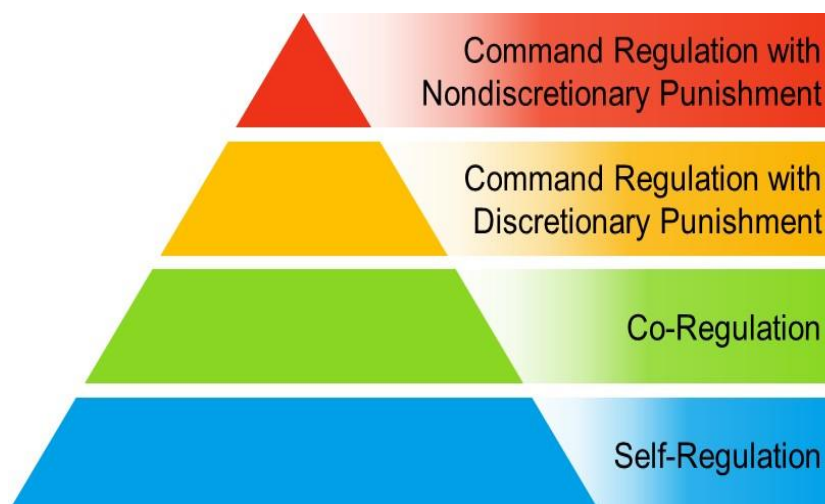
Under a regulatory enforcement pyramid:

*Most regulatory action occurs at the base of the pyramid where initially attempts are made to coax compliance by persuasion. The next phase of enforcement escalation is a warning letter; if this fails to secure compliance, civil monetary penalties are imposed; if this fails, criminal prosecution ensues; if this fails, the plant is shut down or a licence to operate is suspended; if this fails, the licence to do business is revoked. (Haines, 1997, pp. 218-219)*

The pyramid reflects a presumption that less interventionist remedies at the base of the pyramid are normally the best place to start (Braithwaite J. , 2011, p. 493). Punitive sanctions are thus held in reserve for the minority of cases where persuasion fails. Escalation through progressively more severe penalties will often take the rational calculator up to the point where it will become rational to comply.

The regulatory pyramid can also be thought of as an investment guide to the range of regulatory strategies that can be deployed applied in dynamic and complementary ways to improving the behaviour of the regulated community. An example of a pyramid of regulatory strategies is provided below in Figure 9.

Figure 9: An example of a pyramid of regulatory strategies



Source: Ayres and Braithwaite (1992, p. 39)

The GMA currently employs some of these strategies, but its approach to regulation appears relatively inflexible and its investment choices between different compliance and enforcement priorities and regulatory interventions do not appear to have been based on any informed or transparent understanding of the motivational postures within the hunting community.

A responsive, compliance-oriented approach requires some mapping of the regulatory actors in what Valerie Braithwaite (2017, p. 29) has described as the 'regulatory community'. A regulatory community typically comprises multiple groups with their own values, norms, beliefs and processes. They may undermine regulatory authority, or empower it. They use their networks and alliances to push back and shape the actions of the regulator, while the lead regulator uses its power and authority to attempt to steer the flow of events in the direction it wants. They may seek to capture and control the actions of the regulator.

Valerie Braithwaite (2014) identifies five motivational postures that have been identified domains of different regulatory authorities. These motivational postures have some relevance to hunting communities.

*Commitment* and *capitulation* are postures that represent willingness to go along with authority, and can be called accommodating postures (Braithwaite V. , 2014). *Commitment* conveys a belief the authority's purpose is sound and that, in principle, the authority and its goals should be valued and supported. Commitment is a posture that enables individuals and groups to go beyond compliance, to do more than an authority expects or asks in the interests of furthering the accomplishment of shared goals. *Capitulation* is the posture of doing what is asked, without necessarily understanding or caring about purpose and goals.

Defiant postures can also be adopted (Braithwaite V. , 2017, p. 34). The most common defiant posture is *resistance*. Resistance is an expression of grievance over the way in which a regulatory authority carries out its duties (Braithwaite V. , 2014). As an expression of dissatisfaction with the means employed by the regulator, rather than the desired objective itself, resistance is a plea to a regulatory authority to be fair and respectful, and can be managed successfully through introducing greater procedural fairness (Braithwaite V. , 2014).

Two other defiant postures are less common, but far more threatening to regulators (Braithwaite V. , 2017, p. 34). They are postures that are adopted by those who refuse to defer to the regulatory authority's rule at all, and are postures of dismissiveness. The first is *disengagement*, in which social distance from the regulatory authority is greatest. Disengagement involves neither attending nor responding to the authority, but rather continuing business as usual. The final dismissive posture, *game playing*, takes place in an adversarial space where the regulator is being watched carefully and the objective is winning against the rules. Game playing involves searching for loopholes and ways around the regulatory authority, undermining the authority's effectiveness and legitimacy. Dealing with disengagement and game-playing seriously challenges a regulatory authority's enforcement capacity (Braithwaite V. , 2017, p. 34).

Informed monitoring for non-compliance is used in compliance-oriented regulation to provide the data on which regulatory interventions are designed and determine whether or not the regulatory design is working (Parker, 2000, p. 537). The GMA is aware of the need to make better use of intelligence data to inform its enforcement approach, and has taken steps to part-fund an analyst in the VFA's Strategic Intelligence Unit. However, the GMA needs to extend this approach to inform its activities across a broader range of the compliance spectrum, including an examination of the underlying compliance postures of its stakeholders.

It would be possible for the GMA to map the motivational postures within the hunting community and develop appropriate regulatory responses. Once the compliance postures of particular groups of hunters have been identified, strategies can then in turn be developed to more effectively deal with them. Examples of possible strategies tailored towards each compliance posture are provided in Table 3.

*Table 3: Illustration of potential compliance strategies calibrated to compliance postures*

<b>Motivational Compliance Posture</b>	<b>Compliance Strategies</b>
Accommodating (Commitment and Capitulation)	<p>Provision of rewards for law abiding hunters who also join hunting organisations and undertake additional hunting education could include:</p> <ul style="list-style-type: none"> <li>• earlier start date to various restricted hunting seasons; and</li> <li>• privileged access to better resourced game hunting areas.</li> </ul>
Resistance	<p>Probably not relevant as actual enforcement is low or negligible. However, strategies could include:</p> <ul style="list-style-type: none"> <li>• greater transparency in regulatory decision-making, for example, in relation to the notification of hunting seasons, start times and land closures;</li> <li>• more consistency in the application of enforcement penalties and sanctions; and</li> <li>• nudge towards compliance through the provision of rewards for adopting accommodating postures.</li> </ul>
Disengagement	<p>Encourage engagement and compliance through:</p> <ul style="list-style-type: none"> <li>• more effective licensing requirements such testing applicant's knowledge of hunting laws and ability to differentiate between protected and game animal species;</li> <li>• designing a more effective communications strategy – such as making greater use of social media – designed to reach hunters who are not members of hunting associations and/or come from non-English speaking backgrounds; and</li> <li>• more powerful sanctions, including well-publicised destruction of firearms and other weapons used in illegal hunting activities.</li> </ul>
Game Playing	<p>Encourage compliance through:</p> <ul style="list-style-type: none"> <li>• larger penalties for breaches of the hunting laws, at least commensurate with those applied to protestors;</li> </ul>

	<ul style="list-style-type: none"> <li>• a wider range of sanctions, including ability close problematic wetlands and to cancel licences for some offences;</li> <li>• name and shame processes such as occurs for those hunters in Tasmania who are convicted of offenses under the hunting laws.</li> </ul>
--	---

Hunters who have a compliance posture of disengagement could be more effectively dealt with through a combination of:

- more effective licensing requirements such testing applicant's knowledge of hunting laws and ability to differentiate between protected and game animal species; and
- designing a more effective communications strategy – such as making greater use of social media – designed to reach hunters who are not members of hunting associations and/or come from non-English speaking backgrounds.

More effective licencing requirements will compel those with a compliance posture of disengagement to become more engaged, as a lack of attention to their legal requirements would disqualify them from obtaining a hunting licence.

On the other hand, dealing with hunters who adopt a compliance posture of game playing will be more problematic to deal with. This is because game playing has a more adversarial agenda where the objective is to outsmart the authority and assert independence over the regulatory authority while technically playing within the rules (Braithwaite V. , 2014). The posture of game playing, while paying attention to the letter of law, shows little respect for the spirit of the law. In adopting the posture of game playing, individuals cleverly sidestep deference to the authority. Possible strategies to deal with a compliance posture of game playing could include:

- larger penalties for breaches of the hunting laws, at least commensurate with those applied to protestors;
- a wider range of sanctions, including ability close problematic wetlands and to cancel licences for some offences; and
- name and shame processes such as occurs for those hunters in Tasmania who are convicted of offenses under the hunting laws.

In order to nudge hunters exhibiting a defiant compliance posture towards more accommodating compliance postures, rewards could be provided to hunters who undertake the following:

- join an accredited hunting organisation; and
- undertake additional hunter education programs comparable to the Shotgun Education Program or the hunter accreditation program to qualify for a NSW restricted hunting licence.

Those who display or adopt an accommodating compliance posture could be rewarded in various ways. Rewards could include an earlier start date to various restricted hunting seasons as well as privileged access to better-resourced game hunting areas, and could operate in a similar manner to the restricted hunting licence system in NSW. Such an arrangement also provides scope for co-regulation, whereby hunting organisations could sanction the bad behaviour of their own members by withdrawing their access to the rewards system.

There is scope for the GMA to develop a more dynamic approach to regulation that is better informed by information on hunters' understanding of their obligations and better targeted to secure improved

compliance outcomes. To support this more responsive approach to regulation, the GMA should develop an annual compliance strategy that sets out specific compliance and enforcement goals, priorities, strategies and performance measures that are to be applied in the upcoming period, and the basis on which those priorities and strategies have been selected and are to be evaluated against. This would be consistent with the Minister's 2016 Statement of Expectations, which refers to the development of a compliance plan (Pulford J. , 2016). The GMA Chairperson's response to the Minister commits to the development of "a Compliance Strategy to reinforce its risk-based, intelligence-led approach Compliance Policy" and "an enforcement strategy to complement its existing Compliance Policy and regional compliance plans" by July 2017 (Hine, 2017b, pp. 3-4). It would be desirable for work on a compliance strategy to be completed as soon as possible.

This strategy should be supported by more transparent processes for tasking and coordination of compliance and enforcement actions and improved reporting on compliance and enforcement outcomes.

Consistent with the Chairperson's commitment to an intelligence-led approach, the GMA also needs to collect and analyse information on the compliance posture of its various stakeholder groups. At present, the GMA lacks reliable information in several key competency areas, such as the attitudes and awareness of any particular groups of hunters. It is important that the GMA move quickly to improve its access to an existing intelligence data base and shared analytics resources.

The GMA should adopt a more compliance-oriented mode of regulation. This would require the collection of relevant data about the motivational postures and capabilities of the actors it is seeking to regulate, and the development of regulatory strategies that are calibrated to their compliance postures. These strategies should include the scope for self-regulation and co-regulation where stakeholders can demonstrate the willingness and ability to comply.

## 8.5 Licensing

The GMA's current licencing arrangements are inadequate in providing an assurance that hunters have even a basic knowledge of the game laws or their obligations as users of shared public space to other members of the community. This leaves the GMA as the licensing authority and the community at large exposed to unnecessary and avoidable risks. It also imposes additional pressure on the compliance and enforcement regime to ensure that basic information and education is provided to hunters after they have obtained their licences.

The evidence suggests that a more stringent approach to licensing would produce better compliance with the hunting laws and improved animal welfare outcomes. As the case studies provided in this section illustrate, it is possible for small game regulators to develop licensing arrangements that support more compliant hunting behaviours and which provide greater assurance about the basis on which hunting will be conducted on public and private land.

### ***Licensing arrangements for hunters in New South Wales***

*There are three main animal groups hunted in New South Wales (NSW): non-indigenous game animals such as deer and introduced game birds; native game birds (ducks); and non-indigenous animals that are often referred to as feral or pest animals (RMCG, 2017, p. 2).*

*Native game bird hunting in NSW is for sustainable agricultural management purposes only (RMCG, 2017, p. 3). There is no recreational hunting of native game birds in NSW. Hunting of native game birds (typically ducks) occurs through the NSW Native Game Bird Management Program that is used to protect rice crops during the growing season*

*(September/October through to March). A NSW game hunting licence is required to hunt game species (deer and ducks) on private land, or to hunt any species on public land (RMCG, 2017, p. ii).*

*Two different recreational game licences are currently offered for hunting in NSW: a General Class Licence and a Restricted Class Licence (RMCG, 2017, p. 4).*

- *A General Class Licence allows the holder to hunt game animals on private land only and does not permit hunting on public lands (RMCG, 2017, p. 4). There are currently five categories of General Class Licence that allow for different hunting purposes:*
- *Standard (G-Standard Licence) – recreational hunting of deer and native game birds on private land.*
- *Hunting guide (G-Guide Licence) – guiding others in their hunt, for fee or reward, on private land.*
- *Professional hunter (G-Professional Licence) – hunting on private land in the course of any paid employment or engagement.*
- *Commercial hunter (G-Commercial Licence) – hunting on private land to sell part/s of the harvested animal.*
- *Visitor's (G-Visitor Licence) – overseas residents hunting recreationally on private land in the company of a full licence holder.*

*To hunt on private land, licence holders must seek the permission from the landowner or land manager to do so (NSW Government Department of Primary Industries, 2017b).*

*A Restricted Class Licence allows the holder to hunt game animals on private land, as well as game animals and pest animals on public land (RMCG, 2017, p. 5). There are currently four categories of Restricted Class Licence that allow for different hunting purposes:*

- *Standard (R-Licence) – recreational hunting on public or private land.*
- *Hunting guide (R-Guide Licence) – guiding others in their hunt for fee or reward on public or private land.*
- *Commercial hunter (R-Commercial Licence) – hunting on public or private land to sell part/s of the harvested animal.*
- *Visitor's (R-Visitor Licence) – overseas residents hunting recreationally on public or private land in the company of a full licence holder.*

*If one wants to hunt on public land, once a hunter becomes licenced with some type of restricted hunting licence, they are able to gain permission to hunt through the NSW Game Licensing Unit (NSW Government Department of Primary Industries, 2017b). Restricted game hunting licence (R-Licence) holders must abide by conditions when they are granted permission to hunt in a NSW State forest.*

*To apply for a restricted licence in NSW, a hunter must become accredited and qualify (NSW Government Department of Primary Industries, 2017).*

*To become accredited for the R-licence categories, one must sit the NSW Government Department of Primary Industries open-book test based on the NSW Hunter Education Handbook (NSW Government Department of Primary Industries, 2017a). One can seek accreditation through a Hunter learning, education and accreditation program (LEAP)*



*Provider that has been approved by the NSW Game Licensing Unit. Most Hunter LEAP Providers will charge a fee for the Accreditation Course.*

*There are two requirements that must be met before one can apply for the R-licence (NSW Government Department of Primary Industries, 2017). Applicants must:*

- *be a member of an Approved Hunting Organisation, and*
- *become accredited for one or more of the R-licence categories:*
  - *firearms*
  - *bows*
  - *dogs*
  - *blackpowder firearms.*

The NSW Game Licensing Unit has indicated that it observes better compliance rates for hunters hunting under an R-Licence, which includes a mandatory test on hunter safety, behaviour and ethics, than for hunters hunting under a G-Licence, where there is no hunter etiquette test (Game Management Authority, 2017 June, p. 4). The process for hunting on public land in NSW is different from in Victoria and includes a booking process which may positively influence compliance rates. However, the positive impact of licencing requirements on subsequent compliance behaviours would support arguments for more stringent mandatory arrangements.

Hunting organisations consulted in this review indicated that they would oppose more stringent licence testing. At the same time, however, they acknowledged there were compliance issues amongst some hunters and that the current arrangements did not provide any assurance that hunters were aware of their obligations.

More stringent mandatory testing would place considerable strain on the GMA's already limited capacity. In order to test approximately 5,000 new Game Licence applicants each year, the GMA would need to invest in additional systems and human resources. A new licensing database would be required, as the existing data base cannot process, integrate or record test or course completion results. There would also be implications for other agencies, such as DELWP, that currently process some licence applications on the GMA's behalf. The GMA has indicated that mandatory testing for new Game Licence applicants would take approximately two years to fully implement, including regulatory changes, the development of a new Game Licensing System, test development, test delivery functionality and staff training (Game Management Authority, 2017 June, p. 5). The application of more stringent mandatory testing to existing licencees would be a more complex task and require additional resources, although there is scope for some elements of an accreditation regime to be managed by hunting associations.

### ***New Zealand Hunting Permits and Licences***

#### ***New Zealand Hunting Permits***

*To hunt on public conservation land in New Zealand, a hunting permit is required (New Zealand Government, 2017). To hunt on any other land, only the permission of the landowner is required.*

*The New Zealand Department of Conservation (DOC) (2017a) manages 8.6 million hectares of public conservation land, that represents around one third of the country. To hunt animals on public conservation land you are required to obtain a DOC hunting permit (New Zealand Department of Conservation, 2017). Permit conditions require that:*

- each person within a hunting party and intending to hunt must have a separate permit;
- permits cannot be transferred to, or be used by, anyone else; and
- to get a hunting permit (except for possums) a valid firearms licence is required.

*There are five different types of hunting permits issued by DOC:*

- open area hunting permit;
- restricted hunting permit;
- small game hunting permit;
- game bird hunting permit; and
- possum permit (New Zealand Department of Conservation, 2017).

*Open area hunting permits are required to hunt in 'open areas' for ground based, non-commercial hunting of pigs, goats, deer, wallabies, chamois and tahr (New Zealand Department of Conservation, 2017). Open areas are areas that operate under the standard hunting permit conditions. Special conditions may be included in some open area hunting permits (eg. the permit may not be valid during busy times when the area is balloted or blocked, or a separate dog permit may be required).*

*Restricted hunting permits are issued for areas that are not open hunting areas, for ground based, non-commercial hunting of pigs, goats, deer, wallabies, chamois and tahr (New Zealand Department of Conservation, 2017). They may also be issued for non-standard hunting in open hunting areas (eg for use of muzzleloaders).*

*Small game hunting permits are required for the recreational hunting of small game on public conservation land (New Zealand Department of Conservation, 2017). Small game includes Canada geese, feral geese, hares and rabbits (which are unprotected game animals).*

*Game bird hunting permits are required to hunt game birds on public conservation land in addition to the game bird hunting licence issued by the New Zealand Fish and Game Council (outlined below) (New Zealand Department of Conservation, 2017). Game bird permits are for specific areas and time periods.*

*To hunt possums on public conservation land a person needs to obtain a possum permit (New Zealand Department of Conservation, 2017). Some possum areas are managed on a block system (usually one permit holder per block), which may be available on a balloted or on a first come, first served basis.*

#### *Game Bird Licence*

*Game bird hunters in New Zealand must purchase a game bird licence issued by the New Zealand Fish and Game Council (NZ Council). The NZ Council and the 12 regional Fish and Game Councils were established in 1990 to represent the interests of anglers and hunters, and provide co-ordination of the management, enhancement, and maintenance of sports fish and game (section 26B and 26P of the New Zealand Conservation Act 1987) (New Zealand Fish and Game Council, 2016a). Fish and Game Councils are the statutory managers of sports fish and game bird resources and are responsible for their sustainable recreational use by anglers and hunters New Zealand-wide, except in the lake Taupo*

*catchment, where the trout fishery is managed by DOC (section 53(3) of the New Zealand Conservation Act), and the Chatham Islands.*

*A game bird hunting licence is valid for use throughout New Zealand (except in the Chatham Islands) (New Zealand Fish and Game Council, 2017). A licence is a permit to hunt game birds in line with the regulations governing the Fish and Game New Zealand region that the holder intends to hunt in. The hunting regulations are amended each year to suit changing sporting and environmental conditions and each region has its own set of regulations (New Zealand Fish and Game Council, 2017a).*

Animal welfare groups have argued that access to a hunting licence should be dependent on mandatory target shooting accuracy tests in order to reduce the incidence of wounded birds and other game. This would increase the cost and complexity of mandatory licence testing, and hunting organisations have raised questions around the capacity of shooting ranges to support such a test. While the cost and complexity of introducing mandatory proficiency testing is acknowledged, the GMA has already invested heavily in a high-quality Shotgunning Education Program that provides some level of assurance that graduates have achieved at least a minimum level of proficiency in the use of this firearm.

There would be value in a requirement that prospective duck hunters demonstrate their attendance at a Shotgunning Education Program prior to the issue of a duck hunting licence and that similar courses be developed for the holders of other categories of hunting licences.

## 8.6 Permits and ballots

At present, Victoria maintains an open range policy by which hunters generally have the right to shoot on public land provided they hold a current licence.

The current arrangements can leave the GMA in a position where it is unable to effectively enforce the hunting laws on wetlands where the number of hunters massively outnumber the available compliance and enforcement staff. The appearance of unexpectedly large numbers of hunters on more sensitive wetland can also raise issues around the risks for threatened and endangered species.

There is scope for the GMA to more effectively manage the environment in which it operates, by working with land managers to develop more flexible and adaptive methods of controlling access to more intensively hunted and more sensitive areas.

The GMA already employs powers to limit access to certain areas under Section 86 of the *Wildlife Act 1975* (Vic), which allows any area (public or private) to be further regulated or closed to hunting. It is generally recognised as a provision to close areas to duck hunting but it can be used more broadly (Game Management Authority, 2017d, p. 10). Section 86A of the Act provides a more rapid process to further regulate or close an area to hunting when threatened wildlife or significant numbers of protected species other than game birds are under immediate threat of destruction, injury or disturbance from hunting. Wetlands and hunting may be further regulated or closed to hunting with 3 days' notice under s.86 or the day before under s.86A (emergency closures). However, the consultation and administrative processes that currently precede the minimum notice period for processing s.86 and s.86A notices are cumbersome and time-consuming. Land management powers under the *Wildlife Act 1975* (Vic) are generally the responsibility of the Minister of Energy, Environment and Climate Change. However, wetland closures are instigated jointly by the Minister for Agriculture and the Minister of Energy, Environment and Climate Change.

The current powers have been criticised as too restrictive by hunting organisations and as too inflexible by animal welfare and community groups. GMA staff have indicated that the processes around these

powers are bureaucratic and cumbersome and that they do not provide an effective means of managing access to sensitive hunting areas.

Permit and balloting systems offer an additional, more flexible and responsive means of supporting sustainable and responsible hunting.

Balloting is an established approach to allocating hunting access in the face of hunting pressure that is widely accepted in other jurisdictions. It can provide a fair and transparent process for sharing access, managing hunter numbers, concentration and timing. Balloting arrangements can also serve as a mechanism for providing information and education, and for targeting specific conditions that align with the objectives of a regulatory authority. For example, balloting arrangements can be designed to require a valid application that must include certain information and evidence (for example game and firearms licences, Wildlife Identification Test qualification, completion of the Shotgun Education Program and so on) that remind hunters of their obligations and provide a relatively simple set of requirements that can be checked for compliance purposes in the field. The NSW Maragle State Forest Ballot requires applicants to have successfully completed the on-line forest signs and navigation courses and hold an R-licence to gain access to the NSW public lands booking system. A successful ballot applicant can be provided with a specific permit that may include time and location permission/restrictions and conditions that are easily verifiable and can assist with compliance activity.

GMA has some experience with the Blond Bay Hog Deer Advisory Group ballot, in which balloted hunting periods outside of the open season in certain locations are organised by the Blond Bay Hog Deer Advisory Group (Parliament of Victoria Environment, Natural Resources and Regional Development Committee, 2017, pp. 75-76). The ballot is used to select hunters to hunt for free-ranging hog deer on Blond Bay State Game Reserve, on sections of the Boole Poole Peninsula and on Snake Island.

There are many other examples of deer hunting ballot approaches in both Australia and New Zealand, particularly during the breeding season when numerous hunters wish to hunt in particular areas. Examples include:

- the Fiordland Wapiti Foundation ballot for access to NZ Department of Conservation managed public lands for the Wapiti deer bugle in March/April each year (numerous hunters/restricted area and managed herd);
- the NSW Game Licensing Unit ballot for Maragle State Forest fallow deer hunting (numerous hunters/restricted area); and
- NZ Department of Conservation monthly ballot for fallow deer hunting in the Blue Mountain RHA (numerous hunters/restricted area).

The New Zealand Fish and Game Council also utilises a system of pegging and tagging maimai's (duck hunting stands) with minimum separation distances. This has the effect of limiting the number of hunters in any area, as well as ensuring safe distances between hunters. Public areas under New Zealand Fish and Game Council control have also used balloting where the hunting area is limited. For example, the New Zealand Central South Island Fish and Game Region held a ballot for hunting stands in public wetland areas it managed for the 2017 season:

- Wainono Reserve;
- Waimate (adjacent to Lake Wainono) up to 6 stands (dependent on water levels);
- All Day Bay (South of Oamaru) up to 3 stands (dependent on water levels);

- Devils Bridge (Oamaru) 3 stands; and
- Ealing Springs (Rangitata) 1 stand for 4 hunters – all 4 hunters must be named on the application.

Duck hunting on public lands in Victoria involves high numbers of hunters, with hunter and protester behaviour incidents occurring primarily on the opening weekend of the season. Balloting may be an approach to improving the hunting experience by reducing the concentration of hunters in any one location at a given time. It may also reduce the potential for conflict between hunters and protesters by diluting the emotions attached to particular events, such as the opening of the duck hunting season, and allow limited enforcement resources to be more effectively targeted. This could be achieved by limiting the number of permits for popular areas; staggering the availability of areas or zones, and staggering the “opening” of the season by hunter or by zone.

The GMA should consider the application of effective permit and balloting systems to better control access to more intensively hunted or more sensitive hunted areas. A more general permit or ballot system would also provide the GMA with advance information on the likely concentrations of hunter numbers and more effectively target compliance and enforcement efforts on higher risk hunting areas.

## 8.7 Stakeholder and community engagement

The regulation of recreational game hunting touches on a wide spectrum of values and interests.

As a public regulator, the GMA has a duty to engage with stakeholders across the spectrum of values and interests reflected in the community at large. The GMA’s stakeholders therefore include Ministers, the Parliament, other department and agencies, hunting organisations, animal welfare groups, community organisations, public and private landholders, individual hunters and other users of public lands.

The GMA’s mission statement reflects a commitment to work with the community. The GMA’s mission statement says that it will:

*... work with the community as an effective, independent regulator and an authoritative facilitator of sustainable game management and quality hunting opportunities. (Game Management Authority, 2017)*

However, the mission statement does not make clear what the GMA intends by its reference to community or how it proposes to build appropriate relationships to support its regulatory objectives.

The GMA (2016c) has developed a high-level stakeholder engagement strategy. That document describes the GMA’s major stakeholder groups, assesses their relative interest and influence, and suggests a general approach to engagement with each of the different groups of stakeholders. It is impressive that a small regulator should invest the time and energy in undertaking a formal stakeholder analysis. However, although the document was authorised at Board level, GMA staff did not appear to be aware of this document and were uncertain how it should be applied.

One of the weaknesses of the current stakeholder engagement strategy is that it provides only a very general and high-level indication of the intended approach to stakeholder management. The stakeholder engagement strategy identifies stakeholder groups, but does not consistently identify individual stakeholder organisations. While the strategy indicates broad communication and engagement preferences, it does not provide any detailed guidance on how these preferences are to be

operationalised. It is therefore difficult for staff to know whether they are acting in accordance with the intended strategy.

The GMA's actual consultation with stakeholders does not appear to be consistent with the high-level intentions set out in the stakeholder engagement strategy. While the stakeholder engagement strategy indicates that peak hunting associations, some other departments and agencies and animal/wildlife welfare groups are key stakeholders who ought to be involved in collaborative decision-making (Game Management Authority, 2016c, pp. 5,6,7), representatives of organisations within these stakeholder categories expressed frustration with the GMA's consultative processes and sought greater involvement in decision-making. The short timeframes for input to advice for the Minister on consideration of duck hunting season arrangements, and the absence of feedback on the basis of the advice provided to the Minister, were consistently cited as examples of the GMA's unwillingness to consult effectively. While the GMA is involving these organisations in its decision-making, the process that is followed seems well short of the objective set out in the strategy of partnering with key stakeholders "including [in] the development of alternatives, making decisions and the identification of preferred solutions" (Game Management Authority, 2016c, p. 7).

At present, the stakeholder engagement strategy has a focus on the objectives set out in the GMA's mission statement of facilitating sustainable game management and quality hunting opportunities. The document points to the benefits of improved stakeholder engagement in the development of policies, programs and service delivery. However, in its current form, the stakeholder engagement strategy does not specifically refer to the GMA's compliance and enforcement responsibilities, or take the opportunity to articulate ways in which key stakeholders could be engaged to better secure their support in improving compliance with the game hunting laws.

The GMA enjoys very strong support from shooting associations and hunting organisations. These bodies look to the GMA represent their interests, manage game populations and facilitate hunting opportunities and represent their interests. For its part, the GMA acknowledges hunting organisations as key stakeholders who ought to be closely involved in decision-making (Game Management Authority, 2016c, pp. 5,6). These bodies have been provided with opportunities to be consulted on major projects and were involved in a collaborative review with the GMA of the duck hunting season opening. Individual members of hunting organisations have also provided enthusiastic testimonials of the GMA's concern for their interests and willingness to engage with hunter in a polite, courteous and professional manner.

While hunting organisations are very supportive of the GMA, they are critical of some elements of its engagement. Hunting organisations indicated that while the GMA was willing to consult, the communication tended to be reactive and sometimes defensive, rather than proactive.

Hunting organisations indicated that structured engagements with the Board were symbolic rather than effective. The hunting organisations suggested that there was little opportunity in these meetings to raise complex topics or engage in any depth of discussion. A GMA Board member suggested to this review that meetings between the Board and the hunting organisations had been structured to ensure that the interactions were transparent and arms-length. While this is understandable, it would be useful to communicate this concern to stakeholders, so that they have a better understanding of the constraints under which the GMA needs to operate, and to structure the meetings in ways that allow for a properly documented and substantive discussion of shared issues.

One hunting organisation indicated, however, that formal interactions with the Board and CEO were less important than the relationships developed with officers of the GMA. That organisation indicated that it had direct, weekly contact with officers who understood its needs and could deal effectively with

most issues. While encouraging, this also raises an issue as to whether there is a close alignment within the GMA on its strategies for engaging with hunting organisations. As staff consulted in this review were not aware of the Board's stakeholder engagement strategy, it may be worth taking steps to ensure that interactions with stakeholders at all levels of the organisation are consistent with the strategy agreed by the Board. All the hunting organisations felt that the GMA needed to engage more effectively with their members.

There are questions as to whether the relationship between the GMA and hunting organisations is always fully effective in achieving the compliance of hunting organisation members. There is a perception amongst some external stakeholders that the GMA has been captured by hunting interests. They have suggested that the GMA is a compliant regulator because many of its staff share an active interest in hunting and that the GMA is afraid of the political power of hunting interests. This view was also expressed in workshops by some of the GMA's own staff.

Arrangements between the GMA and the hunting organisations are sometimes too comfortable. The GMA's predecessor organisation effectively handed the taxpayer-funded Shotgun Education Program over to the hunting associations to operate on a user charge basis without sufficient safeguards to ensure that the Program was appropriately maintained or marketed. At a minimum, regular reviews of the program's operation and effectiveness should have been required as a condition of the hunting organisations' continued stewardship. The GMA, to its credit, has co-funded a review of the marketing of the SEP, but it had probably not done enough in its first years of existence to put appropriate arrangements in place to ensure the success of the program. The hunting organisations accept they have under-invested in the maintenance of the Shotgun Education Program and need to do more to market and support this program with their members. However, the responsible government agencies have been deficient in holding the hunting organisations to account for their management of the program.

More generally, GMA staff have pointed to instances where hunting organisations have not provided the support that they might have expected in relation to the compliance of their members. The GMA needs to ensure that it has effective and functionally appropriate relationships with hunting organisations. While this will sometimes require close collaboration and the sharing of information, the GMA also needs to be prepared at times to insist on the support of the hunting organisations in building a more compliant hunting culture. This may involve confronting a hunting organisation and insisting on an appropriate response when its members fail to meet appropriate standards. Where a hunting organisation is engaged as a co-regulator, the GMA needs to ensure that it has appropriate performance standards and conditions in place, and is clear about the sanctions that it is prepared to apply if those conditions are not met.

The GMA also needs to broaden its engagement with other stakeholder groups. Not all hunters are members of hunting organisations. The GMA's formal engagement with hunters who are not members of hunting organisations is extremely limited. The GMA needs to improve its access to non-member hunters, including through greater use of social media and the publication of materials in relevant community languages. To better connect with hunters from non-English speaking backgrounds, the GMA could also work more actively to engage with representatives of community groups that are known to have a cultural tradition of recreational hunting.

The GMA's engagement with other stakeholders and communities is not strong. Animal welfare groups consulted in this review have acknowledged the efforts of the GMA CEO to engage with them. However, animal welfare and community groups generally perceive the GMA as reluctant or grudging in its consultation with them and unwilling to take on board information and feedback. They believe that they are excluded from matters on which they ought to be consulted. Although the GMA's stakeholder



engagement strategy indicates that animal welfare groups and hunting organisations are both “critical players” who the GMA is to “involve/collaborate” with in potential decision-making (Game Management Authority, 2016c, p. 5), there is an asymmetry in the GMA’s engagement with animal welfare and wildlife groups compared with hunting associations. While hunting organisations have been invited to attend the Board prior to its meetings, animal welfare and wildlife bodies have not been provided a similar opportunity. Similarly, hunting organisations were given an opportunity to participate in a round-table review of the opening of the 2017 duck hunting season, but animal welfare organisations were not.

It is in the GMA’s best interest to ensure that it engages effectively with stakeholders across the spectrum of values and interests touched on by its regulatory responsibilities. The GMA’s legitimacy depends on its acceptance by stakeholders as a credible and independent regulator. A number of external stakeholders consulted in this review suggested that the GMA is neither impartial nor independent.

Professor Ian Ayres of Yale Law School and Professor John Braithwaite of the Australian National University (1992, p. 54) have pointed to the risks for regulators of regulatory capture. Regulatory capture occurs when vested interests bias the incentives of regulators and governments to act in their interests rather than the broader public interest (Helm, 2006, p. 174). Capture is an influential concept in debates about why regulatory agencies persistently fail to enforce the law against offenders (Makkai & Braithwaite, 1992, p. 62).

Ayres and Braithwaite suggest that to counter the risk of regulatory capture, regulators should involve public interest groups in the dialogue between regulators and the regulated in what they label as ‘tripartism’ (1992, p. 56). They argue that tripartism fosters the participation of public interest groups in the regulatory process in three ways:

- 1) it grants the public interest group and all its members access to all the information that is available to the regulator;
- 2) it gives the public interest group a seat at the negotiating table with the regulator and the regulated when deals are done; and
- 3) the policy grants the public interest groups the same standing to sue or prosecute under the regulatory statute as the regulator (Ayres & Braithwaite, 1992, pp. 57-58).

While the concept of tripartism has been criticised as limiting the flexibility of a regulator (Seidenfeld, 2000), it is generally accepted that sound governance, transparent decision-making and effective stakeholder engagement across a range of values and interests will assist in managing the risk of regulatory capture.

Following the events at Koorangie State Game Reserve on the opening day of the 2017 duck hunting season, the GMA committed to provide the Minister with recommendations to improve hunter behaviour, create a respectful hunting culture and improve hunter knowledge, skills and ability, “following consultation with hunting organisations” (2017f, p. 14). The GMA should consult with a wider spectrum of stakeholders on this work. This would be consistent with the principle of tripartism. Consultation with a wider group of stakeholders would extend the range of knowledge and expertise available to the GMA, and build confidence in the GMA’s integrity and independence as a regulator.

The GMA has much to gain from working more closely with its stakeholder groups and the wider community.

Hunting organisations indicated that they have offered to support the GMA’s compliance enforcement efforts by making senior and experienced members available to patrol sensitive and intensively hunted

areas on weekends to reinforce the importance of responsible and ethical hunting and to collect intelligence that could support the GMA's enforcement functions.

Other game management organisations have engaged with volunteers to support their regulatory activities.

### ***New Zealand Volunteer Fish and Game Rangers***

*The New Zealand and Game Council supplements its permanent resources with an extended workforce of volunteer rangers.*

*Fish and Game Rangers are appointed under Section 26FA of the New Zealand Conservation Act 1987 by the Director of the New Zealand Fish & Game Council (New Zealand Fish and Game Council, 2012, p. 1). Under Section 26FA(1), the Director may appoint "any suitably qualified and trained employees" of Fish & Game Councils to be Fish & Game Rangers and, under Section 26FA(2), may appoint "fit and proper persons who are suitably qualified and trained to be Fish & Game Rangers in an honorary capacity". Under normal circumstances Fish and Game Compliance Officers in the regions will identify "fit and proper persons" who they want in their honorary ranging teams and provide training and qualification tests before recommending them to the Director for appointment.*

*The Director upon approving a recommended appointee will issue a signed photo ID card under Section 26FA (8) that states "The Director shall give every Fish & Game Ranger a written warrant, signed by or on behalf of the Director, evidencing the appointment; and production of that warrant shall, in absence of proof to the contrary, be conclusive evidence of appointment" (New Zealand Fish and Game Council, 2012, p. 1).*

*The primary roles of the Rangers are to:*

- *assist in the creation of an effective deterrent to non-compliance by sports fishers and game bird hunters;*
- *detect and apprehend non-compliers and contribute to their successful prosecution;*
- *encourage a high level of voluntary compliance through good public relations and establish good rapport with the angling and hunting public; and*
- *gather and report information on other illegal activities and poor environmental practice potentially affecting water quantity and quality (New Zealand Fish & Game Council, 2016).*

*The Fish & Game Ranger Guide and Health and Safety Manual (New Zealand Fish & Game Council, n.d., p. 26) suggests that game bird ranging wherever possible should be done in pairs and that Rangers must not be hunting or carrying their own firearms. In relation to game bird ranging following initial conduct and introduction by a Ranger interacting with a hunter, Rangers require hunters to unload their firearms. This serves two purposes: firstly, it enables Rangers to check the ammunition which they have loaded in the gun and magazine for the use of lead shot when not permitted; and secondly, it makes the gun safe, and they can be safely placed out of the way while the Ranger conducts an interview with the hunter.*

*All warranted Rangers have undergone a screening process, including a police check. Rangers are also required to participate in skills and occupational health and safety training provided by a third-party provider (New Zealand Fish & Game Council, 2016). In-house*

*training is provided on the powers of Rangers, requirements under the New Zealand Search and Surveillance Act 2012, note taking and record keeping.*

*After detecting an offence, all Rangers are required to provide a full report to their compliance officer (New Zealand Fish & Game Council, 2016). This report is then reviewed by the compliance officer and regional manager before a decision is made on how the matter will be resolved. Possible outcomes range from “No further action”, “Warning” through to “Court Prosecution”.*

*Annually, Fish and Game Councils detect and deal with approximately 200- 300 offences (New Zealand Fish & Game Council, 2016). A significant number of these matters are able to be resolved out of court. However, a good proportion of offences (between 70 – 120 annually) progress as Court prosecutions, either due to the seriousness of the offending, or due to the inability to resolve the matter out of Court.*

Volunteer fish and game rangers in New Zealand have a range of formal powers and require substantial training. There are clear benefits in an arrangement of this kind, but it might represent a level of complexity that would be difficult for the GMA to support. As an alternative, the GMA could work with hunting organisations to support a less formal arrangement in which the hunting organisations themselves train and support their more experienced members to provide information, advice and counsel to their members in the field. In the event of illegal or irresponsible behaviour of members, it would be open to the hunting organisations to cancel or suspend memberships and provide information to the GMA for follow-up enforcement action. The scope for developing a volunteer warden scheme should be explored with government and stakeholder organisations.

Community groups have also indicated a willingness to support the GMA in a range of relevant activities including:

- research on waterfowl numbers;
- location of protected and endangered species; and
- intelligence collected at scene of shooting to support compliance and enforcement activities.

At the Koorangie State Game Reserve in 2017, the bulk of the birds, including threatened and protected species, recovered from the Marshes and nearby lakes were collected by animal welfare and community members rather than by GMA staff (Game Management Authority, 2017f, p. 6). Community groups can provide invaluable assistance in collecting information and intelligence to supplement GMA’s limited resources. However, community stakeholders have also expressed frustration at the difficulties they have encountered in sharing this information with the GMA.

The GMA should be working more closely with community groups, hunting organisations and other stakeholders on the collection of information and other intelligence related to its compliance and enforcement activities. Clearly, volunteers would be more suited to some functions than others, and there would be some resistance from some stakeholder organisations to the participation of other organisations in some functions. However, it is important to stress that no single interest group owns the GMA’s compliance and enforcement functions or has the right to veto how the regulator exercises its statutory responsibilities.

Cooperative arrangements with community stakeholders have had notable success in other enforcement systems. Neighbourhood Watch and Community Crime Stoppers have been beneficial in building community understanding for the work of Victoria Police and in providing access to an extended intelligence and information network. The recent Victorian Parliamentary Inquiry

recommended “[t]hat Victoria Police and the Game Management Authority work collaboratively to better monitor and educate the community on reporting mechanisms for illegal hunting activity” (Parliament of Victoria Environment, Natural Resources and Regional Development Committee, 2017, p. 394). A GMA sponsored Neighbourhood Watch arrangement for regional landholders and other interested stakeholders would help build confidence in the GMA and provide access to useful intelligence on illegal and irresponsible hunting activities.

The GMA needs to develop strategies for engagement with its stakeholders that build confidence in its integrity and independence as a regulator and more effectively support its compliance and enforcement activities.

## 8.8 Conclusions

The GMA is constrained by the legislative and regulatory framework in which it is required to operate.

There is scope to improve the GMA’s potential to operate as an effective compliance and enforcement agency by rethinking the appropriate role of government in the regulation of game hunting and the scope of GMA’s compliance and enforcement responsibilities.

There are tensions in the mix of functions currently undertaken by the GMA. The independence and effectiveness of the GMA’s regulatory functions would be strengthened if they were located in a larger, more broadly-based regulator with complementary skills.

If this is not possible, the GMA should develop appropriate governance arrangements and a form of operational separation to protect the independence of its licensing, compliance and enforcement functions.

Existing land management arrangements can leave the GMA in a position where it is unable to effectively enforce the hunting laws in more intensively hunted areas. The GMA should consider more flexible arrangements for land access based on permit and ballot systems that are widely deployed in other jurisdictions.

The GMA’s licensing arrangements are inadequate. More stringent minimum standards and testing would provide some assurance that hunters are aware of their legal responsibilities before they go into the field and would reduce the pressure on the GMA’s limited compliance and enforcement capacity.

The GMA should apply more flexible and adaptive compliance and enforcement strategies that are in line with contemporary approaches to regulation and are informed by data on the actual compliance behaviours of its stakeholders. These strategies should include the scope for self-regulation and co-regulation where stakeholders can demonstrate their willingness and ability to comply.

The GMA needs to develop strategies for stakeholder engagement that build confidence in its integrity and independence as a regulator and more effectively support its compliance and enforcement activities.

## 9 Conclusion

---

*This section offers some conclusions and suggestions for the GMA regarding next steps.*

---

This report offers an assessment of the GMA's effectiveness in its compliance and enforcement roles.

Though the research, advisory and land management roles of the GMA are acknowledged, they are not the focus of this report.

Many of the observations reflect on the overall policy and regulatory context within which the GMA operates, and, if they are to be pursued, will require careful consideration in conjunction with government and other agencies.

GMA staff are generally skilled and motivated, and they have produced some very high-quality materials and programs. As it stands, however, the GMA is failing to adequately fulfil its statutory obligations. There are no easy fixes, and the scale of the challenges will require major change to the regulatory regime if the GMA is to raise the effectiveness of its compliance and enforcement regimes to an acceptable level.

The GMA needs to work with land managers to develop more effective ways of managing access to sensitive and more intensively hunted areas. It also needs to seek the support of government in strengthening the current licensing regime.

There is some scope for the GMA to take steps within its own power and existing resourcing levels to improve its effectiveness as an operational regulator. The GMA could better protect the independence of its regulatory functions, develop a more sophisticated compliance strategy and target its compliance and enforcement interventions more effectively.

The GMA also needs to improve the quality of its engagement with stakeholders, and enlist their active and participative support in improving the behaviours of hunters.

Reform will require concerted action by government and non-government stakeholders. While the GMA can and should be a key player in these efforts, the scope of the changes required are beyond the direct authority and capability of the GMA to deliver on its own.

The current situation exposes the Minister and the Board to considerable policy and regulatory risk and if not addressed will contribute to the erosion of the hunting community's social licence.

## Bibliography

- Andrews Group. (2017). *Shotgunning Education Program Reaserch Report v3.0 June 2017*.
- Animal Welfare Advisory Committee. (2008). *Minutes of meeting 156, Correspondence, 19 November*.
- Arthur Rylah Institute for Environmental Research. (2015). *Hunter's Bag Surveys: 2014 and 2015 duck hunting seasons*. Melbourne.
- Arthur Rylah Institute for Environmental Research. (2016). *Hunter's Bag Survey: 2016 Victorian duck hunting season*. Melbourne.
- Australian National Audit Office. (2014). *Administering Regulation: Achieving the right balance - Better Practice Guide*. Canberra.
- Ayers, I., & Braithwaite, J. (1992). *Responsive Regulation*. Oxford: Oxford University Press.
- Black, J., & Baldwin, R. (2010). Really Responsive Risk-Based Regulation. *Law & Policy*, 32(2), 181-213.
- Blumstein, A., Cohen, J., & Nagin, D. (1978). Introduction. In N. R. Council, *Deterrence and Incapacitation: Estimating the Effects of Criminal Sanctions on Crime Rates*. Washington, D.C.: National Academy of Sciences.
- Braithwaite, J. (2011). The Essence of Responsive Regulation. *University of British Columbia Law Review*, 44(3), 475-520.
- Braithwaite, J. (2017). Types of Responsiveness. In P. Drahos, *Regulatory Theory: Foundations and Applications* (pp. 117-132). Canberra: ANU Press.
- Braithwaite, V. (2014). Defiance and Motivational Postures. In D. Weisburd, & G. Bruinsma, *Encyclopedia of Criminology and Criminal Justice* (pp. 915-925). New York: Springer.
- Braithwaite, V. (2017). Closing the gap between regulation and the community. In P. Drahos, *Regulatory Theory: Foundations and Applications* (pp. 25-42). Canberra: ANU Press.
- Braverman, I. (2015). Conservation and Hunting: Till Death Do They Part? A Legal Ethnography of Deer Management. *Journal of Land Use & Environmental Law*, 30(2), 143-199.
- Cavanagh, L. (2016, August 1). Duck hunting licence numbers keep increasing as season draws to a close. *The Timaru Herald*.
- Day, L. (2017, March 29). "Discovery of nearly 200 birds dumped in pit reignites debate over hunting". Retrieved from ABC: <http://www.abc.net.au/news/2017-03-29/illegal-duck-shooting-prompts-hunting-licence-arrangements/8396430>
- Department of Economic Development, Jobs, Transport and Resources. (2016). *Recreational Fishing Licence Trust Account 2015/2016: A report to each House of Parliament on the disbursement of Recreational Fishing Licence Revenue*. Melbourne: Department of Economic Development, Jobs, Transport and Resources.
- Department of Economic Development, Jobs, Transport and Resources. (2017). *Department of Economic Development, Jobs, Transport and Resources - 2017-18 Budget Estimates Questionnaire*. Melbourne: Department of Economic Development, Jobs, Transport and Resources.
- Department of Environment and Primary Industries. (2013). *Annual Report 2012-13*. Melbourne.

- Department of Environment and Primary Industries. (2014). *Estimating the Economic Impact of Hunting in Victoria*. Melbourne.
- Department of Environment, Land, Water and Planning; Department of Economic Development, Jobs, Transport and Resources; & Parks Victoria. (2016). *Joint Submission to the Parliamentary Inquiry into the Control of Invasive Animals on Crown Land*. Melbourne.
- Department of Environment, Water and Natural Resources. (2016). *Annual Report 2015-16*. Adelaide: Department of Environment, Water and Natural Resources.
- Department of Primary Industries. (2012). *Wildlife (Game) Regulations 2012 - Regulation Impact Statement*. Melbourne.
- Department of Primary Industries, Parks, Water and Environment - Wildlife Management Branch. (2017). *Game Tracks - Issue 22 2017*. Hobart: Department of Primary Industries, Parks, Water and Environment.
- Department of Treasury and Finance. (2016). *Budget Paper No. 3: 2016-17 Service Delivery*.
- Ecologically Sustainable Development Steering Committee. (1992). *National Strategy for Ecologically Sustainable Development*. Canberra.
- Editorial. (2013, May 14). Failure on so many levels. *The Age*.
- Emergency Management Consultancy Services. (2015). *Review of Risk Management for Game Compliance*. Melbourne.
- Federal Office for the Environment. (2015, June 30). *Hunt*. Retrieved from Federal Office for the Environment: <https://www.bafu.admin.ch/bafu/fr/home/themes/biodiversite/info-specialistes/mesures-de-conservation-de-la-biodiversite/utilisation-durable-de-la-biodiversite/chasse.html>
- Fyfe, M. (2013, May 13). "Hunter warned of bird massacre". *The Age*.
- Game Management Authority. (2014, July 1). Risk Management for Game Compliance Operations. *Standard Operating Procedure*.
- Game Management Authority. (2015). *Annual Report 2014-15*. Melbourne.
- Game Management Authority. (2016). *Annual Report 2015-16*. Melbourne.
- Game Management Authority. (2016a, August 7). *Compliance Policy v.3.0*. Retrieved from Game Management Authority: [http://www.gma.vic.gov.au/\\_\\_data/assets/pdf\\_file/0004/322591/GMA-Compliance-Policyv3.pdf](http://www.gma.vic.gov.au/__data/assets/pdf_file/0004/322591/GMA-Compliance-Policyv3.pdf)
- Game Management Authority. (2016b). *Game Licence Statistics Summary report - 2016*. Melbourne.
- Game Management Authority. (2016c). *Stakeholder Engagement Strategy*.
- Game Management Authority. (2017, August 25). *About Us*. Retrieved from Game Management Authority: <http://www.gma.vic.gov.au/about-us>
- Game Management Authority. (2017 April). *Board Paper Agenda Item 5.4 Review of Compliance Operation – Opening weekend, 2017 Duck Season*. Melbourne.



- Game Management Authority. (2017). *Game Hunting in Victoria*. Melbourne: Game Management Authority and Kalkomey Enterprises, LLC.
- Game Management Authority. (2017 June). *Board Paper Agenda Item 5.3 Best practice game licensing regime - further information*. Melbourne.
- Game Management Authority. (2017a). *Compliance Strategy and Enforcement Guidelines for the 2017 Duck Hunting Season*. Melbourne.
- Game Management Authority. (2017b, January 4). *Get involved in conservation*. Retrieved from Game Management Authority: [www.gma.vic.gov.au/conservation-Andenvironment/get-involved](http://www.gma.vic.gov.au/conservation-Andenvironment/get-involved)
- Game Management Authority. (2017c). Identification and response to issues arising from the opening weekend of the 2017 duck season. *Internal working document*. Melbourne.
- Game Management Authority. (2017d). *Managing Duck Hunting in Victoria*. Melbourne.
- Game Management Authority. (2017e). *2017 Victorian Duck Season Opening Operaton Plan South West*. Melbourne.
- Game Management Authority. (2017f). *Review of the 2017 duck season opening weekend. Report to the Minister for Agriculture*. Melbourne.
- Game Management Authority. (2017g). Stakeholder Meeting Presentation. *Review of 2017 duck season opening: with a focus on Koorangie State Game Reserve*. Melbourne.
- Game Management Authority. (n.d). Copy of GMA Training Records\_V2.
- Game Management Authority. (n.d.). *Snake Island Compliance Plan*. Melbourne.
- Government of Victoria. (2016). *Sustainable Hunting Action Plan 2016-2020*. Melbourne: Government of Victoria.
- Government of Victoria. (2017). *Sustainable Hunting Action Plan Implementation Plan*. Melbourne: Government of Victoria.
- Government of Western Australia. (2017, August 31). *Compliance Strategy, p. 2*. Retrieved from Department of Mines, Industry Regulation and Safety (formerly Department of Commerce): <https://www.commerce.wa.gov.au/sites>
- Haines, F. (1997). *Corporate Regulation: Beyond 'Punish or Persuade'*. Oxford: Oxford University Press.
- Hampton, P. (2005). *Reducing administrative burdens: effective inspection and enforcement*. London: HM Treasury.
- Hardin, G. (1968). The Tragedy of the Commons. *Science*, 162, 1243-1248.
- Helm, D. (1993). The Assessment: Reforming Environmental Regulation in the UK. *Oxford Review of Economic Policy*, 9(4), 1-13.
- Helm, D. R. (2006). Regulatory Reform, Capture and the Regulatory Burden. *Oxford Review of Economic Policy*, 22(2), 169-185.
- Hine, B. (2017a, April 28). Letter from Mr Brian Hine, Chairperson GMA to Jaala Pulford MP Minister for Agriculture.

- Hine, B. (2017b, June 9). Letter from Mr Brian Hine Chairperson GMA to Jaala Pulford MP Minister for Agriculture.
- Hore, M. (2017, March 19). *"Duck season hunters accused of shooting rare birds"*. Retrieved from Herald Sun: <http://www.heraldsun.com.au/news/victoria/duck-season-hunters-accused-of-shooting-rare-birds/news-story/c04a5f42309c8abc39db49babecfbaec>
- IC Independent Consulting. (2013). *Governance Review of the Game Council of NSW*.
- John Uhrig. (2003). *Review of the Corporate Governance of Statutory Authorities and Office Holders*. Canberra: Commonwealth of Australia.
- Makkai, T., & Braithwaite, J. (1992). In and out of the Revolving Door: Making Sense of Regulatory Capture. *Journal of Public Policy*, 12(1), 61-78.
- McAllister, L. K. (2010). Dimensions of Enforcement Style: Factoring in Regulatory Autonomy and Capacity. *Law & Policy*, 32(1), 61-78.
- McLennan, C. (2015, July 2). A sorry day when no one said sorry. *The Weekly Times*.
- Milman, O. (2014, March 18). *"Duck hunting season opens with tougher laws aimed at protesters"*. Retrieved from The Guardian: <https://www.theguardian.com/environment/2014/mar/18/duck-hunting-season-opens-with-tougher-laws-aimed-at-protesters>
- Morriss, A. P., Yandle, B., & Dorchak, A. (2005). Choosing How to Regulate. *Harvard Environmental Law Review*, 29(1), 179-250.
- Murphy, K. (2004). *Moving towards a more effective model of regulatory enforcement in the Australian Taxation Office*. Canberra: Centre for Tax System Integrity, The Australian National University.
- Murphy, K. (2017). Procedural justice and its role in promoting voluntary compliance. In R. Theory:, *Foundations and Applications* (pp. 43-58). Canberra: ANU Press.
- Nahrath, S. (2000). "Governing Wildlife Commons?" A Comparative Analysis of Switzerland's Three Hunting Systems. *Paper Presented at The 8th Biennial Conference of the International Association for the Study of Common Property - Crafting Sustainable Commons in the New Millennium*. Bloomington: The Swiss Graduate School of Public Administration.
- New Zealand Department of Conservation. (2017). *Hunting permit*. Retrieved from New Zealand Department of Conservation: <http://www.doc.govt.nz/parks-and-recreation/things-to-do/hunting/permits-and-licences/hunting-permit/#open>
- New Zealand Department of Conversation. (2017a). *Map and data*. Retrieved from New Zealand Department of Conversation: <http://www.doc.govt.nz/our-work/maps-and-data/>
- New Zealand Fish & Game Council. (2016). *Submission on the Wildlife (Powers) Amendment Bill*. Wellington.
- New Zealand Fish & Game Council. (n.d.). *Fish & Game Ranger Guide and Health and Safety Manual*. Wellington.
- New Zealand Fish and Game Council. (2012). *Fish & Game Ranger Guide*. Wellington.
- New Zealand Fish and Game Council. (2016). *Performance Report of the New Zealand Fish and Game Council for the Year Ended 31 August 2016*. Wellington: New Zealand Fish and Game Council.

- New Zealand Fish and Game Council. (2016a). *Submission on the Wildlife (Powers) Amendment Bill*. Wellington.
- New Zealand Fish and Game Council. (2017). *General Hunting Licence Info*. Retrieved from New Zealand Fish and Game Council: <https://fishandgame.org.nz/taranaki/licences/hunting-licence-info/general-hunting-licence-info/>
- New Zealand Fish and Game Council. (2017a). *Hunting Regulations*. Retrieved from New Zealand Fish and Game Council: <https://fishandgame.org.nz/taranaki/licences/hunting-licence-info/hunting-regulations/>
- New Zealand Government. (2017, April 28). *Hunting on conservation land*. Retrieved from New Zealand Government: <https://www.govt.nz/browse/recreation-and-the-environment/hunting-and-fishing/hunting-on-conservation-land/>
- New Zealand Productivity Commission. (2014). *Regulatory Institutions and Practices*. Wellington.
- NSW Government Department of Primary Industries. (2017). *Restricted Licence*. Retrieved from NSW Government Department of Primary Industries: <http://www.dpi.nsw.gov.au/hunting/hunting-licences/restricted>
- NSW Government Department of Primary Industries. (2017a). *Restricted licence accreditation*. Retrieved from NSW Government Department of Primary Industries: <http://www.dpi.nsw.gov.au/hunting/education-and-training-for-hunters/restricted-licence-accreditation>
- NSW Government Department of Primary Industries. (2017b). *Where can I hunt?* Retrieved from NSW Government Department of Primary Industries: <http://www.dpi.nsw.gov.au/hunting/where-can-i-hunt>
- Organisation for Economic Co-operation and Development. (2012). *Recommendations of the Council on Regulatory Governance*. Paris: OECD Publishing.
- Organisation for Economic Co-operation and Development. (2014). *The Governance of Regulators, OECD Best Practice Principles for Regulatory Policy*. Paris: OECD Publishing.
- Parker, C. (2000). Reinventing Regulation within the Corporation: Compliance Oriented Regulatory Innovation. *Administration & Society*, 32(5), 529-565.
- Parker, C., & Lehmann Nielsen, V. (2017). Compliance: 14 questions. In P. Drahos, *Regulatory Theory: Foundations and Applications* (pp. 217-232). Canberra: ANU Press.
- Parks Victoria. (2013). *Deer in Victoria's Parks and Reserves Management Framework 2013-2018*. Melbourne.
- Parliament of Victoria. (2013). *Parliament of Victoria Parliamentary Debates (Hansard) - Legislative Assembly Fifty Seventh Parliament First Session: Thursday, 12 December 201*. Melbourne: Victorian Government Printer.
- Parliament of Victoria. (2016). *Parliamentary Debates (Hansard): Legislative Assembly Fifty Eighth Parliament First Session - Thursday, 15 September 2016*. Melbourne: Victorian Government Printer.
- Parliament of Victoria Environment, Natural Resources and Regional Development Committee. (2017). *Inquiry into the control of invasive animals on Crown land*. Melbourne: Parliament of Victoria.

- Productivity Commission. (2001). *Cost recovery by Government agencies*. Canberra: AusInfo.
- Pulford, J. (2016, December 14). Statement of Expectations for the Game Management Authority.
- Pulford, J. (2017). *Agriculture Presentation 2017-18 by the Minister for Agriculture*. Melbourne: Department of Economic Development, Jobs, Transport and Resources.
- Rechtschaffen, C. (1998). Deterrence vs. Cooperation and the Evolving Theory of Environmental Enforcement. *Southern California Law Journal*, 71, 1181-1272.
- RMCG. (2017). *Economic impact of recreational hunting in NSW - Final Report for Game Licensing Unit, Department of Primary Industries*. Orange.
- RSPCA. (2017, August 25). *What is the RSPCA's view on recreational hunting?* Retrieved from RSPCA: [http://kb.rspca.org.au/What-is-the-RSPCA's-view-on-recreational-hunting\\_531.html](http://kb.rspca.org.au/What-is-the-RSPCA's-view-on-recreational-hunting_531.html)
- Scrogin, D., Boyle, K., Parsons, G., & Plantinga, A. J. (2004). Effects of Regulations on Expected Catch, Expected Harvest, and Site Choice of Recreational Anglers. *American Journal of Agricultural Economics*, 86(4), 963-974.
- Seidenfeld, M. (2000). Empowering Stakeholders: Limits on Empowering Stakeholders. *William & Mary Law Review*, 41(2), 411-501.
- Shughart, W. F. (2008). *Public Choice*. Retrieved October 28, 2009, from The Library of Economics and Liberty: <http://www.econlib.org/library/Enc/PublicChoice.html>
- Skeel, D. A. (2001). Shaming in Corporate Law. *University of Pennsylvania Law Review*, 149, 1811-1868.
- Sparrow, M. K. (2000). *The Regulatory Craft: Controlling Risks, Solving Problems, and Managing Compliance*. Washington D.C.: Brookings Institution Press.
- State Government Victoria. (2014). *Hunting and Game Management Action Plan*. Melbourne.
- State Services Authority. (2009). *Review of the rationalisation and governance of regulators: Final Report*. Melbourne.
- Statistics New Zealand. (2015, October 21). *Participation in recreational fishing*. Retrieved from New Zealand's Environmental Reporting Series: Environmental indicators Te taiao Aotearoa: [http://www.stats.govt.nz/browse\\_for\\_stats/environment/environmental-reporting-series/environmental-indicators/Home/Fresh%20water/recreational-fishing/recreational-fishing-archived-27-04-2017.aspx](http://www.stats.govt.nz/browse_for_stats/environment/environmental-reporting-series/environmental-indicators/Home/Fresh%20water/recreational-fishing/recreational-fishing-archived-27-04-2017.aspx)
- Svorny, S. (1999). Licensing, Market Entry Regulation. In B. Bouckaert, & G. De Geest, *Encyclopedia of Law & Economics* (pp. 296-328). Edward Elgar.
- The Australia Institute. (2012). *Out for a Duck: An Analysis of the Economics of Duck Hunting in Victoria*.
- The State of Victoria, Department of Primary Industries. (2010). *Invasive Plants and Animals Policy Framework*. Melbourne.
- The State of Victoria, Department of Treasury and Finance. (2017). Victorian Budget 17-18. *Budget Paper No. 3*. Melbourne.
- Wahlquist, C. (2017, March 30). *Shooting lobby calls on Victorian government to penalise duck hunters who act illegally*. Retrieved from The Guardian Australia:

[https://www.theguardian.com/world/2017/mar/30/shooting-lobby-calls-on-victorian-government-to-penalise-duck-hunters-who-act-illegally?CMP=Share\\_iOSApp\\_Other](https://www.theguardian.com/world/2017/mar/30/shooting-lobby-calls-on-victorian-government-to-penalise-duck-hunters-who-act-illegally?CMP=Share_iOSApp_Other)



6 January 2022

Mr Graeme Ford  
CEO - Game Management Authority  
GPO Box 4509  
Melbourne VIC 3001

Submitted by email: [graeme.ford@gma.vic.gov.au](mailto:graeme.ford@gma.vic.gov.au) cc: [daniel.taneski@gma.vic.gov.au](mailto:daniel.taneski@gma.vic.gov.au)

**Animals Australia's submission regarding  
Environmental and Population Conditions Relevant to Duck Shooting in Victoria 2022**

Dear Graeme,

Animals Australia appreciates the opportunity to comment on data and information available to stakeholders with respect to deliberations pertaining to a potential 2022 Victorian duck hunting season – including the Game Management Authority (GMA) document 'Considerations for the 2022 duck season' (hereafter, "**Considerations 2022**") and the recently developed Kingsford-Klaassen model<sup>1</sup> ("the KK model") that attempts to model past decision-making and continue that approach into the future.

As you are already aware, Animals Australia totally opposes recreational duck shooting and continues to urge the Victorian Government and relevant ministers to ban this inherently cruel and unnecessary practice on animal welfare and ethical grounds. Regardless of this enduring and well-based stance, we are participating in this consultation to ensure a detailed and fair analysis is provided of the **environmental** 'considerations' that the GMA and Ministers must base a judgment on prior to any duck shooting in 2022.

It is our strong view after assessing the documents provided to us in December 2021 that there should be **no duck shooting season permitted in 2022** based on the current environmental situation and waterbird population estimates. This submission outlines the dire situation facing our native waterbirds and we urge Ministers to ensure the unnecessary recreational shooting of these birds does not provide further risk to their long-term survival (in addition to the cruel impact on targeted birds).

As a preliminary and relevant matter, we have a number of serious concerns regarding the GMA's process for making recommendations to Ministers about the (previous) 2021 season. So far the timeline for consultation and submissions regarding the 2022 season seems very similar, so our criticisms of the previous process are pertinent to the current decision-making process.

#### EXECUTIVE SUMMARY

- i. Documents released by the parliament in September 2021<sup>2</sup> provide insight into the decision process for the 2021 season. Key concerns are further detailed at Attachment A and include:
- The imposed timeline did not allow for effective consultation with stakeholders or DELWP, yet the proposed season was more than three months away.
  - A highly subjective "risk analysis" was prepared by GMA staff to influence the Board decision.

<sup>1</sup> Professors Kingsford and Klaassen (29 November 2021) *Relationships among duck population indices and abiotic drivers to guide annual harvest management – Version 2, and subsequently* (23 December 2021) 'Using duck proxies and surface water to inform hunting arrangements' (published on the GMA website).

<sup>2</sup> Refer <https://www.parliament.vic.gov.au/assembly/tabled-documents/search-tabled-documents-database/details/3/10630>

These papers comprise Volume A and Volume B. Our references such as A32 indicate Volume A, page 32.

- The South Australian position (3 game species protected in 2021) was excluded from consideration.
  - Well-founded concerns for the sustainability of Hardhead Duck and Pink-eared Duck were ignored.
  - The bag limit was more than doubled on the basis of a trial helicopter survey that (according to candid comments from its architect) should not have been used for season bag limit settings.
  - The Ministerial briefing by GMA included the dubious claim that duck shooting brings huge economic benefits.
  - The Ministerial briefing mentioned social and health benefits for duck shooters but omitted the negative economic, social and health impacts for the vast majority of regional residents who do not participate in duck shooting but are forced to endure it for up to three months each year.
- ii. The Eastern Australia Waterbird Survey for 2021 conducted in October 2021 (hereafter “EAWS 2021”) has delivered stark and shocking waterbird population data for GMA, an agency tasked with promoting sustainability in game hunting. Despite extended La Nina conditions and record rains in some areas, game duck abundance estimates have plunged to the 3<sup>rd</sup> lowest on record (in four decades of surveys) and again breeding has been negligible. GMA continues to ignore Birdlife Australia’s request to set a baseline abundance for each species (that is, a target to be reached and maintained as a minimum for conservation). By every measure, the management of game ducks has failed to arrest their long-term decline.
- iii. The KK model has potential value as a broad “traffic light” system to guide season decision-making, as envisaged by the 2019 report<sup>3</sup> which suggested the model. For example, its 2022 prediction (a 4-bird bag) is useful for dampening shooter hopes that La Nina has guaranteed a full shooting season. But Kingsford and Klaassen acknowledge that the model is not prescriptive, has an (unspecified) margin of error, and should only be used as a guideline along with “due diligence”. **As game ducks have failed to recover despite La Nina rains, due diligence demands a season cancellation.** The KK model emulates old decision-making patterns rather than trying to reverse the serious long-term decline of duck species.
- iv. The Victorian helicopter survey, still in its trial phase and with its serious inadequacies recently exposed by the Kingsford-Prowse peer review<sup>4</sup>, has (similarly) released preliminary results that suggest **duck populations have not bounced back despite recent rains.** The preliminary report states that the increased population estimate (still subject to future revision) is “*mainly due to the inclusion of estimates for rivers/streams and sewage treatment ponds, which were not included in the pilot survey in 2020*”.<sup>5</sup> For the 2021 season, GMA relied on this trial helicopter survey to sanction the recreational killing of a quarter of a million ducks – the breeding stock so crucial for any chance of recovery. If COVID had not intervened, duck populations would be in an even more dire situation due to a longer and unwarranted killing season. In light of the critical issues raised by Kingsford-Prowse which point to multiple sources of error and likely over-estimation of population, **this experimental survey must not be used to sanction the killing of declining native duck species, further depleting limited breeding stock.** Further details are at Attachment B.
- v. The NSW Riverina helicopter survey report<sup>6</sup> (hereafter “the Riverina report”) has been selectively quoted to give an optimistic picture in *Considerations 2022*. The apparent “rebound” in 2021 has restored duck numbers to slightly below the 2016 level, but this should be seen in context. The 39-year results of the EAWS (p23 of *Considerations 2022*) show that game duck abundance across the eastern states reached its lowest level on record in 2016. In fact around half of the Riverina dams surveyed in 2021 were dry. While a killing target of 10% was set for three species (to mitigate alleged damage to

<sup>3</sup> Prowse, T., S. Briggs, R. Cooney, R. Kingsford, M. Klaassen, G. Webb, and P. Whitehead. 2019. *Waterfowl Adaptive Harvest Model: Expert Panel Review*. Report to the Department of Jobs, Precincts and Regions.

[https://djpr.vic.gov.au/\\_data/assets/pdf\\_file/0011/1992674/Waterfowl-AHM-Panel-Report-Final.pdf](https://djpr.vic.gov.au/_data/assets/pdf_file/0011/1992674/Waterfowl-AHM-Panel-Report-Final.pdf)

<sup>4</sup> Prof Richard Kingsford and Dr Thomas Prowse, Untitled review of the ARI helicopter survey of Victorian game birds, Sept 2021: [https://www.gma.vic.gov.au/\\_data/assets/pdf\\_file/0003/819282/Game-duck-review-Kingsford-Prowse.pdf](https://www.gma.vic.gov.au/_data/assets/pdf_file/0003/819282/Game-duck-review-Kingsford-Prowse.pdf)

<sup>5</sup> Preliminary results from the 2021 survey of game ducks in Victoria, Ramsey and Fanson, ARI, section 1.4 (the report has no page numbers): [https://www.gma.vic.gov.au/\\_data/assets/pdf\\_file/0004/821587/Preliminary-results-from-the-2021-survey-of-game-ducks-in-Victoria-FINAL.pdf](https://www.gma.vic.gov.au/_data/assets/pdf_file/0004/821587/Preliminary-results-from-the-2021-survey-of-game-ducks-in-Victoria-FINAL.pdf) Hereafter this will be referred to as “the preliminary report”.

<sup>6</sup> NSW Department of Primary Industries, 2020-2021 Annual Waterfowl Quota Report

[https://www.dpi.nsw.gov.au/\\_data/assets/pdf\\_file/0004/1288903/annual-waterfowl-quota-report-2020-21.pdf](https://www.dpi.nsw.gov.au/_data/assets/pdf_file/0004/1288903/annual-waterfowl-quota-report-2020-21.pdf)



rice crops), the report found that the other five more vulnerable game species - Pink-eared Duck, Hardhead, Chestnut Teal, Blue-winged Shoveler, Mountain Duck – should only be targeted in extenuating circumstances<sup>7</sup>.

- vi. GMA continues to avoid consideration – or even a mention – of the clear reality of global warming which affects rainfall, temperature, evaporation and waterbird habitat. Without acknowledgement of climate science, GMA cannot plan for sustainability of waterbird species. Claims that game ducks are ‘resilient to harvesting’ are based on last-century studies using decades-old data, before climate change made its presence strongly felt in Australia. The Andrews government has committed to strong action on climate change, so this apparent “climate-denial” stance by GMA runs contrary to government policy.
- vii. GMA in its past considerations and recommendations continues to avoid the reality of changes in land use – the other key factor driving long-term decline in duck species. Human land utilisation and related intervention to increasingly divert floodwaters to irrigation has depleted the habitat needed for waterbird breeding. The traditional link between rainfall/runoff and breeding has been disrupted.
- viii. GMA in its ‘Considerations’ document makes much of possible wetter conditions in the next few months. However, even if flooding were to eventuate, and even if late breeding were to occur, a shooting season is contrary to the claims of the Regulatory Impact Statement (RIS) 2012 that underpins the current hunting regime. The RIS states that duck shooting is “humane” because shooting seasons are timed to avoid breeding and moulting periods when ducks are highly vulnerable (p29). It would also be contrary to s6(e)(ii) of the GMA Act 2014 (hereafter “the Act”).
- ix. Legal issues: We continue to hold grave concerns regarding GMA’s compliance with its “responsibility and sustainability” mandate (s5 of the Act) and sections 6 and 8A of the Act. **We also question the legal basis on which duck shooting is permitted on areas other than the 200 State Game Reserves and the additional 41 wetlands listed in the Wildlife (Game) Regulations 2012 (hereafter “the Regulations”).**
- x. **We recommend a complete cancellation of the 2022 season on environmental grounds.** The sustained long-term decline of our game duck species – despite a La Nina cycle - will only be exacerbated by the shooting of breeding stock and the demise of late-bred ducklings. Given the impact of climate change on our natural environment (including wildlife species), it is of concern that GMA has not included any environmental groups in its stakeholder consultation. Last season, the advice from Birdlife Australia and the state’s Environment Department (DELWP) was ignored.

## 1 SUSTAINABILITY

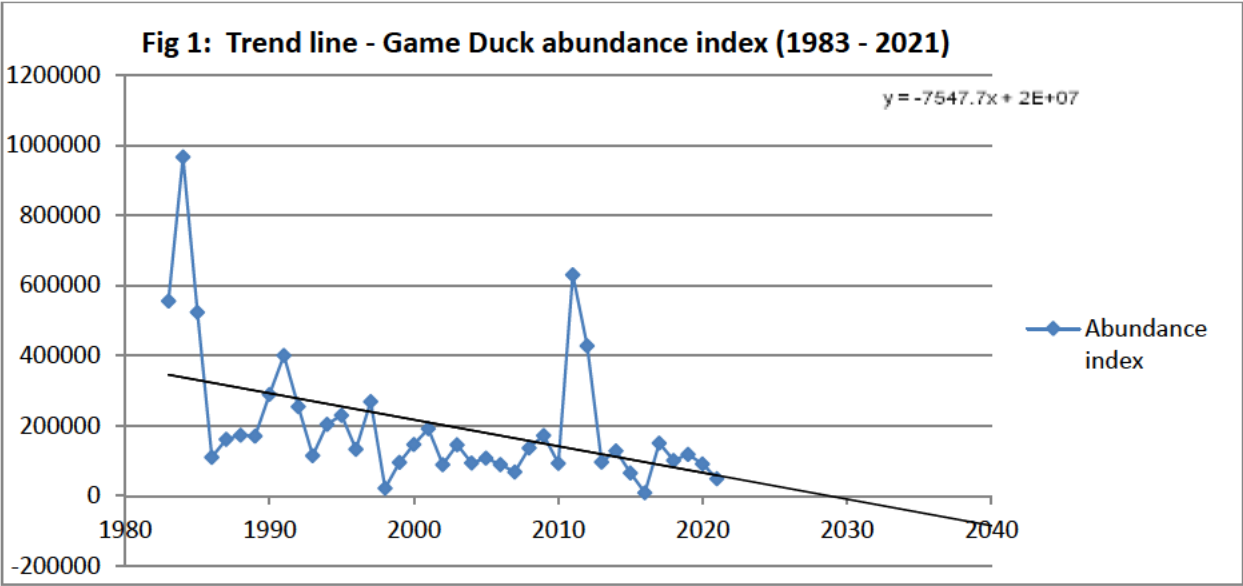
### 1.1 2021 AERIAL SURVEY of WETLAND BIRDS in EASTERN AUSTRALIA: DATA

The results of EAWS 2021 show that game duck abundance in 2021 is less than half (only 42%) that of 2020, which in turn was almost a quarter (23%) down on 2019, a year of record drought. **These shocking, successive, drops in abundance - despite welcome rain - should be sufficient to cancel any 2022 shooting season.** Breeding has failed to produce the bounce-back experienced when the Millennium Drought broke. *Considerations 2022* found most of the breeding was for non-game species; only 4 broods of game ducks were observed<sup>8</sup> in a survey covering one-third of the continent.

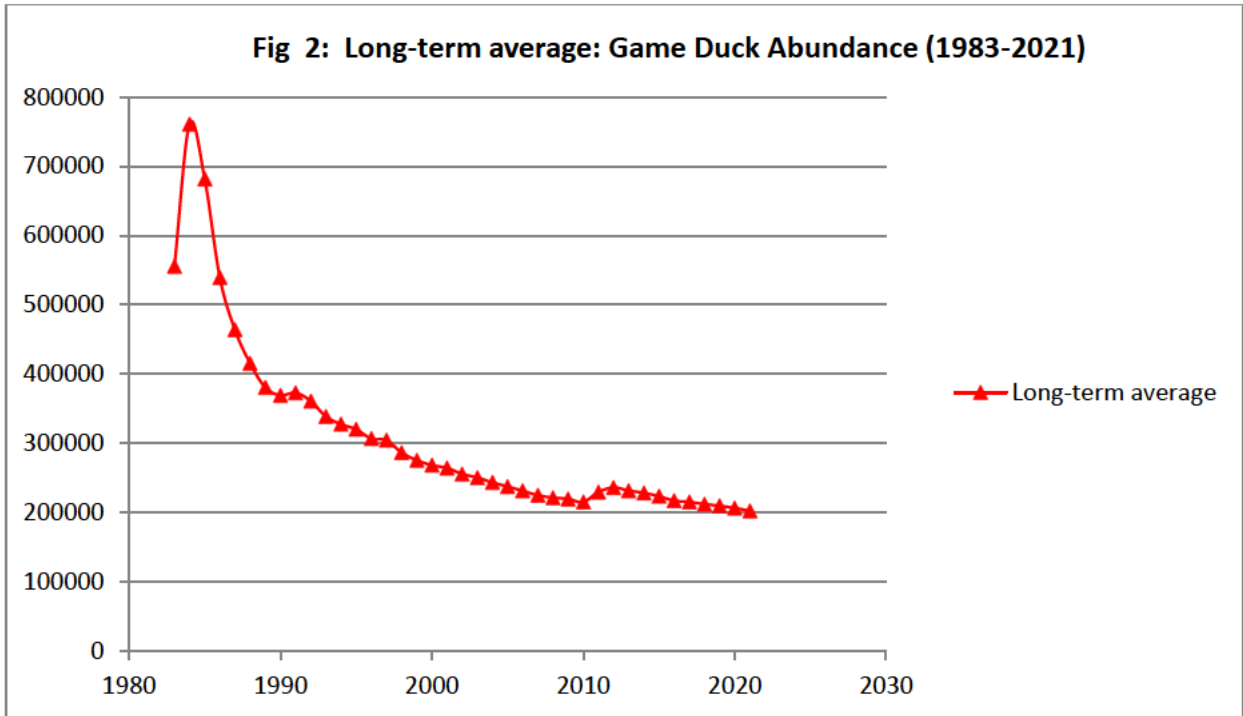
The EAWS 2021 confirmed that the four major indices for waterbirds (total abundance, breeding index, number of species breeding and wetland area index) continue to show significant declines over time. The EAWS summary report states that long term trends are more important for predicting population status than year to year fluctuations. Hence the graph below should ring alarm bells, with **the trend line showing likely extinction before 2030**, and possibly sooner as small populations are highly vulnerable to “shock” events such as disease and extreme weather (drought, heatwaves and violent storms).

<sup>7</sup> As the diet of some game duck species does not include rice crops, it is unclear why they would ever be targeted.

<sup>8</sup> Private communication, Daniel Taneski, GMA, 23 Dec 2021.



The game duck abundance index (49,704) is only a quarter of the long-term average – see the graph below. The long-term average itself is a misleading benchmark for sustainability in that it continues to decline over the 39 years of EAWS data because abundance is declining. The graph shows that the 2013 temporary blip from the end of the millennium drought has now dissipated.



EAWS 2021 reported that all game species abundances “were well below long term averages, in some cases by an order of magnitude”. The critical significance of this statement may be lost on those unfamiliar with scientific language and we note that GMA omitted it from the *Considerations* document. However, a drop by an order of magnitude indicates a 90% decrease. A change “by an order of magnitude” is scientific terminology to describe a change by a factor of ten (such as from 1000 to 100).

Six out of eight species continue to show significant long-term declines<sup>9</sup>. **Half (48%) of the wetlands surveyed had no waterbirds.**

Wetland area index was still well below the long-term average – less than two-thirds (61%) of that misleading benchmark. Like the long-term average for game duck abundance, the long-term average for the wetland area index has declined over time as shrinking values exert downward pressure on the average. Refer EAWS 2021, Fig 4 below:

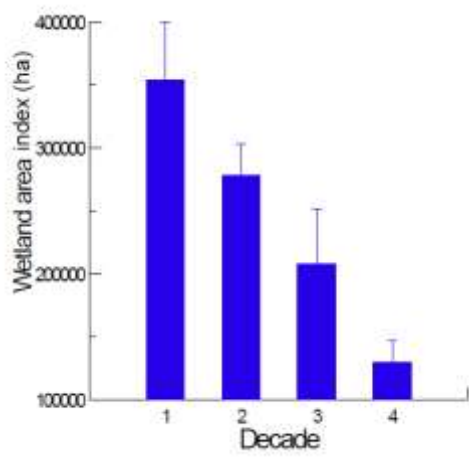


Fig 3: Reproduced from EAWS 2021

With such a dramatic and progressive shrinkage in wetland habitat, it is remarkable that GMA continues to ignore the key factors driving this decline, and the associated long-term decline in game duck abundance.

**On p33 of *Considerations 2022* GMA discusses “current climate drivers”. The inexplicable omission of global warming points to an unacceptable ‘climate-denialist mindset’.** This is contrary to the Andrews government’s acceptance of the reality of climate change and commitment to strong action to respond to it. GMA’s consistent failure to acknowledge mainstream climate science and its application to waterbird management is contrary to GMA’s obligations in s8A(d) to have regard to “*the principle of an evidence-based approach, which means considering the best available information when making decisions*”. This obligation is escalated now that available evidence strongly indicates population decline.

Despite repeated requests from Birdlife Australia and animal welfare groups, GMA has never adopted a precautionary approach to ensure continuing abundance of duck populations; its focus is instead on continuing shooting seasons – a very different aim. Its current policy of allowing the killing of 10% of an estimate of all game ducks in Victoria ensures that no season will ever be cancelled, until there are virtually no ducks left. But the following trend map shows why an acknowledgement of human-induced climate change would necessarily lead to a precautionary approach, given that rainfall trends are reducing waterbird habitat over the long-term:

<sup>9</sup> There is an apparent typographical error in the EAWS 2021 report, p8, Table 3: with a p-value of 0.042, the Trend for Chestnut Teal should show as “decline”. This is in accord with the text (p3) which states six of the eight game species continue to show long-term decline.

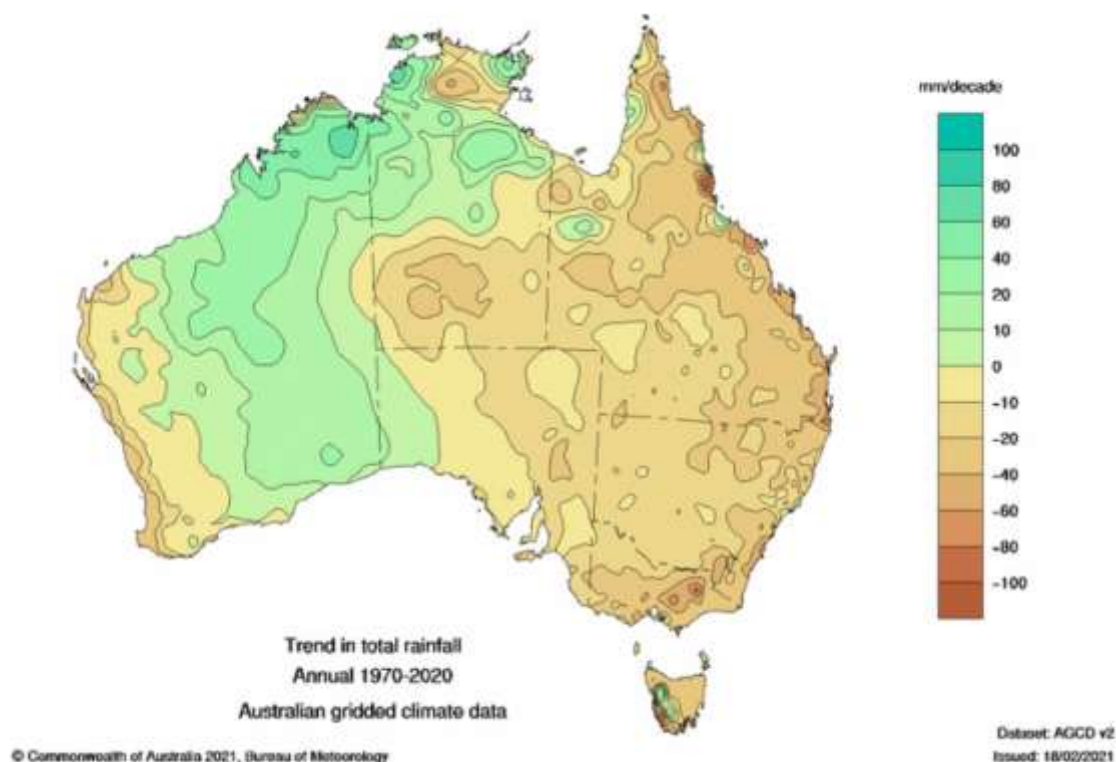


Fig 4

In the various regions of Victoria, this government data shows the decrease over the past 50 years in annual rainfall has been from 1 to 8 cm per decade – an astonishing loss of at least 4cm and at worst 32cm since Kingsford’s aerial surveys began. It is little wonder the game duck populations are struggling. Rather than face this serious decline in conditions for waterbirds, *Considerations 2022* focuses on the recent La Nina cycle which has brought wetter conditions in the relative short-term.

However multi-year rainfall deficiencies from the 2017-2019 drought still remain over significant parts of the surveyed area as shown by this map (*Considerations 2022*, p7):

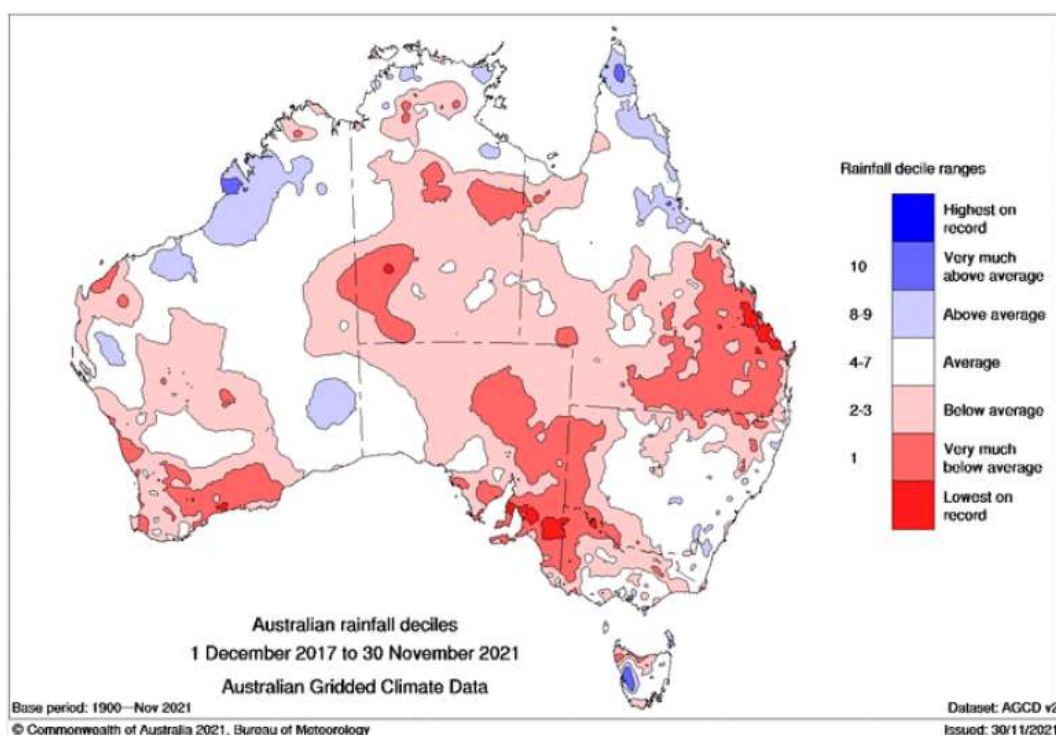


Fig 5



### 1.2.1 Victoria – vulnerable species

On p22 of *Considerations 2022* there is a graph showing that game duck abundance has plummeted in Band 2 (northern Victoria) compared with the previous (very poor) year. GMA failed to note the damning evidence that the 2020 game duck index for Band 2 was in turn less than half that of the previous year<sup>10</sup>.

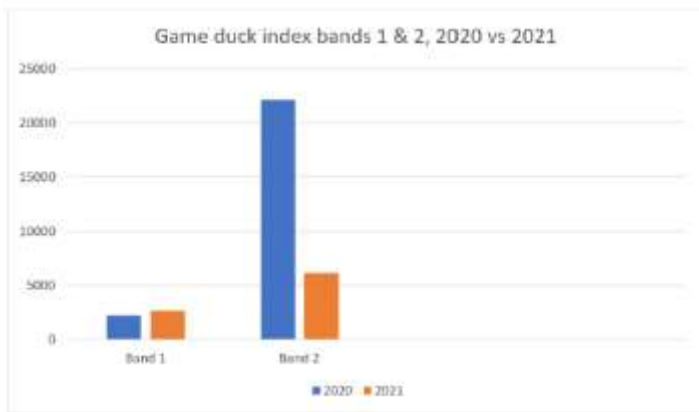


Fig 6

But the raw data (not published) is even more dire<sup>11</sup>: For EAWS 2021, Bands 1 and 2 combined reported seeing only 4 Blue-winged Shovelers, 54 Chestnut Teal and 14 Hardhead.

It is pertinent to quote from *Considerations 2022* (p3):

*Hunting during periods when there is little recruitment (e.g. dry periods) removes breeding adults which can negatively affect subsequent recruitment and further drive declines in hunted species (Kingsford et al.2017).*

and from p5:

*... northern and western Victoria and south-eastern SA ... received below to very much below average rainfall [in 2021].*

and from p7:

*Further periods of above average rainfall are needed to continue drought recovery, especially in parts of QLD, South Australia, far west NSW and large parts of Victoria, particularly in the north west. [emphasis added]*

### 1.2.2 – The Victorian helicopter survey

In *Considerations 2022* (p25), the second Victorian helicopter survey (Oct - Nov 2021) is quoted as finding a 20% increase in duck population to 2.94m. However the preliminary report by ARI’s Ramsey and Fanson<sup>12</sup> states clearly that the increased estimate is “*mainly due to the inclusion of estimates for rivers/streams and sewage treatment ponds, which were not included in the pilot survey in 2020*” and these estimates are “*of a preliminary nature only and may be subject to revision in the final report*”.

In documents released by the parliament this year<sup>13</sup> it is clear that the GMA Chairman encouraged Dr Ramsey to produce preliminary results (for use in 2021 season settings) from the original helicopter

<sup>10</sup> Source: comparison of relevant years of GMA’s “*Considerations*” documents.

<sup>11</sup> Taneski, GMA, op. cit.

<sup>12</sup> Op.cit.

<sup>13</sup> Op. cit.

survey before ARI had confidence in its findings.<sup>14</sup> That first (Nov 2020) helicopter survey suffered from a number of serious data problems, including critical problems with calibration of satellite imagery that underpinned the entire survey. The methodology was based on duck counts from a stratified sample of waterbodies, then extrapolation to the total number of waterbodies (of each size category) across the state. Errors in estimating the number and current levels of waterbodies of each size category would seriously impact the results of the survey.

In 1.3.1 of the preliminary report for the second helicopter survey, the authors note the “classification accuracy” for satellite is 79% for dams, 92% for wetlands and 77% for streams. In other words, there is still considerable uncertainty about the number of wetlands of each size and type, and thus considerable uncertainty in the results.

But even accepting the results at face value, the 95% confidence intervals show that the “increase” could be spurious because these intervals are broad and overlap:

- In Nov 2020 the 95% confidence estimate for total game ducks was 1.84m – 3.27m.
- In Oct/Nov 2021 the 95% confidence estimate for total game ducks was 2.41m – 3.58m.

The preliminary report acknowledges (Table 3) that it is unable to reliably estimate numbers of five game species - Mountain Duck, Chestnut Teal, Hardhead, Pink-eared Duck and Blue-winged Shoveler. For the 2021 season, GMA seized upon the experimental estimate for total game duck population (2.45m) and increased the bag from 2 to 5 birds, ignoring protection for these vulnerable species (other than Blue-winged Shoveler). Note that the NSW helicopter survey report this year also identified the same five species as being vulnerable.

It is dangerous for non-statisticians to apply statistical results without an appropriate understanding of their limitations. The information in *Considerations 2022* (p25) will likely be seized upon once again by pro-shooting staff and stakeholders as evidence for a shooting season that will further reduce the prospects of species recovery from long-term decline.

The second Victorian helicopter survey remains a “snapshot” rather than a reliable benchmark. In no way is it a substitute for the long-running EAWS, which is a reliable indicator of trends rather than a population count. The ARI scientists have not yet revealed the actual number of each species that were physically counted in this latest helicopter survey, and their report will not be ready for some months to come. Hence there is little transparency in this trial process.

**Importantly, the Kingsford-Prowse peer review<sup>15</sup> of this ARI helicopter survey raises serious concerns about the accuracy of its results and identifies factors likely leading to inflated estimates (refer our Attachment B).**

### 1.2.3 The NSW helicopter survey over the Riverina

In *Considerations 2022* (p26), the Riverina report<sup>16</sup> is presented as evidence of a strong bounce-back for game ducks. The apparent “rebound” in 2021 has restored duck numbers to slightly below the 2016 level, but this should be seen in context. The 39-year results of the EAWS (p23 of *Considerations 2022*) show that game duck abundance across the eastern states reached its lowest level on record in 2016. In fact around half of the Riverina dams and channels surveyed in 2021 were dry (Riverina report, p19) and “many of the large waterbodies in the Riverina were dry or had very little water” (p18). Pink-eared Ducks “were only seen in low numbers” (p19). While a killing quota of 10% was set for the three more dominant species (to mitigate alleged damage to rice crops), the report recommended that the other five more vulnerable species - Pink-eared Duck, Hardhead, Chestnut Teal, Blue-winged Shoveler, Mountain Duck - only be targeted in extenuating circumstances (pp22-24)<sup>17</sup>.

---

<sup>14</sup> See for example A1255 in these documents.

<sup>15</sup> Op. cit.

<sup>16</sup> Op cit.

<sup>17</sup> As the diet of some game duck species does not include rice crops, it is unclear why they would ever be targeted.

#### 1.2.4. Other concerns

Every year in its *Considerations* document, GMA omits the highly relevant data for game duck species breeding. Instead, GMA includes the breeding data for “all waterbirds” – which masks the desperate state of game duck breeding. In 2021 EAWS found only four broods of game ducks. Most (83%) of the observed breeding comprised ibis.

Every year, GMA confuses the picture for game ducks (the only relevant issue) by including statistics and graphs for “all waterbirds” – refer *Considerations 2022*, pages 20, 27, 28 and 29.

As in the past, *Considerations 2022* included distractions from the key issues. Three pages devoted to Australian water storage levels have little relevance to most game ducks. Shooters will no doubt exaggerate the significance of recent flooding events, but floodwater does not equate to ducks.

In its January 2021 submission to the GMA<sup>18</sup>, Birdlife Australia drew attention to recent research about flooding and duck breeding:

*Consistently low wetland ... index results suggest that water which would have historically flowed over floodplains, providing critical episodic breeding opportunities for waterbirds, is now being increasingly diverted into dams and irrigation or lost from the system via other mechanisms (Wentworth Group 2020<sup>19</sup>). Where flooding did occur in the Murray Darling Basin and waterbirds congregated ... flood events were smaller and shorter. This reduced hydroperiod<sup>20</sup> and lower water quality from reduction in water level and flow, limits sites used by waterbirds. In dryland wetlands these factors may reduce chick survivorship as they cannot metabolize saline water, which makes suitable freshwater conditions a limiting resource (Haig et al 2019<sup>21</sup>).*

A number of pages in *Considerations 2022* (and the final point at the end)<sup>22</sup> are devoted to optimism regarding further rainfall and risk of flooding in the first quarter of 2022.

**If floods do result in some late breeding, then it would be inhumane to shoot during the breeding season while offspring are immature. The 2012 Regulatory Impact Statement (RIS) for the Regulations (p29) claimed that duck shooting is humane because it is timed to avoid the vulnerable times of breeding and subsequent moult.**

Here is one Victorian farmer’s eye-witness account of the cruelty and destruction inflicted on duck broods during the shooting season:

*As I write there are many baby ducklings without mothers that now have to fend for themselves. The poor things are only golf ball size. Their mother’s shot dead while some are still injured and will die over the next few days.*

We intend to highlight the contradiction between the RIS – on which the current hunting regime is based – and GMA’s apparent support for a shooting season while late breeding is in progress. Currently wetlands can be closed when threatened species are present. **We are firmly of the view that the 2022 shooting season should be cancelled due to the continuing decline in waterbird abundance. However if a shooting season goes ahead, we will request that wetlands be closed to shooting if game ducks are observed breeding there.**

---

<sup>18</sup> Available from GMA website: [https://www.gma.vic.gov.au/\\_data/assets/pdf\\_file/0003/621435/BirdLife-Australia-2021-Duck-season-considerations-submission.pdf](https://www.gma.vic.gov.au/_data/assets/pdf_file/0003/621435/BirdLife-Australia-2021-Duck-season-considerations-submission.pdf)

<sup>19</sup> Wentworth Group of Concerned Scientists (2020) *Assessment of river flows in the Murray-Darling Basin: Observed versus expected flows under the Basin Plan 2012- 2019*, Sydney.

<sup>20</sup> The length of time and portion of the year the wetland holds water.

<sup>21</sup> Haig, S.M., Murphy, S.P., Matthews, J.H. et al. (2019). *Climate-Altered Wetlands*

<sup>22</sup> See pages 33, 34, 36 and 43.



1.3	The KK model [the Kingsford-Klaassen Model]
-----	---

### 1.3.1 Technical concerns with the KK model

The KK model has been developed as an “interim” measure pending further development of Adaptive Harvest Modelling/Management (AHM). It was proposed by an expert panel in 2019 paper as a potential “traffic light” system.

Here we refer to two very recent papers by Professors Kingsford and Klaassen (“the authors”). On 29 November 2021 they published *Relationships among duck population indices and abiotic drivers to guide annual harvest management – Version 2* (hereafter “the Guide”) and on 23 December 2021 the GMA website posted a link to the authors’ *Using duck proxies and surface water to inform hunting arrangements* (hereafter “the Final”).

Comparison of these two papers produced less than a month apart shows that the model has been adjusted so that the suggested daily bag changed up or down by one bird, for three of the seven seasons which GMA has led (2015-2021 inclusive). These adjustments have enabled the model to replicate the actual GMA decisions for the controversial seasons of 2020 and 2021 (and as such introduces a question of credibility or influence). While a change of one bird (per shooter per day) may seem modest, it potentially results in a 50% increase in the number of game ducks destroyed (e.g. for the 2020 season the model’s prediction changed from a 2-bird bag to a 3-bird bag). The implications for sustainability are serious. This warns against relying on the model as anything more than a guide.

At the end of the Guide (pp20-32) there is a useful tabulation of issues raised by stakeholder consultation, and the authors’ responses. The authors “*stress this [the KK model] is a tool to inform decision making. It should not be used to set hunting arrangements without due diligence.*”

We agree that the KK model can provide general guidance, potentially as a “traffic light” system. For example, across the period of GMA season management 2015-2021, the model consistently suggests that GMA has been too generous to shooters and at the ‘expense’ of the waterbirds/populations in deciding the daily bag size. For the five years 2015-2019 inclusive, the GMA bag limit is at least DOUBLE that predicted by the KK model. (e.g. in 2017 and 2018 the GMA allowed a full 10-bird bag whereas the model suggested bags of 4 and 5 respectively.)

For the 2022 season, the KK model suggests a 4-bird bag (compared with the standard 10), which should inject a note of realism for the shooters expecting a full season due to La Nina conditions. However we believe that 4-bag limit is too high and should not be implemented for the following reasons:

- The KK model aims to continue the decision-making patterns of the past which have contributed to the serious ongoing decline in game duck abundance. The authors explain (Guide, p24) that the critical elements of the model (e.g. the brackets or cut-off points for indices, and the aggregated points score system or aPS) are “somewhat arbitrary” but have been set to produce “outcomes that are by and large comparable with decisions for hunting arrangements **made in previous years.**” That is a damning admission. The KK model is thereby committed to continuing the environmentally destructive game management policies of the past that contributed to the long-term decline of game duck species. ‘Sustainability’ in the current circumstances demands a precautionary approach.
- As discussed already in this submission, environmental conditions for game ducks have been adversely driven in recent decades by climate change/global warming and water diversion schemes for irrigation. The KK model attempts to mimic the policies from a thirty-year period (1991-2021) when environmental resilience was generally very different from today’s situation.

In 2017 Ramsey et al reported on AHM practices around the world and found that such modelling fails to cater for long-term structural changes such as climate change and changes in land use.<sup>23</sup>

- The KK model does not perform well in dry conditions: it has never predicted a season cancellation - not even in the depths of the Millennium Drought (2007).
- The graph comparing actual bag limits and predicted bag limits (Fig 5, p15 of the Guide) shows that the KK model predicts bags that are too generous in poor years and too low in “good” years, when compared with past practice.<sup>24</sup> Reliance on this model is thus environmentally irresponsible, putting species at risk when they are under most duress in adverse conditions. The authors have countered this criticism (Guide, pp28-29) by shifting an axis line on the graph (Fig 5). However it is clear that for poor seasons (e.g. actual season bag of 3 or less), the points are mostly above the red line, showing the KK model tends to predict a more generous bag in dry periods.
- Comparison of the box-plots in the Guide (p13) and the Final (no page numbers included) shows that the KK model in the Final form is even less reliable than in the Guide. The box plot in the Final shows that two of the indices (iPGame and iNSWC) produce REVERSE outcomes for “cancelled” (0-bag, shown in red) and “restricted” seasons (2-7 bag, shown in green). These are two of the five indices that each deliver aPS scores to suggest 0,1 or 2 birds in the daily bag; the final total delivered by the five indices is thus a bag between 0 and 10 birds a day. **It is concerning that two of the four birds proposed for the 2022 daily bag are derived from these two deeply flawed indices.** iPGame delivered a score of 0.66 (worth one aPS point) and iNSWC delivered a score of 0.62 (worth one aPS point). Ignoring those two spurious results, leaves a predicted bag of 2. Given that the KK model over-predicts for dry conditions (see previous point) a 2022 season cancellation is entirely consistent with the limitations of this model. Note that the Final boxplot shows even the iMedian (presumably taking all five indices into account) cannot reliably distinguish between a season cancellation (red box) and a season restriction (green box). We indicate our concern that the authors may have produced a hurried result before they checked its reliability. We suggest this as there is clear evidence (see our Attachment A) that ARI scientists were pressured by GMA to produce results prematurely for the 2021 season.
- In the Guide, p28, the authors respond to a stakeholder concern that the KK model is not a good fit for the data, given that the scatterplots suggest very weak positive relationships, with many points outside the confidence intervals. They say: “These are in fact very strong relationships for ecological studies”. The fact that other ecological studies also have poor fits for their models, is probably a reflection of the fact that the natural environment is complex and not easily modelled or predicted. Clearly the GMA must not simply rely on the KK model (in its recommendations) to absolve itself from its mandate of sustainability and responsibility.
- The KK model does not address the important issue we raised in consultation, namely that in dry periods, a much-reduced bag has sometimes been combined with a drastically shortened season (e.g. 2021) when GMA or government opts for a minimal season rather than cancellation.
- We are very concerned that there seems to be a tacit acceptance that season length should never be reduced because small changes in season length apparently have little impact on overall cull or hunter participation. However the authors acknowledge (Guide, pp26-27) that shortening the season length remains a valid management option: “To be effective, season length will have to be drastically modulated.” They agree with our stakeholder feedback that enforcement is easier in a shorter season (shooting is clearly audible outside the season), as opposed to trying to monitor bags at so many disparate locations around the state over an extended period.

---

<sup>23</sup> Towards the implementation of adaptive harvest management of waterfowl in south-eastern Australia, Ramsey et al, ARI, December 2017, pp 5-6. [https://www.gma.vic.gov.au/data/assets/pdf\\_file/0020/504434/Adaptive-Harvest-Review\\_2017.pdf](https://www.gma.vic.gov.au/data/assets/pdf_file/0020/504434/Adaptive-Harvest-Review_2017.pdf)

<sup>24</sup> The Final seems to have been prepared in such a rush that there are no page numbers and no identifying numbers on the various tables and graphs. However there is a graph plotting “predicted” against “observed” and this shows a similar pattern.

- There is a corollary to the argument that modest changes to season length have little impact on hunters or total kill numbers. Given so many non-shooters live in regional Victoria, a shorter season would be less disruptive to their lives and livelihoods, and to the tourism industry, yet shooters would not experience any negative impacts. Historical data from 1952 onwards (source: GMA website) shows that duck shooting seasons used to be much shorter at 8 or 9 weeks, compared with the current default length of 12.5 weeks. There is ample scope to reduce the season length out of consideration for non-shooters in the regions (refer s8A (c) of the Act re the principle of equity). Under dire environmental conditions, seasons **should be cancelled** - but if the GMA and government lack the political courage to fully protect waterbirds from further decimation, then both bag size and season length should be severely restricted, regardless of inevitable protests from the hunting fraternity.

### 1.3.2 Fundamental concern with the rationale of the KK model

#### **There is a fundamental question: Does hunting contribute to long-term decline of duck populations?**

On 11 January 2021, the GMA Board met to determine recommendations for the 2021 season settings. The GMA briefing to the Board (see B20) claimed: “*While there is no evidence that duck hunting has caused the long-term decline of game duck species in Australia, harvesting during protracted periods of vulnerability, such as low population abundance, concentration onto limited habitat and reduced breeding, can have short to medium-term impacts.*” **This statement is grossly misleading. There are long-term impacts of shooting the ducks when they are declining.** Long-term decline is clearly shown by the four decades of EAWS surveys. This decline is driven by climate change and irrigation competition for environmental water, and exacerbated by the annual killing of breeding stock and their offspring. The “bounce-back” in good years has become more muted or (as now) non-existent<sup>25</sup>.

Contrary to the claim put to the GMA Board, **there is no evidence that duck hunting has NOT contributed to the long-term decline of game duck species in Australia.**

**But this misleading claim put to the Board is central to the GMA decision to commission the KK model which clearly aims to replicate past patterns of decision-making for duck season settings**<sup>26</sup>.

GMA’s annual *Considerations* documents previously referred to a Year 2000 report<sup>27</sup> from Kingsford et al, as evidence that duck shooting had no impact on duck populations. That report was based on studies from decades-old data, some from the mid-20<sup>th</sup> century, before the major threats to waterbirds – climate change and changes to land use (drainage of swamps and extension of irrigation schemes) – had a major impact.

But it is helpful to refer to another document from last century to gain some perspective on this claim. The Australian Museum drew on information and expertise from around the nation to compile *The Waterbirds of Australia* in 1985 (hereafter “*Waterbirds*”). Even without awareness of incipient global warming (which pushes ducks even closer to the brink), *Waterbirds* foreshadowed the changes that now threaten the sustainability of duck species and the future of duck shooting:

- (p172): Although the Pacific Black Duck was very heavily shot, there was no evidence that total numbers were affected by shooting... “*But the Black Duck, like all Australian ducks, is also threatened by the continuing drainage of swamps and wetlands which it needs to breed and by the control of rivers to prevent floods... these factors could quite easily reduce the numbers to a point where the species could no longer stand the toll taken by shooting.*”

<sup>25</sup> <https://www.smh.com.au/environment/tennis-ball-bounce-record-low-bird-numbers-highlight-water-system-woes-20161216-gtcgyn.html>

<sup>26</sup> See the Guide, p30: “*The model indeed extrapolates past decisions into the future, assuming that past decision on hunting arrangements were (at least on average) correct.*” Also the “somewhat arbitrary” cut-off points for the indices were set to achieve this (p24).

<sup>27</sup> Kingsford, Webb and Fullagar, *Scientific panel review of open season for waterfowl in New South Wales*, NSW National Parks and Wildlife Service, 2000.

- Chestnut Teal (p185): *“As the total number of wild ducks in Australia decreases with the continuing drainage of swamps, increasing pressure will be put on this species. There are grave doubts whether it is sufficiently numerous or resilient to stand such pressure and it may have to be protected in future.”*
- Pink-eared Duck (p196): *“At times it is one of the rarer species in Australia and there seems little justification for keeping it on the list of legal gamebirds.”*
- Hardhead Duck (p200): *“A survey of the species in Victoria, where they do not breed, showed that the mortality rate ... is slightly higher and the life expectancy slightly lower than for Grey Teal and Black Duck [the two most commonly shot birds]. Most of the birds recovered had been shot. In his own classic study of Australian waterfowl H.J. Frith<sup>28</sup> concluded that there must be ‘serious doubts for its survival as a common species.’ ”*

1.4	Legal issues for GMA
-----	----------------------

While earlier governments and regulators did cancel duck shooting at times of severe drought, the GMA and the current Andrews government have never supported the cancellation of a season. Given the constant and severe decline in game duck abundance, this approach is at odds with the GMA's mandate (s5(a) of the Act).

Despite falling duck abundance, GMA set a 2021 “harvest” goal of 245,000 ducks in a short season with a 5-bird bag (having earlier announced a 2-birds/day bag<sup>29</sup>). Due to the pandemic, the season was further truncated and shooters were not keen to participate. The killing of ducks was reduced to a (self-reported) estimate of 52,456. The impact on the desperately low numbers of ducks in Victoria was estimated to be only one-sixth of the previous annual average death count. Yet despite that partial reprieve, and La Nina conditions, game duck numbers in EAWS 2021 were 58% down on EAWS 2020, which in turn had been down almost a quarter (23%) compared with EAWS in 2019 (a year of record drought). **If GMA's advice had been fully implemented for the 2021 season, the outcome for game ducks would have been even worse.**

GMA's advice to Minister Thomas for the 2021 season<sup>30</sup> backed its recommendation by saying that the modified season “allows duck populations to recover when environmental conditions improve.” Clearly that advice was both misleading and ultimately incorrect.

It is important to note also that s5(a) of the GMA Act does not refer to “sustainability of game species” but rather, sustainability generally. Thus, the impact of duck shooting on protected and threatened species is also directly relevant.

Last year an ARI report about a proposed helicopter survey in Victoria included a recommendation for an annual 10% cull, as suggested by GMA<sup>31</sup>. **An annual 10% cull in Victoria would guarantee that no season is ever cancelled. The long-term decline in species would continue until there are no ducks left. This is in apparent breach of the sustainability mandate in s5(a) of the Act.**

It appears in our view that GMA is now searching for “science” to justify its actions. A highly mathematical, experimental helicopter survey and also the experimental KK model have been developed at considerable (but undisclosed) taxpayer expense. Such initiatives were promoted as “taking the politics out of duck shooting” but that will not happen, given the uncertainty and opacity of the methods used.

Neither of those two “scientific” approaches has the accuracy to deal with the five game duck species most at risk. An examination of GMA's “harvest” reports for the last few years shows that the Pink-eared Duck

<sup>28</sup> H.J. Frith, *Waterfowl in Australia*, 1967.

<sup>29</sup> GMA Media release 6/2/2021 ‘2021 Duck Hunting Season Arrangements’

<sup>30</sup> Refer A1 in the documents released by the parliament in Sept 2021 – op. cit.

<sup>31</sup> NSW uses a 10% cull in quite a different context – no recreational duck shooting, much smaller numbers culled and only at the request of rice farmers.

and the Hardhead Duck numbers have collapsed, but no effort was made to protect these species in the 2021 season; this is unacceptable.

We note that AHM overseas has failed to gain community support, becoming instead the preserve of a rarified group of highly specialised scientists:<sup>32</sup>

*Due to the increased complexity of the technical aspects of AHM, involvement in and ownership of the process is now dominated by those biologists with a more numerical background. This has led to stakeholders concerned more about the social aspects of AHM being marginalised. This has led to some partners calling for harvest regulations to be set based on 'rules of thumb'.*

**In our view, given the dire situation of long-term species decline and failure to recover under La Nina conditions, together with the tiny and diminishing percentage of Victorians who actively shoot ducks (0.1 per cent in 2021, down from 0.2 per cent in 2019), it is time to end duck shooting.**

However GMA is conflicted: not only are some of its senior staff active duck shooters themselves, but growing amounts of taxpayer money are adding to the bureaucracy that supports this unpopular and unsustainable activity.

Currently the Regulations allows for duck shooting at 200 State Game Reserves and 41 other specified wetlands. However the legal basis for shooting ducks in other parts of the state remains unclear. GMA refers queries to DELWP and DELWP refers questions back to GMA. Unless the legal basis can be clearly listed on the GMA website (s8A (f) – the principle of transparency) then duck shooting should cease on all but the 241 wetlands clearly specified in Regulation 69.

It is unclear how GMA complied with the principles of s8A(b) of the Act in recommending the 2021 duck shooting season. GMA seem to have taken the view that it only has to consider the economic, social and environmental impacts of changes to the default season setting, claiming the default setting is “government policy”. That is a surprising view, given that the Regulations were made by the previous government and have since been modified in the wake of the 2017 season which, according to the GMA, opened with “illegal, unethical and irresponsible behaviour”.<sup>33</sup> In any case, the GMA has made no attempt to monitor or research the costs and benefits for non-shooters affected by duck shooting, as required by s6(h) of the Act. Many regional residents are supporters of Animals Australia, and they suffer disruption to their work, their health and their family life as a result of the constant shotgun noise and the anxiety it creates in humans (especially children) and animals.

It is unclear how the GMA complies with s6(i) of the Act, which require it to make recommendations to relevant Ministers. We are aware of requests to close certain wetlands to duck shooting either for public safety reasons or to provide a much-needed sanctuary for birdlife, but GMA claims to have no role in such matters and the requests are passed between GMA and DELWP and back again. Regional residents complain of getting nowhere with both GMA and DELWP. This was clear from a 2016 submission to the state’s consultation on *Protecting Victoria’s Environment – Biodiversity 2036*<sup>34</sup>:

*Restoration of sanctuary status to wetlands – the revision of the Wildlife Act in 1975 resulted in the inadvertent loss of long-held sanctuary status for Lakes Linlithgow and Bullrush. DELWP has steadfastly refused to restore that status, which would give protection to waterbirds, including reducing disturbance to large flocks of Red-necked Stint and Sharp-tailed Sandpipers [preparing for their long flight to Siberia].*

This concern was raised by an eminent local ornithologist on behalf of a community group. Apart from GMA’s recommendation on the 2022 season, we submit this case to you in light of GMA’s obligations to the welfare of non-hunted species (s6(e)(iii) of the Act), its mandate to promote sustainability (s5(a) of the Act is not restricted to game species) and its obligation to make recommendations to relevant Ministers (s6(i) of the Act). Those two wetlands could simply be closed to hunting until their classification is reviewed.

---

<sup>32</sup> Ramsey et al, ARI, op. cit., p7

<sup>33</sup> Pegasus Economics, *Assessment of the GMA’s compliance and enforcement function*, 2017, page 19

<sup>34</sup> Submission from Hamilton Field Naturalists Club, p2: <https://www.hamilton-field-naturalists-club-victoria.org.au/images/pdf/Submissions/FireEcology/subm-vic-environment-biodiversity-2036.pdf>



## 2 RESPONSIBILITY

GMA's mandate (s5(a) and s6 of the Act) also requires that it promote responsibility in game hunting, address the humane treatment of animals that are hunted, and minimise negative impact on non-game wildlife, including protected and threatened wildlife.

### 2.1 WOUNDING

Wounding rates are still around 30 per cent of targeted birds because less than one per cent of the state's 25,000 duck shooters have undertaken field-based training to improve accuracy<sup>35</sup>. Each year the GMA annual report comments on its shooter education program, originally tagged the Shotgunning Education Program and later rebadged as a "Masterclass". However, despite these efforts and the considerable expense involved, fewer than 200 duck shooters have participated in the practical accuracy training in-field<sup>36</sup>.

In March 2020 as COVID-19 ravaged the world, two GMA representatives travelled to Denmark to study a program for encouraging shooters to reduce their wounding rate<sup>37</sup>. GMA has confirmed it has no specific target for decreasing the wounding rate<sup>38</sup>.

GMA's 2020-21 Annual Report announced the establishment of a Wounding Reduction Working Group which in time will develop a Wounding Reduction Action Plan. Relevantly, it is understood (indirectly)<sup>39</sup> that the Wildlife (Game) Regulations to be remade in 2022 may require proficiency testing of some type for hunters. Whilst welcome, skills and shotgun proficiency is only one element of the equation – the inherent action of the spray pattern of shotgun pellets will continue to wound a portion of all birds targeted.

**Meanwhile the 2022 season must be cancelled, to avoid the prospect of a hundred thousand game ducks suffering appalling injuries and lingering deaths (average season with 30% wounding).** Note that nothing has yet changed in terms of the shooters and their accuracy or their actions.

### 2.2 KNOWLEDGE AND SKILLS

The 2020 release of GMA's survey of shooter skills and knowledge<sup>40</sup> showed duck shooters generally scored worst among all game shooters. Duck shooters failed in particular on hunting laws, species recognition, best practice to minimise wounding, and humane treatment of waterbirds. That result simply confirms what duck rescuers and regional residents have been observing and reporting for several decades; birds continue to be wounded, waterbirds and all other wetland inhabitants distressed and disturbed.

While the knowledge survey report attempted to dismiss the results as simply a benchmark to highlight areas for improvement in the future, the reality is that the GMA has failed to effectively promote responsibility in duck shooting. The GMA has spent years and many thousands of dollars in the preparation and dissemination of educational material (e.g. Hunting Manual; social media applications; participation in hunting shows and other events with shooter groups), but these results indicate the material has been ineffectual.

Following the illegal and irresponsible behaviour of shooters at the 2017 duck opening, GMA was required to commission a review of its competence. The report by Pegasus Economics was severely critical. It found GMA was "too comfortable" with shooters and issued hunting licences without any checks on hunters' knowledge of the law or good practice<sup>41</sup>:

<sup>35</sup> Private communication from Simon Toop, GMA, 29.12.20

<sup>36</sup> Ibid.

<sup>37</sup> Source: GMA Annual report 2019-20

<sup>38</sup> Private communication from S Toop, op. cit.

<sup>39</sup> Weekly Times 7 December 2021 'Game Management Authority: Victorian hunters face mandatory shooting tests'

<sup>40</sup> Summary report of hunters' knowledge survey findings, GMA, August 2020

<sup>41</sup> [https://www.gma.vic.gov.au/data/assets/pdf\\_file/0011/481682/Assessment-of-the-GMAs-compliance-and.pdf](https://www.gma.vic.gov.au/data/assets/pdf_file/0011/481682/Assessment-of-the-GMAs-compliance-and.pdf) p25, accessed 31.12.21

*“... with the exception of duck hunter identification skills and hound hunter knowledge skills, applicants currently seeking a licence to hunt game are not required to prove any knowledge of the law, demonstrate even a basic understanding of safe and responsible hunting practices or possess any hunting competence... The current arrangements are analogous to VicRoads providing driver education only after a licence has been allocated to drive on a public highway.”*

Animals Australia's Legal Counsel wrote to Minister Thomas on 4 February 2021 expressing the urgent view that:

*“... the only option that would promote the objects of the Wildlife Act, specifically, the protection and conservation of wildlife (s1A) would be an absolute prohibition on duck shooting for the 2021 season, and until effective regulatory reforms [recommended by Pegasus] are made.”*

It is disappointing to read (B62 in the papers disclosed by parliament, Sept 2021) that a senior executive at DJPR dismissed our letter as containing “*nothing new by way of claims that have been made by Animals Australia and others in the past.*”

## CONCLUSION

We refer you to the Executive Summary on pages 1 – 3 for an overview of this submission, and commend the detail and analysis to you at this crucial decision making point for the survival of our native waterbirds.

Whilst our animal protection charity, and the vast majority of Victorians, oppose recreational shooting of ducks on ethical grounds, we are aware this consideration is regrettably not within ‘scope’ of the request for submissions. We recognise that all animals are currently not treated and protected equally in this State, leaving many vulnerable to human-centred and (often) destructive interests. The Victorian government has committed to a modernised animal protection Act (to replace the dated *Prevention of Cruelty to Animals Act 1986*) which will explicitly (and soon) recognise the ‘sentience’ of animals (their ability to suffer, experience pain and pleasure). The killing and/or inherent wounding and maiming of native waterbirds through recreational shooting will then be an even more stark contravention of any claim that Victoria is a humane society.

**We recommend and urge a complete cancellation of the 2022 season on environmental and waterbird sustainability grounds** (as detailed in this submission). The serious and sustained long-term decline of our game duck species – despite a La Nina cycle - will only be exacerbated by the shooting of remnant breeding stock and the killing of late-bred ducklings.

Please contact me if further clarification of the points made in this submission are required.

Yours sincerely,



**Glenys Oogjes**  
Chief Executive Officer

**Note:** Attachments A and B follow and provide important further information to the points made in the body of this submission.

**Animals Australia** 37 O'Connell Street, Nth Melbourne, VIC 3051 Ph. (03) 9329 6333 Fax. (03) 9329 6441  
[enquiries@AnimalsAustralia.org](mailto:enquiries@AnimalsAustralia.org) [www.AnimalsAustralia.org](http://www.AnimalsAustralia.org) ABN. 65 016 845 767 ACN. 617080387



## ATTACHMENT A – concerns from the 2021 season decision process

(This information was revealed in documents disclosed to the Victorian Parliament in Sept 2021<sup>42</sup>)

- The timeline for submissions closing (Wed 6 Jan) and Board meeting (Monday 11 Jan), suggests recommendations were pre-prepared by GMA staff, and Board members had inadequate time to consider the 99 pages of stakeholder submissions (condensed to 2 paragraphs each).
- The “risk analysis” provided to the Board placed subjective weights on selective factors; this technique is easily manipulated to support a pre-determined recommendation. For example, it combined game bird abundance and wetland area into one factor, claiming they moved together (not true). If they were treated as two distinct factors the result would be more heavily weighted against a shooting season. Remarkably, it seems that climate change was not factored in as part of this risk assessment.
- As well as “sustainability” risk the Board was asked to consider “reputational risk” and “compliance risk”. It seems these may have been given equal weight with the sustainability risk.
- The SA position (3 game species protected) was excluded from Board consideration.
  - GMA staff claimed that SA had not made its decision by the time of the Board meeting. However that was incorrect: the decision was gazetted on Thurs 14 Jan 2021, which meant it had been lodged with the gazette by Friday 8 Jan 2021. It is highly unlikely that GMA staff would not have been abreast of the SA position.
- The threat to Hardhead Duck - raised by both Birdlife Australia and DELWP - was dismissed. But as this bird had satisfied all criteria for listing as a threatened species, sustainability should have demanded it be protected – even if the season started before the formal listing.
- The recent extended decline for Pink-eared Duck - raised by Birdlife Australia and Animals Australia – was also ignored.
- GMA staff informed the Board that: “Very little new information was provided through these submissions” – the 99 pages of carefully compiled arguments and data provided by stakeholders. (See B115).
- It is unclear whether DELWP was given adequate time and information to assess these important environmental issues. In early February DELWP’s Head of Biodiversity recommended further restriction/cancellation of the season but Ministers accepted the GMA recommendation that same day – for a season three months away.
- The original decision (2-bird bag) was later changed to a 5-bird bag on the basis of a trial helicopter survey which suffered serious data problems, and (according to its architect) should never have been used to determine season settings. See A1255 where Dr Ramsey (ARI) tells GMA that:

*“working with these data has been a bit of a nightmare. ... I am so glad we are not using these data to inform this year’s duck season. I wouldn’t of [sic] had any confidence in the estimates based on the current issues with the data.”*
- There is clear evidence of GMA pressuring the ARI scientists to deliver favourable results for the 2021 season settings, before the ARI had addressed the serious data problems of the 2020 helicopter survey. See B 624-627.

---

<sup>42</sup> Op. Cit. A reference such as B115 refers to Volume B, page 115 in these documents.

- The Minister was erroneously advised that duck shooting brings huge economic benefits. A gross estimate of \$65m was quoted from a 2019 survey<sup>43</sup> and even indexed upwards by 2% annually since then. Clearly that was inappropriate, given the growing pandemic. But even between the 2013 economic survey and the 2019 survey (conducted by the same consultants RMCG), duck shooting decreased in economic impact. Importantly, the 2019 survey acknowledged that the NET economic benefit of duck shooting was minimal because expenditure would be diverted to other areas of the economy if duck shooting was unavailable.
  - In July 2020 Tourism Victoria included bird watching as part of its published National Visitor Survey. The report showed that **886,000 domestic tourists went bird watching in 2019 – a number which dwarfs the comparatively tiny number of hunters who participate in each duck shooting season.** Given the COVID risks and restrictions on interstate and international travel, it can be expected that the number of tourists interesting in birdwatching in Victoria will only increase from the 2019 figure. **If duck shooting is permitted during autumn, the presence of hunters will clash directly with tourists visiting regional Victoria specifically to observe birds in their natural habitat – not being shot out of the sky.**
- The Minister was advised of the social and health benefits that duck shooting brings to participants but there was no mention of the negative economic, social and health impacts for the majority of regional residents who do not participate in duck shooting but are forced to endure it for up to three months each year.

---

<sup>43</sup> *Economic and social impacts of recreational hunting and shooting*, RMCG, Sept 2019:  
[https://www.gma.vic.gov.au/data/assets/pdf\\_file/0006/503196/Report-Economic-and-social-impacts-of-recreational-hunting-and-shooting.pdf](https://www.gma.vic.gov.au/data/assets/pdf_file/0006/503196/Report-Economic-and-social-impacts-of-recreational-hunting-and-shooting.pdf)

In April 2021, GMA received the results of a trial helicopter survey and rapidly moved to more than double the daily 'bag' (ducks per shooter per day) from 2 to 5 birds for the imminent shooting season. The highly technical project – designed, led and self-assessed by mathematicians at ARI – had suffered from serious data problems and delays<sup>44</sup>. However GMA relied on a superficial but enthusiastic review from a non-mathematician (Dr Steve McLeod, March 2021) to back the resulting estimate of 2.45m game ducks in Victoria (as at Nov 2020). McLeod's review made no attempt to address the obvious question: what were the potential areas of uncertainty in these new results?

Since that time GMA has obtained a review of the ARI survey by two academics with more directly relevant expertise, both in terms of mathematical theory (Dr Prowse) and waterbird ecology and the practical problems of aerial surveys (Prof Kingsford). However this review<sup>45</sup> – unlike the McLeod review – has not been provided to stakeholders.

Kingsford and Prowse provided an in-depth report pointing to a number of issues that cast serious doubt on the validity of the ARI population estimate. However GMA has seemingly selectively quoted from the report, posting the following on its website:

*An [evaluation of the monitoring program](#) was conducted by the Arthur Rylah Institute for Environmental Research. In addition, [Dr Steve McLeod](#), an expert who works in this field, and [Dr Thomas Prowse \(mathematical ecologist and Research Associate, University of South Australia\)](#) and [Professor Richard Kingsford \(Director of the Centre for Ecosystem Science, University of New South Wales\)](#) have separately reviewed the survey design and approach to data analysis. Both found that the program is robust and rigorous and is an effective way of counting ducks and provides critical data to ensure that duck season arrangements remain sustainable. Recommendations for refinements to the monitoring program contained in the reviews have been incorporated into the monitoring program.*

In our view, this comment is a misrepresentation of what Prof Kingsford and Dr Prowse actually found. These reviewers praised the effort put into design and planning but were clearly concerned by the inaccuracies involved in the practical implementation of the survey and (crucially) its population estimate.

Key concerns identified by Kingsford/Prowse include:

- The need to recognise the “***sometimes-competing dual objectives around sustainable hunting and conservation of species***”.
- “***It is important to clearly identify the uncertainties in the model-based estimates so that their use within subsequent decision-making processes does not lead to unintended population consequences for these species (i.e. determining quotas). Further, Victoria's game species do not only belong to or solely inhabit Victoria, and the current management system does not consider population drivers or data from outside Victoria.***”
- The survey focused heavily on two species which have reliably high counts – Wood Duck and Grey Teal<sup>46</sup> – and total abundance estimates for these species are more precise than for the remaining three species considered (Mountain Duck, Pacific Black Duck, Hardhead).<sup>47</sup> However the rather uncertain abundance estimates for these species are used to determine the total population estimate and hence the harvest quotas.

<sup>44</sup> This is evident from the documents disclosed by the Victorian Parliament, op. cit. Further discussed in Attachment A.

<sup>45</sup> Prowse and Kingsford, dated 28/9/2021 accessed at the GMA website:

[https://www.gma.vic.gov.au/\\_data/assets/pdf\\_file/0003/819282/Game-duck-review-Kingsford-Prowse.pdf](https://www.gma.vic.gov.au/_data/assets/pdf_file/0003/819282/Game-duck-review-Kingsford-Prowse.pdf)

<sup>46</sup> Grey Teal and Chestnut Teal were combined in the ARI survey results.

<sup>47</sup> Note that Pink-eared Duck and Blue-winged Shoveler were not considered by the survey at all, as the counts of these species were far too low for analysis. Nevertheless the GMA offered them no protection when announcing the increased bag size of 5 birds daily.

- A critical component of the survey was the “probability of detection” – a recognition that observers will miss counting some birds. A correction factor is then applied to account for those missed. But in this survey the correction factors appear to be too high, resulting in over-estimates. For example, “...*detection probabilities for [small] dams are likely to be greater than 60% as estimated*”.
- Relatively large proportions of game species are usually found on large wetlands, but it seems the survey used a pro-rata method of counting on such wetlands – counting over a portion of the area and then scaling up to a total estimate. The survey helicopter travelled around the outside perimeter. But if only a portion of the edge is counted, then “extrapolation to the entire area will inflate counts” because most birds are found around the boundary.<sup>48</sup>
- The (Binomial) mathematical approach used for the estimation of counts assumes that the probability of detection is constant, but that assumption was not valid in the field. The consequence is “*under-estimation of probabilities of detection and over-estimation of population sizes.*”
- “... *there were some clear gaps in wetland coverage... It was not clear why no wetlands in western Victoria were surveyed. There are a range of ephemeral wetlands in this region which could have held water.*” [Satellite images would show wetlands in the western region, but in fact they support very few birds due to salinity. Hence the survey would over-estimate birds numbers in western Victoria by assuming its watery areas were similar to those in other regions.]
- “*The classification between natural wetlands, dams and sewage ponds, with category sizes is simplistic.... there are large farm dams... which are significantly different to large storages (e.g. Dartmouth Dam)... Dartmouth Dam does not support any game species, despite its considerable size.*” Yet because the survey is based on average number of ducks per unit of water surface area, Dartmouth Dam would be given a considerable duck allocation.
- There are no replicate counts done (on different days) as a check to see if birds have moved over short-term time scales. [EAWS does replicate counts to estimate error.]

Not surprisingly, Kingsford and Prowse did not answer the critical question put by GMA: “**Are the estimates of waterfowl abundance and survey accuracy sound and reasonable?**” Instead, these reviewers (tactfully) referred to the list of concerns raised, and added:

**“... uncertainties remain in terms of estimating total abundances of the eight game species.”**

Kingsford also takes the opportunity in this document to refute the common criticism raised by shooters and GMA personnel, namely that the EAWS allegedly misses the ducks on farm dams. This appears to have been one of the driving factors behind commissioning a Victorian duck counting survey – at considerable taxpayer expense. Kingsford states clearly that the EAWS “*surveys small dams and treats data as an index [not a total count]*”.

**We take issue with the GMA’s misleading claim (see website text copied above) that “Recommendations for refinements to the monitoring program contained in the reviews have been incorporated into the monitoring program.”** The Kingsford-Prowse review was dated 28 September 2021 and the second helicopter survey of game ducks in Victoria took place from 19 October to 7 November 2021. It is unlikely that the timing would have allowed for these recommendations to be considered, discussed and implemented. We have received confirmation<sup>49</sup> that one of Kingsford-Prowse’s important recommendations had not been implemented, namely the replacement of proportional counts (and extrapolations) on large wetlands with comprehensive counts. The proportional count method leads to an inflated estimate of bird populations.

<sup>48</sup> The EAWS survey always covers the entire area of a large wetland.

<sup>49</sup> Private communication from D Taneski, GMA, 5 January 2021



Finally, another anomaly to cast further doubt on the ARI survey; neither ARI, GMA or Kingsford/Prowse have commented on the extraordinarily high number of Mountain Duck (Australian Shelduck) reported in these helicopter surveys (Nov 2020 and Oct-Nov 2021). In both surveys this species was estimated at 17 per cent of the total population, yet in GMA's "harvest" reports they average at 2 per cent of hunter bags over the period 2009-2020.<sup>50</sup> A possible reason for this discrepancy is provided in *Waterbirds* (p160):

*"It has only recently been confirmed that during the second moult [towards the end of the spring breeding season] Mountain Ducks like to concentrate in large numbers on a few suitable stretches of water – preferably large salt lakes near the sea or in sheltered estuaries."*

During the moult, they are vulnerable and flightless for 26 days. After moulting, they "*disperse widely to breed in any suitable lakes, rivers and marshes.*" It's likely that the ARI helicopter is counting the Mountain Ducks as they gather together during their second moult. However by the time the shooting starts in autumn they will have scattered widely – possibly out of Victoria.

**Comments from Kingsford and Klaassen regarding the Victorian helicopter count (refer the *Guide*):**

- *"The number of ducks in Victoria and SE Australia is unknown and, despite the best of efforts and the use of advanced technology, likely also impossible to know with great accuracy."* (p7)
- A robust total population estimate is "*as yet problematic*". (p20)

---

<sup>50</sup> GMA's 2021 "harvest" report is still not available, more than six months after that very short season ended.

## Submission to Game Management Authority re Native Duck & Quail Shooting 2022

By Regional Victorians Opposed to Duck Shooting Inc, supported by our key alliance partners

---

**Regional Victorians Opposed to Duck Shooting Inc (RVOTDS) is calling for the 2022 native duck and quail shooting seasons to be completely closed based on dire environmental factors, significant long-term decline of all waterbird indices, lack of critical data concerning Stubble Quail and protected species, and a severe lack of social/economic impact studies (on anyone other than hunters.)**

### Introduction

The GMA Act states that it is a function of the GMA to:

- S6 (g): promote sustainability in game hunting and
- S6 (i) to make recommendations to relevant Ministers in relation to - iii) declaring public land open or closed to game hunting, open and closed seasons.

S8 (b) of the Act requires GMA to perform its functions, (unless otherwise directed by the Minister in which case such directives must be published in GMA's Annual Report).

However, the GMA has not once closed a duck or quail shooting season despite presiding over some of the worst environmental conditions ever recorded. Previous governments cancelled duck shooting seasons in 2003, 2007 and 2008 for less dire circumstances.

In addition, S6(h) states it is a function of GMA to monitor, conduct research and analyse the environmental, social and economic impacts of game hunting. Further, S8A requires the GMA to have regard to (b) the principle of triple bottom line assessment, which means an assessment of all the economic, social, and environmental costs and benefits, taking into account externalities and (e) the principle of stakeholder engagement and community participation, which means taking into account the interests of stakeholders and members of the local community in implementing appropriate processes for stakeholder engagement.

RVOTDS, a not for profit incorporated association with over 5500 supporters, represents those who live and work around regional waterways, adversely impacted by duck shooting. In all of our submissions and communications to GMA we have provided significant evidence of adverse social / economic impacts to families, farmers and businesses. We do so again in this submission.

It should be noted that one in four Victorians now live in regional areas. It should also be noted that no government department has been able to estimate the number of thousands of public waterways open to unmonitored duck shooters, let alone signpost them or monitor hunters' compliance at more than a tiny percentage of them.

Finally, it should be noted that no risk assessments, no desk top studies, no consultations with nearby communities, have ever been conducted (other than at two wetlands in Mildura in 2019 which were subsequently closed to shooting for safety reasons). This would indicate that the information we provide to GMA regarding the impacts of hunting, would be of keen interest to GMA in order to fulfill their obligations under the Act.

The sheer number of public lakes, streams, rivers, creeks, wetlands and waterways where duck shooting is allowed, obviously means there is a gross lack of monitoring of bird species which may or may not be present, as well as a lack of monitoring of what is being shot. This poses a significant risk not just to the public, but to our dwindling native waterbird populations including threatened species.

**Quail.** Given its obligations under the Act, but even just considering sustainability generally, it is surprising GMA have never considered consultation and information pertaining to quail shooting seasons. This is our second submission to GMA outlining reasons why recreational native quail shooting should be cancelled in Victoria, same as it has been in other states, including South Australia (due to concerns for sustainability and lack of population data.)

**This Submission outlines the best available evidence of environmental factors and social/economic impacts of bird shooting to Victorian communities.**

**It is based on this evidence, we re-iterate, GMA must exercise its obligation to recommend duck and quail shooting season **closures**.**

**Restricted seasons are not a solution. In restricted seasons there are still significant adverse impacts to community and thousands of our dwindling numbers of native birds including threatened species killed and maimed.**



## **Ongoing shooting of native birds – an example of Victoria’s failing**

Australia is the worst in the developed world for species extinction and Victoria has the highest number of threatened species by sub region on the country.

Without doubt, the most robust, long-term dataset available regarding the health of waterbird populations, is the annual East Australian Waterbird Survey covering over a third of our continent, by the Centre for Ecosystem Science, University of NSW. This long term data tells us Australia’s native waterbird numbers have declined up to 90% in just the last four decades.

Worsening effects of climate change will stress them further. *“We’re going to see long term declines exacerbated”* (Head of Ecosystem Science, University NSW).

Hunting remnant populations, particularly when there is little breeding activity, is not sustainable.

## **Why did a shooting season occur in 2021 when the best evidence showed it should not?**

It is unclear why a shooting season was allowed to proceed at all in 2021 given the 1600 pages of documents regarding the 2021 duck season tabled in Parliament last year, showed:

- The Head of Biodiversity at the Environment Department (DELWP) recommended further shooting restrictions, if not outright cancellation of the shooting season.
- Total game duck abundance was well below long-term average and declined from the previous year despite better rain.
- Breeding continued to be suppressed for a fourth consecutive year.
- South Australia protected three of the game duck species: Blue-Winged Shoveler, Hardhead and Pink-eared Duck, due to low abundance. But Victoria dismissed advice from DELWP that the Hardhead met criteria for threatened species status and ignored evidence that the Pink-eared Duck had suffered serious decline in recent years.
- Game bird numbers in NSW were less than half what they were five years ago.
- In SA, the numbers of “game” ducks were only 25% of the long -term average, a 28% decline from the previous year.
- In Victoria, GMA’s ground count of “game” ducks showed an 80% reduction from the previous year.

The tabled documents also showed other concerning issues:

- Hunt clubs recommended a full shoot, irrespective of the damning science and of the fact they recommended a restricted shoot the previous year when bird numbers were higher. This obviously poses serious concerns about their regard for evidence or conservation.
- GMA’s initial proposed timeline for consideration of stakeholder submissions was less than three business days, suggesting a pre-determined outcome.
- GMA’s recommendation to Ministers appears to have been delayed as its Chair (a long time holder of a duck shooting licence himself according to documents obtained via FOI) attempted to obtain the results of the trial helicopter data.
- Leading scientists at DELWP advised against the use of this untested helicopter data due to its unreliability. In spite of this, and the clear evidence of the shocking decline in our waterbird indices, helicopter data was used to more than double the kill rate just months later. (RVOTDS have requested more information via FOI on this – the information was due to be released to us in November 2021. We are still waiting for this and have escalated the matter as a complaint to the Office of The Victorian Information Commissioner.)

# Letters

## Hunting makes no sense this season

WE cannot easily reverse a warming climate, or avoid the likelihood of more frequent and longer droughts and fire seasons. What we can change with the stroke of a pen, are the additional man-made threats such as recreational bird shooting, or we will have to take responsibility for aiding and hastening a catastrophic downturn of waterbird species.

It is often falsely believed that birds will simply "bounce back" — there are biological limits to this bouncing back because of the limited opportunities and options that birds have themselves.

Moreover, many successful breeding pairs will have become victims of past fire and drought catastrophes themselves and inexperienced birds may not have had time to acquire partners. Bearing in mind, that at the best of times only 25 per cent of any avian species ever breeds in a given year, it is predictable that the number of breeding events will decline this year.

It can thus be expected that breeding success of the surviving birds will diminish, even if conditions should remain reasonably good.

It is scandalous to allow any shooting season this year and it is particularly puzzling that the shooting season of waterfowl allows, tolerates or turns a

Sure you can Camp  
Fish down on the  
creek frontage...



blind eye to the shooting even of vulnerable and endangered species.

Native birds have a role to play in maintaining a healthy Australian ecosystem, healthy waterways and in control of pests. I would like to see shooters shoot clay pigeons as accomplished sportsmen and women, not as self-appointed executioners of native wildlife.

**Gisela Kaplan,**  
Prof. of Animal  
Behaviour, PhD (Vet.Sc)

ende  
yield  
ed s  
break  
ents  
ances  
to gn  
M  
taste  
ago.  
the  
love  
grain  
this  
and  
other  
out

This article by Prof. G. Kaplan — a highly regarded bird expert whom GMA have surprisingly never consulted — we believe expressed matters eloquently.

**Since last year's submission process, all waterbird indices have declined further.**

**GAME BIRDS FALL BY MORE THAN HALF ON LAST YEAR –  
NOW JUST 25% OF LONG TERM AVERAGE**

The results of the latest (39th) EAAWS *now* show:

- **48% of wetlands surveyed had no birds.**
- **Waterbirds are 41% down on 2019 (a year of record drought).**
- **“Game” ducks are down by more than half (58%) on last year and are at just 25% of the long term average.**
- **Breeding is still well below long term average and ibis (non-game) are responsible for most (83%) of it.**
- **All major indices show significant long term declines.**
- **All the above, is despite record rains.**

We wonder if these shocking statistics will make it into the "key points" of GMA's recommendation to Ministers this time.

GMA have often said, and on page 2 of the EAAWS report it states in point 5, "***Long term trends are more informative for predicting population status than year to year fluctuations***". The graph of NSW Riverina data does not show a long-term trend. It only goes back as far as 2015, so it masks the fact that in 2016 game ducks were at their lowest abundance in four decades of EAAWS surveys. Shooters speak of a recent “explosion” of ducks in the Riverina but a recovery to (almost) 2016 levels is still a very poor result.

But no doubt shooters will be pushing results of their second ever helicopter survey instead of long term data, in the hope the picture may look better to justify their recreational bird shoot. Will GMA be considering the “best available” evidence as is required of them in the GMA Act S8A(d) or will they once again buckle to shooters whims at the detriment of our dwindling native bird populations and rural communities?

GMA chose not to alert stakeholders to the only substantial peer review of the first helicopter survey, completed by Professor Kingsford and Dr Prowse in late September 2021. Their review is quite technical but (after consulting a maths expert) we understand that it raises serious concerns about the accuracy of the results from the helicopter survey. A number of concerns were raised that would lead to over-estimates. As these criticisms were published shortly before the second helicopter survey, we assume that the same significant shortcomings continued into the second helicopter survey.

**Castlemaine Field Naturalists Club (CFNC) have assisted with this submission by contributing the following comments.**

CFNC is strongly opposed to duck hunting, but we acknowledge that the current request from the GMA is not concerned with the policy but seeks comments on whether the 2022 season limits on duck numbers should be higher, lower or the same as for 2021.

Daniel Taneski (GMA) in his email to stakeholders on 25th November 2021 wrote: “Each year, Victorian Government agencies monitor a number of environmental and population *variables to ensure duck hunting remains sustainable in Victoria*” [our emphasis in italics]. We strongly believe that in the interests of having a ‘sustainable’ hunting season that the 2022 hunting season be curtailed to not just less than the 2021 hunting season but cancelled altogether.

Looking at the figures in the various reports:

- All game species show either no-change or a decline since 2020.
- All species are well below their peak levels (10%-15% of peak) which mainly occurred at the start of the data collection in the 1980s
- Most of western and northern Victoria has missed the extra rainfall experienced along the eastern seaboard.
- Most of Victoria has an ongoing soil moisture deficit meaning that run-off will not be filling wetlands and dams outside the mountainous areas and not creating breeding habitat.

All figures point to an on-going decline in duck abundance and habitat, the current ‘wet’ year an aberration.

- Page 38 of the ‘Considerations for the 2020 Duck Season’ describes how season 2020 was reduced because of low game duck numbers.
- The data show that 2021 numbers are generally less than 2020.

Any hunting is relying on the breeding of birds in other parts of the continent with Victoria being a population sink. This is not sustainable!

- The NSW Riverina is outside Victoria. Band 2 wetlands with maximum breeding are outside Victoria. This region should not be part of the calculations
- Nor is it morally acceptable for Victorian hunters to rely on birds that have bred in other States (NSW, ACT, Queensland) that have banned duck hunting.
- Further, in relying on the NSW Riverina for breeding the GMA figures include Plumed Whistling Duck (not a game species). **PWDs were the only species to show a year-on-year increase in the Kingsford report so should be removed from any calculations involving the NSW Riverina.**
- There seems to be reliance on the breeding of non-game species to make up the numbers.
- The summary of the ‘considerations’ report points to the need for a further reduced or no hunting season in 2022. Despite a predicted La Nina, the impact on breeding will be too late to justify a full shooting season.

**Based on the figures presented, we conclude the duck hunting season should be cancelled so as to prevent further declines in waterfowl numbers.**

We note also that:

- The ARI report is a fairly recent study (started 2020). Given the wide accuracy margins and lack of history to guide the use of the numbers any use of this report should use the L95 population estimate rather than the estimated population – precautionary principle.
- Not covered by the reports is any consideration of impacts on other species. It is well known that other non-game species are maimed or killed by hunters but the impact of this is not considered.

*Castlemaine Field Naturalists Club*



## Further critical factors which support a season close for 2022

1. Long-term effects of climate change which are predicted to worsen.
2. Birds' unique susceptibility to climate change.
3. Threat to migratory birds already experiencing significant decline.
4. Detrimental impact to bird populations of shooting monogamous bird species.
5. Adverse impacts of lead shot which is still used (impacts on people, animals and ecosystems).
6. Lack of data regarding game birds and threatened species present on wetlands prior to shooting.
7. Lack of data of game birds and protected species shot during duck season.
8. Lack of knowledge of where shooting areas are, and lack of compliance monitoring.
9. Shooters' critical knowledge gaps as proven by recent tests.
10. Lack of social/economic impact studies of duck shooting on the wider community.
11. Lack of data regarding the impacts of quail shooting including to the critically endangered Plains Wanderer which quail closely resemble.

The above points are detailed as follows.

1. The long-term trend of climate change and its impact on our waterbirds is rarely if ever mentioned by GMA. The Bureau of Meteorology has warned that our country is heating more rapidly than the global average. Worsening storms and floods, longer droughts, hotter, drier summers are some of the repercussions we are already seeing as a result of a 1°C rise in average temperatures. The bureau says we are headed for an unliveable 4°C rise in the next 80 years. The consequences for our wildlife will be catastrophic.
2. No consideration has been given by GMA to the fact that **birds are twice as vulnerable to climate change as mammals**. (Global Change Biology, Zoological Society of London – report by international scientists group based on 481 species in 987 populations around the world). With climate change set to only worsen, it is obvious our already struggling bird populations require protection from shooters.
3. No account is given by GMA to the **impact of duck shooting on migratory birds** who are in serious decline and particularly vulnerable to climate change and disturbance. Shooting disturbance at Victorian waterways adversely impacts their ability to obtain critical feed and rest prior to their long journeys along the East Asian-Australasian Flyway.

Of the species who use the flyway, 50 are in “catastrophic” decline and Australia is under numerous International obligations to protect them (<https://www.environment.gov.au/biodiversity/migratory-species/migratory-birds>).

We assume that the 2019 ARI report by Menkhorst on duck shooting disturbance to threatened species was influenced by GMA, as the “threshold” chosen for potential action is unrealistically high; it states that duck shooting “opportunities” will not be affected.

4. No consideration has been given by GMA to the ripple effect through bird species most of which form life-long pairs. In fact, 90% conduct joint parenting. (As a comparison, only 5% of mammals, including humans, pair up and raise young together.) When one of a pair is shot, it is likely any offspring won't survive and the remaining partner may never recover. The real impact to bird populations therefore of shooting the hundreds of thousands of birds reported as bagged each year in Victoria– even in “restricted” seasons – is far larger than just the “harvest” numbers. Refer [this article](#) by Professor Kaplan.

5. No regard has been given by GMA to the serious issue of **lead still used** legally in quail shooting and illegally in duck shooting (as reported most years). Lead is extremely toxic to ecosystems, animals and people even in tiny traces (emedicine.medscape.com/article/1174752) It is an insidious poison causing extreme suffering to animals who ingest it, such as dabbling ducks, swans and secondary predators like protected eagles. Given the decline in breeding noted the last several years, it is worth noting that lead also **inhibits waterbirds' breeding**. Refer this [short webinar](#) by Dr. Ruth Cromie – Head of Ecosystem Health, Wildfowl and Wetlands Trust (WWT).

GMA should be aware of the EPA analysis of a small number of Victorian wetlands in recent years and the toxic lead levels found in ducks (outside safe food guidelines) at Hearts Morass and MacLeod Morass (duck and quail shooting areas).

According to a Department of Sustainability & Environment report, each ammunition cartridge holds 30-45g of lead. Multiply 30g by the average number of 175,000 shot quail each year in Victoria (GMA harvest estimates) and one gets a staggering 5 tonnes of lead potentially pumped into Victorian (including food-producing) environments each season - without even adding in the lead deposited by missed shots. Lead is highly toxic.

A 2018 CSIRO study was scathing of Australia's failure to take seriously the risks to humans, animals and the environment from lead ammunition.

GMA must cancel the duck and quail shooting seasons for this environmental reason alone - until more is known about this lead pollution issue.

**Lead and lead toxicity**

– extract from [“lead Toxicity in Nz Brown Teal”](#) by Massey University NZ 2014

Lead is one of the most toxic metals known to man and can cause disease in wild animals, domestic animals and humans worldwide (Fisher et al., 2006). Lead is a highly toxic non-essential heavy metal found naturally in the environment in small quantities however environmental contamination can occur due to anthropogenic use of lead based products (Hoffman et al., 2002; Pattee and Pain, 2003).

The most common routes of lead absorption by animals and humans are by ingestion, inhalation or absorption through the skin depending on the type of lead compound (Pattee and Pain, 2003). Lead is commonly used in domestic items such as shot, paint, batteries, plumbing material, solder, fishing sinkers, galvanised wire, foil, construction material, petrol among others (Dumonceaux and Harrison., 1994; Locke and Thomas, 1996).

The most common cause of lead toxicity encountered in wildlife is ingestion of lead shot, fishing sinkers and other sources of lead found in the environment (Hoffman et al., 2002; Davidson, 2006). The most commonly affected wild birds are waterfowl and birds of prey due to either direct ingestion of lead or indirect means such as via prey containing lead shot (Samour and Naldo, 2005; Davidson, 2006; Pain et al., 2009; Lambertucci et al., 2011). Other terrestrial birds and seabirds are also at risk due to the anthropogenic contamination of the environment with lead (Fisher et al., 2006; Pain et al., 2009).

6. **Insufficient data regarding birds including protected species present on wetlands prior to shooting.** In previous years (before GMA existed) over 500 wetlands were typically surveyed for the presence of bird species. However, neither GMA nor DELWP have been able to list, map or even estimate the number of all the thousands of waterways where unmonitored shooting is allowed, let alone monitor what may be present on them. Pre-shooting checks are now far, far fewer than they used to be.

It is the epitome of irresponsibility to continue to allow shooting in these circumstances and ludicrous to suggest “sustainability” can be ensured with such a gross lack of critical data.

The following contribution was made by Hamilton Field Naturalists Club:

*"The Hamilton Field Naturalists Club has had a couple of comments to make:*

- *The GMA has consistently allowed hunting on wetlands at Lake Linlithgow, Lake Bolac and Tower Hill when many hundreds of Blue-billed ducks and scores of Freckled Duck and Shovelers were present– and even a flock of 50 Brolga on Lake Bulrush in one year. They have done that despite the birds having no other sanctuary areas to go to. We regard that as utterly irresponsible and uncaring.*
- *There are no safe sanctuaries for waterbirds in SW Victoria – since DELWP and the GMA are unwilling to put any wetlands permanently off-limits then there is absolutely no case for allowing any hunting on the region’s wetlands. Apart from conservation and animal welfare considerations, tourists have no hope of seeing ducks and other waterbirds at close quarters on lakes or swamps while the birds can be shot at there. Birds depart when people approach closer than about 200 m."*

*Secretary  
Hamilton Field Naturalists Club*

**7. Insufficient and unreliable data of birds shot including threatened species.**

GMA’s own “Season Considerations” documents state *“To effectively manage game species, it is important to accurately quantify the number of animals harvested”*. Yet this is never done.

Despite GMA receiving millions more in taxpayer funds, there is a gross lack of monitoring. Given the vast number of waterways where duck shooting is allowed, even the army would be incapable of such a massive undertaking.

While earlier regulators commonly checked shooters bags at around 60 wetlands – still far too low a number to be able to accurately estimate the impact of shooting at thousands of waterways – GMA have struggled to check a tenth of that number. It has recently been confirmed no hunters’ bags were checked in 2020 or 2021 due to COVID. GMA should have cancelled the shooting seasons until they could have performed this basic function, to at least help in some small way, their requirement to monitor compliance and promote sustainability in hunting. (The GMA Act S6).

Estimates of numbers of birds bagged by shooters are not only based on a survey of a small number of shooters then extrapolated out assuming the entire duck shooter base would be the same, but reliant on shooters’ memories and honesty. We are still waiting for the results of the 2021 duck shooter survey, more than six months since the shooting ended. This suggests the data collection and analysis is problematic.

Estimates do not include birds shot and left behind including protected species, found most years by the public, some examples below:

- ⇒ Box Flat 2013 *“The bodies of about 760 game ducks and 155 non-game birds were left on the water at the Box Flat flood plains near Boort. The shooting happened on opening weekend of duck season”*. (ABC March 2013)
- ⇒ Lake Toolondo 2016, *“The Andrews government is headed for a showdown in the courts over the illegal shooting of dozens of rare and threatened birds during the opening of duck season.*



*The shooting occurred despite the presence of Victoria police and authorized compliance officers". (The Age April 2016)*

⇒ Kerang 2017, *"The total number of illegally shot freckled ducks now stands at 112. The latest find takes the total number of birds gunned down in the opening weekend shooting spree to 1,247 and this was from just one of Victoria's wetlands."* (Medianet March 2017)

The shooting of protected species during "duck season" has been occurring for decades.

Sadly since GMA's inception, there has been little data collected on this.

However a Freedom of Information Request (FOI) resulted in our obtaining documentation by previous regulators which shows a sample of the protected species killed in duck shooting seasons in Victoria (sample six years to 1993).

In addition, the documentation clearly stated more than once, **that partial wetland closures do not protect threatened species like Freckled or Blue-billed Ducks.** (ARI Technical Report # 135)

Year	Collected by animal welfare	Collected by CNR	Total
1988	152	152	304
1989	273	392	665
1990	374	80	454
1991	435	119	554
1992	250	94	344
1993	813	159	972

Number of protected and threatened species found dead at several Victorian wetlands in duck shooting season each year from 1988 to 1993.

According to the CEO of GMA, the numbers of protected species illegally shot each season are not quantified.

This horrific fact is further confirmed by Arthur Rylah Institute (ARI) who say in regards to the risks or impacts of direct hunting mortality on non-target species;

Impact of duck shooting to protected / threatened species?

Impact to protected / threatened species:

*"that is a separate question that can only be properly addressed by gathering robust data on the rates of non-target species being killed or injured by hunters. Such data does not exist and would be extremely difficult to gather"*

(ARI 2019 Report "Waterbird Susceptibility to Disturbance from Hunting")

Little if any effort has been afforded this critical component of "promoting sustainability" in duck shooting.

**Table 29** Number of specimens of non-game wildlife found dead around waters used for hunting during the 1993 duck open season. The data for birds collected by members of animal welfare organisations are counts made by CNR officers of birds delivered to CNR Heidelberg during the season.

Species	Collected animal welfare	Collected by CNR	Total
Freckled Duck <i>Stictonetta naevosa</i>	229	57	286
Eurasian Coot <i>Fulica atra</i>	242	35	277
Blue-billed Duck <i>Oxyura australis</i>	84	7	91
cormorant species	44	4	48
Black-tailed Native-hen <i>Gallinula ventralis</i>	0	43	43
Black Swan <i>Cygnus atratus</i>	29	14	43
Galah <i>Cacatua roseicapilla</i>	21	11	32
small grebes	19	5	24
Musk Duck <i>Biziura lobata</i>	19	1	20
Great Crested Grebe <i>Podiceps cristatus</i>	14	1	15
Australian Magpie Lark <i>Grallina cyanoleuca</i>	0	13	13
corella species	7	5	12
ibis species	8	3	11
White-faced Heron <i>Ardea novaehollandiae</i>	3	6	9
Red-necked Avocet <i>Recurvirostra novaehollandiae</i>	6	1	7
Yellow-billed Spoonbill <i>Platalea flavipes</i>	0	6	6
migratory waders	1	4	5
Australian Magpie <i>Gymnorhina tibicen</i>	0	4	4
Silver Gull <i>Larus novaehollandiae</i>	4	0	4
tern species	0	3	3
Barn Owl <i>Tyto alba</i>	0	3	3
raven species	3	0	3
Darter <i>Anhinga melanogaster</i>	2	1	3
Dusky Moorhen <i>Gallinula tenebrosa</i>	2	0	2
raptor species	1	1	2
kingfisher species	0	1	1
Noisy Miner <i>Manorina melanocephala</i>	0	1	1
Australian Pelican <i>Pelecanus conspicillatus</i>	0	1	1
Fairy Martin <i>Cecropis ariel</i>	0	1	1
Little Friarbird <i>Philemon citreogularis</i>	0	1	1
Brush-tailed Possum	0	1	1
Total	813	159	972

*“In 1993, animal welfare organisations concentrated their efforts at Lake Buloke, but also collected dead wildlife from wetlands near Kerang and Colac. A wide range of dead wildlife were collected, including non-game duck species, waterbirds and Brush-tailed possum. ...Thirty eight dead ducklings were collected; these were not identified as game or non-game”.*

972 protected species found dead at several Victorian wetlands in duck shooting season in 1993. These included Australia's rarest native duck the Freckled-Duck, thought to be one of the world's rarest, Blue-billed Duck, swans, galahs, musk ducks, magpies and ibis.

*A clearer copy can be viewed in the ARI Technical Report No. 135.*

**Importantly, these tables show only a fraction of the true toll on our protected species which is likely much larger because the vast majority of waterways where duck shooting is allowed, aren't monitored.**

It is highly irresponsible of GMA – if they are concerned with sustainability – to continue to allow shooting when such a high number of protected and threatened species are impacted. Allowing shooting to occur in these circumstances is playing Russian roulette with our birdlife, many species threatened and unique to our country.

In their 2017 Hunters Bag Survey Report, ARI state that less than ten wetlands (out of thousands) were checked for wounded / un-retrieved birds. Just at these few, 18 birds were found including nine dead swans and two dead pelicans.

According to their 2018 report, only one wetland was checked for wounded/ un-retrieved birds.

In both the 2017 and 2018 reports, ARI's number one recommendation was that more wetlands needed to be checked and more data collated to be able to determine the impacts of hunting on waterbird populations.

Yet the number of any such checks for 2019 and 2020 was understood to be zero.



Birds left behind after  
duck shooting:  
including penguin,  
musk duck and pied  
cormorant (protected  
species). Picture Kim  
Wormald

8. **Serious shooters knowledge gaps.** As shown by GMA's recent knowledge tests:

- Only 42% of hunters of all animal types got a general knowledge question on personal safety correct.
- Only 37% of duck shooters were able to correctly answer a two-part question on wounding.
- Only 20% of duck and quail shooters were able to correctly answer a three-part question on identifying game species.
- Only 13% of duck shooters correctly answered the question on dispatch of downed birds.

Further, there are no ID tests for quail shooters, even though quail resemble the critically endangered Plains Wanderer which are the subject of a significant taxpayer funded recovery project.

These knowledge gaps pose a significant risk to people let alone our struggling bird populations - more reason GMA must insist on a season close.

9. **Lack of cost-benefit analysis or social/economic impact studies on the wider community.** GMA suggest that duck shooting is of economic benefit to rural communities. This statement is not based on a cost benefit analysis and ignores the analysis by independent economists such as The Australia Institute, Dr Kirsty Jones and VEAC Red River Gum Investigation reports which state duck shooting is detrimental to rural economies. It also ignores scores of surveys and petition feedback from rural communities. GMA's statement is purely based on a small survey of shooters, answers unverified, which does not take into account the adverse impacts to the wider community and the cost to the State of regulation and compliance.

Even so, the **latest survey summary report by DJPR showed duck shooting expenditure (according to shooters) dropped 46%** and associated jobs fell 31%, down to just 587 state-wide from 2013 to 2019\*. Quail shooting expenditure fell 58% and jobs 48% to a mere 202.

\*Duck shooters may argue their decreased spending is due to reduced season length. But the reduction in shooting days was only 12%. They may also argue reduced bag limits was a reason but this won't fly either, because in the survey, shooters said the main reason they go hunting is to "be in the outdoors" (not to kill animals).

The recent economic analysis by the Parliamentary Budget Office (PBO) put duck shooters at a potential spend of just \$4m - 10 m. When one compares this to the spend by 1.4 million tourists who birdwatched in the first year data was collected (Tourism Research Australia, 2019) which was \$2.88 billion, and noting that independent economists (and polls) show most tourists avoid shooting areas, it is quickly understood how duck shooting is a **cost** to rural communities.

A major failing of these hunter economic impact surveys is the omission of costs. The costs to taxpayers of law enforcement and compliance monitoring for example or of the adverse impact to tourism and other activities due to unmonitored shooters killing animals in public areas. Studies show most tourists - and domestic tourism is worth \$80 billion to Australia - avoid areas where shooting occurs.

Consider the impacts of "[coked up shooters](#)" and [campers' terrifying nights](#), of over [30 instances of hunting and firearms offences](#) in a single weekend.

The number of tourists to just one area where they shoot with cameras, like Yea Wetlands, is 30,000 and to Winton Wetlands 66,000 annually. And let's not forget Phillip Island Nature Parks which contributes around \$500 million a year to our state, and of this, \$120 million and 800 jobs just to the local government area.

To provide authenticity to the debate over the supposed economic benefits of duck shooting, it is important to consult with those in the tourism industry. Our submission includes comment from Susan Kerr travel:

*"It is well known in the travel industry that any form of animal hunting is anathema to most travellers and generally countries and regional centres have discovered in recent times that there is more financial benefit from 'wildlife viewing' than killing!"*

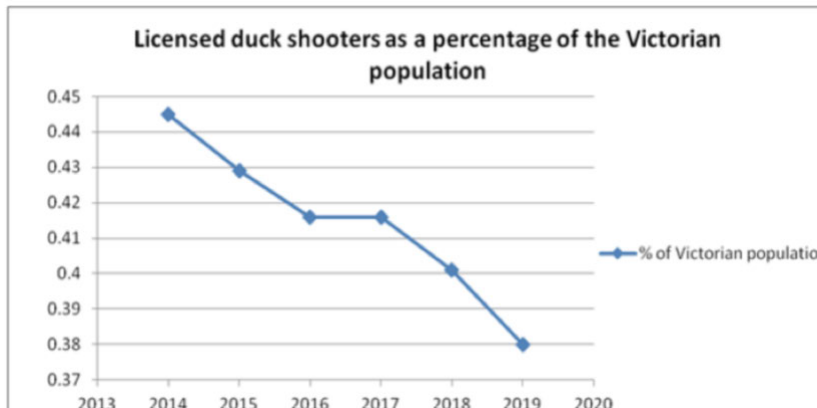
*There is a worldwide travel industry movement to train staff in educating clients on 'Not riding or harming wildlife' at all and many of these so-called tourist attractions have been or are in the process of shutting down.*

*Regional centres would see more tourism financial benefit by changing their mindset to promoting wildlife especially as bird watching is becoming more and more popular."*





GMA also incorrectly state duck shooting is “popular”, quoting numbers of game licences issued which is misleading because the population of Victoria has boomed. The accurate measurement is the percentage of the population interested in duck or quail shooting which is tiny (less than half of 1%) and declining. Half this tiny number again are active.



Less than half of one percent of the population are licensed to shoot ducks. Less than half again are active, yet this tiny number significantly negatively impacts the wider community and deters the tens of thousands of tourists such as birdwatchers flocking elsewhere. **Update: The figure for 2020 fell further to 0.35% - so low it is off the scale of this graph.**

Duck shooting, a declining pastime in which only 7700 participants partake is not “popular”, particularly when continual polls show the majority of Victorians – city and country – are opposed.

Birdwatching, one of the fastest growing pastimes in the world in which over 1.4 million participants took part in Australia in the first year data was collected (2019), is “popular”.

*And the former should not be allowed to hamper the latter!*

**GMA must cease incorrectly asserting that duck shooting is popular or of economic benefit to regional communities.**

In 2020, over 21 organisations including leading conservation, environment, regional and animal welfare groups provided statements / submissions to GMA calling for a season close. They were ignored.

In 2021, the number of groups calling for a ceasefire had grown, exemplified in the list of 44 major business, union, environment and wildlife organisations who signed on to our “Alliance” advertisement which ran in several major newspapers. Their members and supporters number in the hundreds of thousands. This is in line with the continual professional public polls which show the majority of city and country constituents oppose duck shooting.

In 2022, the number of First Nations Clans, business, union, environment and wildlife groups willing to publicly support our stance has grown further.

**This submission proudly includes the voices of regional groups – those on the ground, whose lives and livelihoods are impacted by duck shooting for weeks, usually months, each year.**

The following comment by Goulburn Valley Environment Group makes a powerful point:

*"Many wetlands across Northern Victoria receive environmental water for the promotion of aquatic ecosystems; waterfowl are an important link in the restoration of these wetlands.*

*The Victorian public and local communities have a significant investment, both financially and in the management of these wetlands for ecological outcomes.*

*Where water in these wetlands is wholly attributable to environmental water deliveries, hunting should be banned to promote multiple ecosystem outcomes.*

***I question the use of environmental water to facilitate hunting which in turns impacts wetland ecosystems.***

***Surely we Victorians are smarter than this!"***

***President of Goulburn Valley Environment Group***

GMA may have noticed the increasing number of articles in regional papers submitted by regional families and farmers impacted by duck shooting. Often these authors have submitted communications to GMA in the first instance to no avail. Hence it would seem not only is GMA not actively sourcing feedback regarding impacts of hunting to community but is actively dismissing it.

Attached to this submission are:

- Attachment A: The voices of regional Victorians around the state living with duck shooting.
- Attachment B: The comments of local community at Mount Alexander Shire requesting duck shooting be excluded from their local wetlands. Their petition attracted 483 signatures, mostly local, compared to a counterpetition run by duck shooters which obtained 21 signatures, only 11 locals.
- Attachment C: A first-hand account of a "Home and business under siege".

All of this is relevant in GMA's consideration of the social / economic impacts of hunting, taking into account externalities.

Despite their power to make recommendations to Ministers regarding public land open / closed to shooting, despite their requirement to consider a triple bottom line assessment of social / economic impacts of hunting, GMA have so far failed to exempt the locales of Attachments A & B, from shooting and we believe, failed their obligations under the GMA Act.

10. A word on Quail. It is highly irresponsible and a key demonstration of GMA's failings, that GMA allows full quail shooting seasons every year in Victoria without 1. holding any public consultation or 2. knowing critical quail population data.

Despite the fires and the fact there is little population data of quail before or after shooting seasons, despite the fact quail closely resemble the critically endangered Plains Wanderer, GMA has allowed a full Quail shooting season to take place in Victoria, with a full bag of 20 birds a day per shooter, with hardly any monitoring.

For the pitiful economic “benefit” claimed to be associated (according to surveys of hunters) - which has fallen 58% between the last two “economic” surveys - the harm being done to ecosystems in quail shooting is significant.

If GMA are concerned for sustainability, GMA should recommend as a matter of urgency:

- a moratorium on quail shooting until quail numbers are better understood
- mandate accuracy tests for quail shooters
- ban the use of toxic lead ammunition

These are all things GMA can recommend to Ministers and should have done so long before now, in the interests of sustainability. It would be in the public interest to know how many GMA staff are recreational quail shooters.

## **Conclusion / Recommendation**

Up until now, recommendations to hold duck and quail shooting seasons have been made by GMA based on little if any evidence. We are unfortunately seeing the ramifications of that in ongoing plummeting of bird numbers and stressed ecosystems.

**If GMA are at all concerned with sustainability, or the impacts of hunting on anyone other than a minority group of bird shooters, it’s long past time GMA recommended a season close for duck and quail shooting. They MUST do so for 2022.**

Thank you for the opportunity to make this submission. We hope to see GMA ensure the sensible outcome, that is, duck and quail season cancellations.

### Regional Victorians Opposed to Duck Shooting Inc.

*Regional Victorians Opposed to Duck Shooting Inc. is a not for profit association which incorporated in April 2018. It now has over 5500 supporters, consisting largely of those who live or work around Victorian duck shooting areas adversely impacted by it. [Click here](#) to see some of what rural people said.*

Attachments:

- Attachment A: The voices of regional Victorians around the state living with duck shooting
- Attachment B: The comments of local community at Mount Alexander Shire requesting duck shooting be excluded from their local wetlands. Their petition attracted 483 signatures, mostly local, compared to a counterpetition run by duck shooters which obtained 21 signatures, only 11 locals.
- Attachment C: A first-hand account of a “Home and business under siege”.



## References

- <https://todaysveterinarynurse.com/articles/management-strategies-lead-toxicity-a-threat-to-wildlife/>
- [https://www.smh.com.au/environment/conservation/bird-numbers-unlikely-to-fully-recover-despite-drought-breaking-rains-and-floods-20211206-p59fc0.html?fbclid=IwAR0UwesiMoItbCH\\_F0ijZpk3KWpMP6J3MjU\\_cRj5QlAwBhMJ92DlWuAmu9A](https://www.smh.com.au/environment/conservation/bird-numbers-unlikely-to-fully-recover-despite-drought-breaking-rains-and-floods-20211206-p59fc0.html?fbclid=IwAR0UwesiMoItbCH_F0ijZpk3KWpMP6J3MjU_cRj5QlAwBhMJ92DlWuAmu9A)
- CSIRO on toxic lead ammunition
- Dr Ruth Cromie Lead poisoning in waterfowl.
- [https://www.environment.vic.gov.au/\\_\\_data/assets/pdf\\_file/0022/32494/Use\\_of\\_lead\\_shot\\_in\\_cartridges\\_for\\_the\\_hunting\\_of\\_waterfowl.pdf](https://www.environment.vic.gov.au/__data/assets/pdf_file/0022/32494/Use_of_lead_shot_in_cartridges_for_the_hunting_of_waterfowl.pdf)
- <https://www.theguardian.com/environment/2018/oct/30/humanity-wiped-out-animals-since-1970-major-report-finds>
- <https://australiascience.tv/exploitation-of-wildlife-is-the-fast-track-to-more-infectious-diseases/>
- <https://www.haaretz.com/science-and-health/MAGAZINE-sheer-speed-of-global-warming-is-decimating-birds-say-scientists-1.6302093>
- <https://www.birdlife.org/worldwide/news/how-will-climate-change-affect-bird-migration-our-scientists-explain>
- <https://www.australiangeographic.com.au/topics/wildlife/2018/11/going-extinct-by-neglect-the-state-of-australias-threatened-birds/>
- Tourism Research Australia National Visitor Survey year ending December 2019  
<https://theconversation.com/what-australian-birds-can-teach-us-about-choosing-a-partner-and-making-it-last-125734>
- Global Change Biology, Zoological Society of London
- <https://www.australiangeographic.com.au/topics/science-environment/2019/07/birdwatchers-identify-big-decline-in-seabirds-off-south-eastern-australia/>
- Submission to Regulatory Impact Statement for Victoria's Draft Wildlife Regulations 2012 -The Australia Institute
- The Arthur Rylah Institute Hunter Bag Surveys 2017, 2018
- Ecosystems Across Australia are Collapsing under Climate Change – The Conversation 5/7/18
- The Australia Institute; “Out for a Duck”.
- VEAC Red River Gum Investigation

## ATTACHMENT A

### The Voices of Regional Victorians – a key group among GMA’s stakeholders

Here we present an extract from 2018 survey submissions that RVOTDS received from people who live and work with duck shooting around the state including:

Alexandra, Armstrong Creek, Bairnsdale, Ballarat, Barmah, Barnawartha, Barabool, Basalt, Bobonawarra, Bolinda, Boort, Buckley, Bullengarook, Bunbartha, Bundalong, Bunninyong, Byrnside, Cassillis, Castelmaine, Churchill, Colac, Congupna, Connewarre, Crip Point, Crossley, Dereel, Drysdale, Dunkeld, Eagle Point, East Geelong, Elingamite, Geelong, Gherang, Grovedale, Hazelwood North, Healesville, Heathcote, Hoddles Creek, Homerton, Horsham, Kallista, Kennington, Killarney, Kirwans Bridge, Koondrook, Kyabram, Lakes Entrance, Launching Place, Leopold, Longford, Mallacoota, Maldon, Marlo, Maryborough, Mildura, Millgrove, Moe, Monbulk, Mooroopna, Mornington, Mount Eliza, Mount Taylor, Mount Duneed, Nagambie, Narbethong, Nathalia, Nerrena, Newmerella, Numurkah, Ocean Grove, Ondit, Port Fairy, Portland, Quantong, Raglan, Rosebrook, Rushworth, Seymour, Smythes Creek, Stuart Mill, Tambo Crossing, Torquay, Torrumbarry, Traralgon, Tuerlong, Upwey, Ventnor, Warring, Wallington, Warburton, Wardiboluc, Warragul, Warrnambool, Wendouree, Wonthaggi, Woodend, Wycheproof, Yandoit, Yea

Summary of major concerns about duck shooting that were expressed in responses:

- Concerns for safety
- Had never seen any authorities at the waterways during shooting season
- Do not believe duck shooting benefits their communities
- Distress/anxiety from duck shooting in close proximity
- Issues with illegal trespass, removing habitat, leaving rubbish, fires unattended
- Children were upset/frightened

Specific comments are listed in the following pages grouped by theme.

- Loss of Freedom/Amenity
- Mental Health (including that of Children)
- Law Enforcement – Unhappy with Government/Authorities
- Environment Issues
- Economic Impact
- Violence and Cruelty
- Intimidation

## LOSS OF FREEDOM/AMENITY:

"Lake Wooroonook ... I don't feel safe for my children or myself to visit this beautiful lake..full of many native bird and animal species"

"..less outside time, feeling less safe, feeling people we know nothing about are near us with guns"

"It's ridiculous locals can't enjoy the area in peace because they have to allow this barbaric activity"

"Living on the Murray River trying to ski or fish during this time is dangerous"

"..stops amenity like bird spotting, cycling, walking"

"Exclusion from wetlands you tend all year is unfair"

"It impacts on my rights to access public land"

"As a rural person I hate it"

"It makes no sense shooting is allowed when so many people want to visit and are living in close proximity."

".. it's taking away the public's rights to enjoy the outdoors"

"Boats roar up and down guns blasting on an otherwise quiet wildlife refuge"

"The effect of having shooters dressed in camouflage hiding in bushes is disturbing and that's putting it mildly"

"..shooting too close to a retirement village. Dangerous and distressing"

"[More] People are moving into the area [*near the duck shooting*].."

## IMPACT ON MENTAL HEALTH, including CHILDREN

"The Vietnam vets in the town don't find the season pleasant"

"Shooting native waterbirds only a few meters from my house turns my home into a warzone"

"My husband is a war veteran. After a few days I hear him saying "I just want some peace"

"It's awful. Sounds like a war zone from first light.."

"It's deeply disturbing, sends a shock through the body every time a gun goes off. The sound echoes through the area from a great distance. Makes me feel very unsafe."

"..I was pregnant at the time and my baby jumped inside me each time a shot went off"

"We feel we aren't safe in our own back yard when the shooters are in the wetlands behind our house."

"We often have shot pellets fall onto our roofs and if we are outside it falls on our heads."

"..firing across my boundary with shot gun pellets striking the house. One occasion saw a member of the family struck."

"Don't like it at all. Totally unacceptable. Our granddaughter is often in our back yard, and we have to keep her inside if shooters are around. "

"..noise and horrific sights of dead and injured animals"

"Distresses our family"

"The noise is disturbing and sickening to our family "

"Disgusted and ashamed it's happening"

"I am distressed by the idea and the noise of gunfire close to my home. I do not feel safe being outside"

"We're constantly tired during duck season and the guns scare our granddaughter. Our dog is terrified"

"On edge and extremely sad"

"Mentally disturbs me that people find joy in breeding game species and killing.."

"..accident waiting to happen"

"..uneasy, angry, distressed and disgusted"

"Leaves us feeling defeated and stresses. Always on high alert"

"Safety wise, I hate shooters near my house and pets"

"It is unsafe. They shoot not far from our home"

"..gunshot pellets raining down on our roof"

"..we've had gunshot fall onto our roofs and if we are outside it falls on our heads."

".. just end the shooting for the sanity and safety of local residents".

"It wakes us up and distresses the dogs and children"

"My horses run around the paddock terrified. My dog barks constantly. My cat hides. All the wildlife is very disturbed and so am I. It drives me crazy"

"..anxious and dread this time of year"

"We are all frustrated. Children and animals are frightened."

"My family are constantly scared"

"I was prescribed anti -anxiety medication"

"..[there is] gunshot in our water as pellets have fallen on our roof which collects our water supply"

"..sick to the stomach"

"It's distressing and unnecessary. It leaves smelly carcasses to rot. Children with me .. very upset to watch this useless destruction of life."

"The noise alone is interruptive to my sleeping children, which ruins their entire day schedule."

"It's very frightening. It certainly frightens the kids"

"Every child I've spoken to is upset and confused as to why adults allow such a thing to happen"

"Children are horrified, particularly when they come across several unclaimed bodies"

"..they cry and scream. Best way is to keep them away from the experience"

" Children love nature and love animals. Then to have animals dropping from the sky through an act of man creates fear of the world."

"My children don't need to hear the slaughter of animals. They become frightened. This is not a gun toting country. Duck shooting is un-necessary and cruel"

"I don't know a child that's comfortable hearing gunshots. Children in general are extremely sad if they know people are shooting animals"

## **LAW ENFORCEMENT - UNHAPPY WITH GOVERNMENT/AUTHORITIES**

"..nieces and nephews ask why it's allowed. When I say the government allows it they say change the government"

"Get someone off their arse to come and have a look and experience it"

"I've photographed abandoned dead and injured "game" species and dead and injured protected species. My images have been sent to the Ministers"

"There is a public safety issue as shooting occurs next to households and the road"

"Trespassing on my workplace is common. We have no ability to prove who it was...we re-enforced our fences, but they still enter. Have been told there's nothing we can do."

"As landowners we find the need to roster ourselves to keep an eye on trespassers, drunken men with guns and native waterbirds dying around the lagoon"

"I complain every duck season to the shire, and they say it's legal. I complain to the Agriculture Minister (and) they say it's legal"

"Outrageous that we as landowners seem to have no rights"

"..appalling discrimination in favor of a minority. Very much a gender issue.. 99% are blokes"

"..outrageous really. When else would this impact be acceptable?"

"I've been making complaints for 20 years. Overwhelmingly authorities don't respond/aren't interested"

"..we had someone shooting not 100m from a major road. We rang police and nothing was done."

"Duck shooting needs to be stopped. If they want to shoot, do it on their own land not ours. "

"Not one [*compliance officer seen*] in 20 years I've been here"

"..saw a man driving away with a ute full of black swans.. nothing was done because I couldn't get the license plate"

"I have tried to appeal to the Shire of Strathbogie on the grounds that the river is too populous to no avail"

"I am a farmer ..I keep a pretty open mind about this. However, there is no policing acts of cruelty or stupidity during the season"

"..chainsaws to cut wood, human waste, toilet paper everywhere, rubbish thrown into the water, campfires left burning.."

"Complaints to Game Management Authority regarding illegal activities received nil replies"

"We have written to Parks Victoria and the Government and have been ignored by both"

"..barbaric activity, totally un-enforced"

"I was told shooters are local police officers and we can't speak out about them"

"..disgusted the government still allows this. Maybe in the 1950's ...but not now. "

"The taxpayer should not have to foot the bill to put environmental flows into our wetlands for a minority group to hold regional towns to ransom for 3 months of the year. Do what's right and let our towns flourish"

"I don't understand why people feel the need to kill and maim animals. They also seem to feel they have a god given right to travel through any private property they feel like"

".. In more progressive states like NSW where it's banned, the waterways are used by many people. The practice is so arcane, to appease a minority and Victoria needs to move ahead for the whole community"

"It's male dominated... encourages lack of respect"

## ENVIRONMENTAL Issues

"We live across the road .. every year, shooters litter the wetland with beer, UDL cans (sometimes left in bird boxes), and human faeces "

"The numbers of water birds is much lower than 10, 15 years ago. ..(and) they get blasted by shooters!"

"In my 40 years in a rural area I've never heard "Oh I'm glad duck shooting is on as the ducks are so out of hand" They've never been a problem"

"Shooting in the ..one area which is one of the five most important remaining habitats for the Orange Bellied Parrot, ... a recognised habitat for other endangered species ... is an abuse of natural heritage"

"In this day and age, we need to nurture nature not kill it. It's having a hard enough time as it is. The older generation has had the best from this planet. It's about time we take responsibility for our actions and set a good example for younger generations"

".. It's an accident waiting to happen, bad for tourism and a nuisance at the very least. Not to mention rare duck species here as well as spoonbills. One year a hawk was found with gunshot in it"

"Ducks are part of our landscape because they serve a purpose, they serve many purposes"

"No one needs to hunt ducks here in Australia in the 21st century"

## NEGATIVE ECONOMIC IMPACT

"Duck shooting is the reason I sold and moved"

"I would like to buy a property with water views at Cairn Curran.. but do not want the risk of duck shooters injuring and frightening dogs and horses."

"..unsettling stock"

"I have racehorses and it stresses them out"

"..(shot gun pellets) in the middle of a cow's head"

"..animals hate it. Chickens change laying times"

"..distresses my horses"

"I run a dog training school and the dogs are terrified"

"My neighbours horses bolted from shot pellets falling onto it and then it got tangled in the fence"

"I've had horses go through fences because of it"

"..stock caught in the fence"



"My dogs are terrified and urinate every morning when shooting starts. Through the day they hide under the bed"

"My hens stop laying"

"We move our outside animals away from the wetlands near us for fear of them being shot. "

".. dog who was so scared of the gunfire she escaped many times by biting her way out. She broke most of her teeth"

"I think most people find it barbaric and un-necessary. It's spoiling the chances of rural communities getting money from tourists"

"I had to give up my night shift job because I couldn't sleep during the day because of gunshots in close proximity... financial impact on my family"

"..(economic benefit of duck shooting) is total bullshit."

"Other states don't seem to suffer from banning duck shooting and neither would Victoria if we had some leaders with conviction"

"..they confirm it prevents tourists from wanting to be at the ..campground - especially the school groups that might otherwise come during that time of year"

"If anything, it scares tourists away"

"..international visitors at the local lookout have asked me what the gunshots are about and are appalled when I tell them"

"Tower Hill... attracts international tourists...that shooting and game dogs are permitted, the usual response is incredulity... a bad message for these people to take back to their home countries".

"..tourism access to the lake and bush areas is curtailed because of danger"

"It's never been (lucrative).. just ask the local store"

## **VIOLENCE AND CRUELTY**

".. an injured duck.. its bill was split in half by a gun wound and it was unable to walk"

"Somebody shot a whole family of ducks on our waterhole last year except for one poor duckling who swam around by itself"

"I spent many years as a shooter.. witnessed swans, freckled ducks, cockatoos shot.. hundreds of birds. Birds are left injured."

"First-hand experience, as a boy driving past a river, seeing ducks wounded and trying to get away"

"It's dangerous and teaches young children that cruelty to animals is accepted by our community which it's not"

"..don't like getting injured wildlife on our dam"

"A neighbour found a dead wallaby with a spent cartridge in its pouch"

"I have wounded ducks flap across the ground to find shelter near our house"

"Violence has an impact on all people and animals in the vicinity and has the potential to encourage others to behave violently."

"It promotes violence"

"Calling it a sport doesn't change that it is killing for fun, something most humans have evolved past"

"Native animals and wildlife should be enjoyed not harmed"

"Killing anything un-necessarily is violence"

"Killing animals for fun and pleasure should be illegal and stopped. It is not a sport"

"It's archaic and cruel. It's also a minority of voters who want it. Most humans don't approve of unnecessary shooting and risking of endangered birds' lives"

"Duck shooting is a barbaric pastime, there is nothing sporting about it"

## INTIMIDATION/ BULLYING

"Duck shooters came onto our property without permission, my husband when confronting them had a shotgun poked in his chest."

"Gun lobbyists are intimidating"

"There is an over-riding aggressive feeling of "it's our right" from shooters and they hold the gun"

"They get close to my house with kids in it and I don't want issues with them"

"We have had death threats"

"..seems to be a lot of yuppies from the city dressed in cammo gear ready for combat"

"I am intimidated by boat loads of blow-ins dressed in camouflage, shooting over my land"

## **ATTACHMENT B**

### **Mount Alexander Community 2021 Petition**

#### **I want the area to be a sanctuary (free of bird shooting) because..**

- I'm sick of hearing gunfire dawn to dusk for weeks and months and being left to clean up rubbish when shooters leave.
- Shooting and killing of our native wildlife has no place in a compassionate society. Duck shooting is cruel and abhorrent. Also, I do not want my peaceful amenity destroyed by a handful of individuals with their shooting and abusive behaviour.
- Shooting beautiful water birds is not defensive!
- It may have been caused by a dam on the Loddon River, but it has become an area of natural beauty and of refuge to wildlife. Its status as a refuge should be confirmed.
- When nature has been so stressed over the last two years give the wild ducks a break. Too many other birds also use this area and too many Protected birds get shot, as you already know.
- Wildlife is becoming increasingly important in itself and as part of our lives. Recreational shooting is cruel, destructive and has absolutely no useful or essential purpose except to amuse an increasing few individuals who enjoy killing helpless wild birds both those targeted and those that become collateral damage. It's time to stop this!
- I don't believe in cruelty to any animals & want the beauty of this sanctuary to be protected for all fauna & flora
- It is not sport to kill beautiful water birds and should not be allowed
- Environment should be safe for everyone to be able to enjoy peace and tranquillity without threat of guns
- There are so few places for these poor birds to breed, particularly with climate change and diminishing water areas for nesting.
- Shooting birds for sport is barbaric
- Shooting is wanton destruction, not sport or food supply.
- Duck shooting is cruel and callous. Mt Alexander Shire should follow through on their agreement to end this barbaric sport.
- I like peace.
- It saves and protects the environment
- Our native wildlife are a precious resource and not fodder for recreation.
- Animals and flora are way more fun than killing ducks
- we need to conserve the precious ecosystem of which birds are an essential part.
- Such a beautiful spot should be protected and not ruined by an influx of people.
- It's the perfect area for a sanctuary. It needs to be done. The area will be enhanced and benefit all living beings. It's a no brainer, win win situation. Do it!
- Public waterways should be closed for shooting for safety and preservation reasons
- Sanctuaries preserve nature. Nature is life. Life is the most important asset we have.
- Cairn Curran and surrounding wetlands are important places for a variety of birds that make the area their home and are used by migratory species. Creating a bird sanctuary will assist to ensure the safety of birds and other fauna into the future.
- I like birds.

- People and birds need it
- Two years ago, the Mount Alexander Shire Council voted to ban recreational native waterbird shooting in the Shire in favour of safer, more peaceful and beneficial activities. Mount Alexander Shire and Cairn Curran Reservoir specifically, is home to threatened species such as the White-bellied Sea Eagle. Cairn Curran is important for a large range of waterbirds and raptors as well as a feeding ground on the flyways of migratory shore birds, many of which are in significant decline. Residents of the Shire and members of the public who visit, want to enjoy the area in peace and not be confronted by shooters in army fatigues and gunfire near their homes and recreation areas.
- Protect birdlife, quiet enjoyment.
- To protect the birdlife, including ducks, that frequent Cairn Curran reservoir.
- Many threatened species of birds inhabit Cairn Curran Reservoir, and it should be kept as a safe haven.
- Wetland birds need protection and Cairn Curran is a popular recreation area that people should be able to visit without shooters disturbing the peace
- Wetlands are critically important to protect birdlife and are constantly being diminished.
- This area is used by many people for many recreational purposes. It is inappropriate to allow hunting in the area. In addition to public safety issues, the rich wildlife of the area is part of its value to the people who visit.
- Protect birdlife and ensure threatened species have a protected habitat
- I have watched numbers of waterfowl and other native birds plummet in my fifty-plus years. Please let us keep what little remains of Victoria's wild birds and natural habitats.
- Birdlife and animal life should be protected not hunted. People should be able to enjoy the area and appreciate the wildlife in peace, knowing the wildlife is being protected, and not shot for sport. Our wildlife is already under continual threat from climate change, more extreme fires and droughts, habitat loss and development. We should be protecting them not adding to these threats by allowing hunters to kill and wound them. Hunters have no place in our environment. I was planning to visit this area soon, being new to the area, but I won't be going if I know hunters use it.
- Shooters have convincingly demonstrated over the years that they can't be trusted to follow restrictions on the type of bird shot or catch numbers. I can't see any good reason why Victoria, unlike other States, doesn't totally ban duck shooting.
- Animal welfare
- Our local wetlands are a significantly biodiverse refuge in our region, and of international significance. I support them being declared a sanctuary. I support the rights of wildlife to live without additional and totally unnecessary dangers. I support the rights of local residents to enjoy the amenity of our region, without awaking to a fusillade of gunfire in the morning. I support Mt Alexander council's decision, and I support it being enforced.
- This is a special wetland with a wonderful array of indigenous flora and fauna, and we need to preserve and protect such unique and healthy areas such as this now before it is too late.

- It is an important recreational area, passive and active with no room for guns
  - Protection of birdlife.
  - Duck shooting is incompatible with the conservation and recreational values of Cairn Curran
  - It should be a place wildlife and the environment can be enjoyed.
  - the protection of biodiversity contributes to the well-being of all life. It is essential we think not only of ourselves and easy profit but of future generations. We owe it to leave the world a better place for having been here. An abundance of varied birdlife brings great joy.
  - I abhor recreational bird shooting or hunting of any animals.
  - I care about our native birds
  - Ensuring biodiversity around Cairn Curran would support the health of the reservoir, a sanctuary and more native vegetation would support this
  - Preservation of wildlife and harmonious recreational activities should be a focus
  - I'm strongly opposed to recreational hunting. The species using the wetlands need to be protected.
  - Preservation for birds and wildlife is very important
  - I deplore duck shooting as a 'sport'. Also, because I love seeing the variety of birds some migratory and others resident and enjoy the peace of the surroundings. Some species are rare, and I don't believe many so called sporting shooters know or care what species they are targeting.
- 
- I don't want people with guns shooting birds
  - The area will sustain and protect the variety of bird life and also attract visitors to the region.
  - Native birdlife is essential for healthy ecosystems. Shooting ducks and water birds is unnecessary loss of key species in wetland ecosystems.
  - The Cairn Curran Reservoir and surrounding wetlands are a vital haven for our birds and need to be protected from disruptive activities such as duck shooting.
  - We need more sanctuaries!!!
  - We need to be protecting our wildlife and natural areas for so many reasons. We are part of the eco system. Anything the damages it will have knock on effects. Also, I really want my children to be able to continue to see and appreciate our local wildlife and be able to pass on the same love and knowledge to their children.
  - I believe the environmental value is higher than the recreational shooting value
  - Wetlands are an important and endangered ecosystem and duck shooting is not well controlled and monitored with many protected species killed.
  - Wetlands have become scarce in this area and it's critical that these ecosystems are preserved in perpetuity. And many birds have been lost in the 2020 fires, no more should (ever) be shot.
  - We don't need duck shooting, we need ducks, as we need all wildlife to prosper.
  - The shooting of birds is in my opinion not a sport. Birds are precious and need our protection especially as the destruction of their habitat is ongoing.
  - I urge you to protect our wetland areas and make them a safe place for our birds to inhabit.
  - It's important for wildlife and humans

- All creatures need protection to help maintain a balance in nature and to provide people an environment to enjoy and educate.
  - Our wildlife is most important and needs protection
  - Native animals all across Australia are being destroyed. We need to preserve our precious wildlife and wetlands while we still have them.
  - With sharply increasing encroachment by human habitation in this shire, our wildlife is under enormous strain due to habitat loss and predatory domestic animals. Combined with climate change, the risk of species loss and ecosystem collapse has never been higher. The benefits of a well-managed sanctuary will have far-reaching benefits. I am vehemently opposed to duck hunting - it is not only cruel and pointless, but also harmful to a wide range of species - including humans. The primary eradication programs need to target feral pets, deer and foxes! And this needs to be done professionally (so female populations are prioritised). After the catastrophic losses of wildlife and ecosystems during the black winter/spring/summer fires of 2019/20 protecting ALL remaining wildlife must be our priority.
  - To protect of endangered wildlife
- 
- Protection of our wild-life and my personal protection from unwanted confrontation with shooters on public land. . .
  - Protection of threatened species, safety to general public
  - Significant species under threat.
  - Cairn Curran is a valuable water catchment for our region and provides safe haven to a myriad of wildlife and birdlife in the Mt Alexander shire.
  - There are species of birds that are under threat and require protection from harm.
  - Cairn Curran is important for a large range of waterbirds and raptors as well as a feeding ground on the flyways of migratory shore birds, many of which are in significant decline. In particular, Cairn Curran Reservoir specifically, is home to threatened species such as the White-bellied Sea Eagle. We must keep our birdlife protected and safe from those who kill birds for a sport.
  - Duck shooting is cruel and unnecessary. As duck numbers are in decline it should be banned.
  - There are a number of threatened bird species that live in the wetlands. Giving it sanctuary status will help protect these birds.
  - In addition, duck hunting is grotesque, with approx. 25 per cent of birds only being injured rather than killed quickly and relatively painlessly. Under one percent of the population shoots birds.
  - Cairn Curran Reservoir Is a vast stretch of water and surrounding wetland that is of vital importance for the preservation of migratory species, whose feeding and resting sites are rapidly diminishing world-wide, AND as a safe habitat for the local birds that live in what is currently still a well-vegetated area of central Victoria. Moolert Plains were recently saved from new battery farms. Save Cairn Curran as an adjacent sanctuary to add to the safety and protection of birds and bushland.
  - Our native birds are a precious and special element of our world, killing them for no good reason is a disgrace
  - It is an important gem of nature for birds and other wildlife, and our sanity.
  - I am an avid bird watcher & there is no place for the destruction & harm caused to our wildlife in our State or indeed throughout Australia

- We moved to the country from Melbourne 3 years ago. It is a pleasure to share our space with birds & animals that are indigenous to our region. To support our principles, we've erected bird boxes in some of our trees & near our dam to attract ducks.
- To protect the Birdlife.
- We must protect the diminishing numbers of birds, and because habitation loss must be halted, or the very basis of our life will be destroyed.
- Our bird life needs protecting.
- Duck shooting is barbaric and unnecessary
- It is a family place for all sorts of activities - shooting is not suited to here.
- Having visited and fished on this beautiful lake, I am aware of the significance of this special, wetlands habitat for birdlife from waterbirds to raptors and feel that duck shooting would greatly reduce the current population of birdlife where wetland areas like this are being affected by climate change. There have been recent dry years when the lake was very low and blue /green algae affected the habitat for the birds and other water life. With the climate becoming warmer, the natural environment at Cairn Curran should be made into a sanctuary to protect all the birdlife and other fauna.
- Many bird species in the area are threatened and endangered. Shooters have shown to have poor species recognition. This area will be a far greater community and environmental asset if left free of shooters.
- Duck shooting does not represent the values of the broader community anymore. In the face of a changing climate and continued loss of biodiversity sanctuaries are critical to achieving the goals stated in Victoria's Biodiversity 2031.
- I support the safety of all waterbirds and disapprove of duck shooting. I want our local waterways to be safe and welcome sanctuaries to all waterbirds.
- I want out birdlife to be safe and protected
- More and more of our native wildlife are threatened with extinction due to loss of habitat and the poor policing of already existing protection laws.
- To protect of endangered wildlife
- We need more sanctuaries
- It will preserve our ecological inheritance. It is a sanctuary not only for wildlife but also for our next generation to enjoy.
- The slaughter of birds for human gratification should end, and the natural environment they live in should be protected for the bird's future safety
- Without shooting and motor sports, Cairn Curran could be a worthy asset for generations to come. Go there on a day of shooting our dickheads in motorboats and it's a living hell. A day without them is a beautiful place. And if you were a duck the answer to this question is pretty obvious.
- It is a precious environmental asset.
- It is a perfect nature site with many varied ducks
- As our climate changes and human activity impinges on ever increasing areas of the land, significant wetlands such as this are becoming the last safe refuges for birds and other species which are heading toward endangered status at an alarming rate. We need to act now to protect our wildlife before critical species disappear forever. This is an opportunity to do something good for life.



- There are few wetlands in the region so Cairn Curran should be protected.
- I value our unique wildlife, particularly our water birds and raptors.
- Because Cairn Curran provides a safe habitat for many different bird species, and it should be managed as a safe haven for same.
- We need to ensure wetlands are protected
- The decline is unacceptable as SPORT! it's cruel & should be curtailed!
- It's a significant environment for endangered species and a safe haven in shooting season. Our birdlife is unique to this country. FLIGHTWAYS FOR MIGRATORY BIRDS HUGELY THREATENED WITH LOSS OF THEIR USUAL DESTINATIONS. A sanctuary for birds is significant for birdlike and environment. Loss of this will have extraordinary repercussion.
- Birds are important for the health of farms, their right to exist and the ecology that depends upon them - birdsong is good for mental health. We need a network of safe places for birds to live. Please think carefully on this
- I live close by and use the Curran to walk my dogs and talk with friends, I want to be safe, and I don't want to listen to shooters killing our beautiful water birds.
- It good for the balance of the local environment
- Duck shooting is incompatible with the conservation and recreational values of Cairn Curran
- I love the area and the wildlife.
- We need to protect native wildlife
- I don't want birds shot and the risk that people shooting at the lake poses to other people is unacceptable
- Our wildlife is under increased threat, numbers are in decline, and we need to conserve native birds and their habitat not shoot them
- The birds living here & visiting are very important and must be protected.
- I believe in protecting birds and their habitat.
- Nature is precious for our future and our children
- Duck shooting is an outdated hideously cruel hobby, it's not a sport. Our wildlife needs all of our protection we can give them before it's too late.
- It is rich in animal and bird life and becoming a sanctuary would protect the birds in particular which are under threat from climate change and shooters.
- Native water bird numbers are in steady decline, and they not only need to be protected from being shot, but have safe havens to go to and breed
- Wildlife is decimated enough in this country. It's an utter disgrace.
- Native animals all across Australia are being destroyed. We need to preserve our precious wildlife and wetlands while we still have them.
- The wetlands are home to many wonderful and charismatic species
- Wildlife is sacred
- To protect the wildlife and so I can use the reservoir as a kayaker all year round.
- Cairn Curran is a haven to many water birds, including pelicans, swans, and threatened species such as the white-bellied eagle.
- Many local people use Lake Cairn Curran for their family recreation - huge safety issues

- It is so hypocritical if this government allows shooters to decimate our threatened birdlife in Victoria considering the tragic loss of large percentage of our native fauna in the recent 2019 bushfires. Victorians have donated millions in a huge effort to restore and retain these fauna including birds. It would be a complete reversal of the steps taken to save these species. Many birdlife species in Victoria are struggling to survive as it is. Allowing deliberate killing of our beautiful birds in the name of "sport" is devastating and ludicrous to all caring and intelligent people. Please stop it all.
- Recreational shooting of waterbirds is barbaric and cruel. This area should be protected for benefit of ecology and wider community values.
- We need peaceful areas with wildlife, not dangerous, unpleasant gunfire, or cruelty. My son and I like to kayak there. Can't think of anything worse than being around people firing guns at innocent bird life.
- It is imperative our wildlife is protected. Shooting animals and birds for recreation is cruel and unnecessary. It should be banned immediately.
- Ducks and other local wildlife need protection
- Our bird life deserves to be protected especially given the vagaries of our climate
- Allow birdlife to prosper.
- As habitats diminish and the need to protect existing wildlife and environment becomes more and more imperative, we need to relegate all additional sanctuaries as a priority.
- The environment and wildlife need to be protected.
- Cairn Curran Reservoir should become a wildlife sanctuary... -a sanctuary supports precious wildlife -as well as a range of peaceful human activities. Allowing anti-social activities such as duck shooting pushes out all others. We don't want to be around it.
- With native waterbird numbers down by 90%, they need all the protection they can get.
- We need to consider the impact our behaviours are having upon our wildlife and environment from the perspective of preservation and conservation not human pleasure and gratification. I am concerned about the ongoing eradication of habitat for wildlife as humanity intrudes into these spaces. I am all for protecting such spaces and providing areas where wildlife can be left in peace. I am also greatly concerned by the multiple reports of irresponsible bird shooters who are unable to accurately identify bird species, who shoot beyond their allotted kill count and who leave wounded birds to die. I don't support duck shooting primarily because of these behaviours which unfortunately seem to grow every year.
- Bio security of native animals
- Birdwatching is my passion and the environment. Please make this area a sanctuary for both the wildlife and for the sake of environmental tourism,
- I value wildlife diversity over recreational shooting.
- We must always have areas of sanctuary for our waterbirds- they deserve no less and almost certainly a good deal more than we have given them in the past
- Duck shooting is a cruel barbaric non-sport. The family uses that area for birdwatching and don't see why it should be barred from us for the sake of such a sickening purpose. Mount Alexander is better than that!
- The safety of our nature is important

- Nature should be preserved and it's our responsibility to respect what was there before we came here. no one owns Nature.
- For the protection of wildlife
- It is so beautiful to go there and see birds living naturally there.
- My children adore wildlife and in particular bird life, a commitment to protect wildlife habitat ensures the enjoyment of wildlife for Generations to come.  
Protecting wildlife corridors and habitats formally also supports the United Nations Sustainability Goals, specifically SDG 6 (6.6), 13 and 15. Meeting these goals by 2030 will support peace, health and keeping global warming to below 2 degrees. Every action, every wetland, every biodiversity corridor counts. It also supports the goals of International Union for Conservation of Nature (IUCN) IUCN, a membership Union composed of both government and civil society organisations. It harnesses the experience, resources and reach of its more than 1,400 Member organisations and the input of more than 18,000 experts. This diversity and vast expertise make IUCN the global authority on the status of the natural world and the measures needed to safeguard it.
- We must protect the creatures we share the earth with.
- We should be preserving not destroying the natural habitat and wildlife of the region. There is precious little left as it is.
- We need to protect our wildlife
- I live here for the peace and quiet and native flora and fauna. Not to have it shot up by weekend cowboys
- I want Cairn Curran to become a Sanctuary to protect our beautiful native waterbirds.
- Each year, during duck shooting season, shooters leave behind copious amounts of rubbish, carcasses and waste. The number of natives on Cairn Curran seems to have reduced over the years & it would be wonderful to see those numbers increase again
- Native birds (& animals) need more protection, or we will lose them.
- Enough animals and birds have suffered at the hands of humans. Our extinction rate of native animals is one of the highest in the world. We need to protect all wildlife for many reasons beyond extinction. Without them our ecosystem will collapse.
- Our native birds and wildlife species need to be protected and preserved
- Duck shooting is incompatible with safe access by the broader community, and with contemporary norms that are opposed to the destruction of native wildlife.
- Our biodiversity, particularly our waterbird populations, are continuing to decline with a trajectory to extinction. They need safe places to live, feed and breed.
- Also, every year protected birds are illegally shot during duck season demonstrating that many hunters are unable to follow the rules.
- to protect wildlife and habitat
- Duck hunting does not stack up in this area across the realms of animal welfare, protection of threatened species, amenity, and human safety. I and virtually everyone I know support the Shire implementing this ban in full, and in the near term.
- We need to save SAFE places for birds and other wildlife!
- Preservation of threatened birds, and community safety and public amenity reasons.
- Too many of our native flora and fauna are becoming extinct through climate change

- Water birds need protection now more than ever and a sanctuary is a far better visitor destination than a shooting range.
- Areas such as these are extremely vital for our Fauna and Flora as continual destruction of habitat is having such a devastating impact on all our important and dwindling natural areas.
- Habitat loss across the shire continues and with more development and increased population significant sanctuaries are essential.
- the waterbirds deserve protection not death
- More biodiversity and beauty are a plus for the region
- I am deeply concerned at the decline in the populations of waterbeds, particularly "game species".
- The impact on all water birds by shooting is severe, not just the ducks.
- Making this and other wetlands in the Shire free of hunting will be a wonderful initiative that others should follow.
- Cairn Curran Reservoir is home to threatened species such as the White-bellied Sea Eagle. Cairn Curran is important for a large range of waterbirds and raptors as well as a feeding ground on the flyways of migratory shore birds, many of which are in significant decline.
- Cairn Curran is a popular place for both locals and tourists. Allowing duck shooting here would have a negative effect upon people wishing to visit here. It would also create a negative impression of the region, with people less likely to come and spend money in and around Castlemaine. Also, there are many native birds in and around Cairn Curran, including sea eagles, that would be likely to be shot by indiscriminate shooting.
- The area should be for peaceful enjoyment for all species
- Wildlife needs refuges
- The wildlife and Birds need to have some secure areas for their safety and survival. Not all water areas need to be available for shooting. Humans without guns also should be able to visit an area without shooters around during duck season.
- I want the bird life protected from shooting.
- The area belongs to all. It is already a major wildlife sanctuary, particularly for waterbirds many of which are endangered due to loss of habitat and urban expansion. The use of firearms in this area is totally inappropriate and is dangerous.
- Goulburn Water should immediately enact the Council ban on the shooting of ducks in this area.
- I love birds and duck hunting is cruel - and in an era of declining wildlife unnecessary
- It deserves to be protected
- The natural environment (including wetlands) is diminishing due to global warming and human population pressure. This is already placing pressure on declining bird numbers. We should not be adding to this by shooting ducks and consequently killing rare species such as freckled duck. Game shooters do not always distinguish between species.
- 1. To protect the native birds and other wildlife that lives in the area. 2. For the safety and sake of all the people that visit the area.
- Habitat protection is vital to ensure continued survival of species threatened by human activity.

- If we don't set aside these areas, we will lose our wonderful birdlife and the natural surroundings they need to survive. These areas of nature bring us to a peaceful place in a crazy world and are as important to humans as they are to the wildlife.
- For human safety reasons, for animal welfare reasons, for conservation reasons, for economic benefit reasons. Native wildlife in Victoria is being destroyed at an ever faster rate with claims of population explosions when entirely the opposite is occurring, to justify the mass slaughter of Australian wildlife in the state. The current Labor Government is promoting and enabling the killing at over twice the rate, than that of the previous Coalition Government in the state. In Victoria 88 native species are currently on the government kill list plus other native animals with no so called protections - ducks and quails are among the latter. Australian wildlife in Victoria have almost no places of sanctuary, mass killing activities are being undertaken by the Victorian Government on public lands including state and national parks. Any place of sanctuary is therefore welcome.
- We need to ensure the permanent safety and continued breeding of our Native wildlife so that we, and future generations can continue to have this wonderful asset in our lives.
- I am a frequent visitor to the Shire for recreational purposes, including birding. I wish to see the area made a sanctuary so it can safely be enjoyed by all locals and visitors and out of concern for preserving our valuable wetlands fauna, in particular birds.
- Grey-headed flying foxes traverse this region en-route from Warrnambool and Colac to their colonies in Bendigo and Tatura. Shooting endangers these animals who are active at pre-dawn and daybreak returning across open water after foraging for nectar, pollen and fruit. The bats are major pollinators of our forests and of over 100 species of native trees. They will roost for a few days in a local bush before proceeding to major camps at Bendigo, Tatura and beyond. The indigenous megabats are listed as Vulnerable to extinction federally (EPBC Act 1999) and are protected under Victorian law (Flora and Fauna Guarantee Act 1988). In spite of protection (\$5000 penalties apply for killing a Grey-headed flying fox), they have been shot over water at other Victorian wetlands.
- The threats to our native ducks, other waterfowl, and our unique flora and fauna are increasingly threatened by extreme weather events on top of the continual environmental degradation at our own hands. Proactive actions are needed to protect our wildlife and protecting Cairn Curran and other waterways in our Shire from the needless shooting of wildfowl for 'pleasure' is one small step forward.
- It is a life support system. It supports a diversity of life.
- Shooting results in unavoidable and horrendous cruelty. Our wildlife needs and deserve protection.
- Our Wildlife are losing their homes. Land needs to be preserved for them
- We should protect nature and not destroy it. For the health of all of us and our planet we need to retain what little we still have. Please put a stop to all duck shooting and help create a peaceful area for the animals, birds and the community. We need the birds to be alive not dead.
- Wetlands are vital
- I care about the wildlife, and wildlife deserves a home

- It's a terrific place for people from Castlemaine, Maryborough and elsewhere to visit and enjoy nature.
  - It is about time that the mindless shooting of ducks for 'sport' is stopped.
  - It is a place to be enjoyed for its peace and the beauty of its waterbirds, at least one of which is a threatened species. But threatened or not they enhance the environment for the majority of local residents and visitors. The recreational shooting of waterbirds is an unnecessary activity that often results in the abominable suffering of the birds.
  - Fauna & Fauna need places for safe place & home to thrive & to keep people healthy
  - The wild animals that still manage to enjoy such a life should be allowed to do so without risk of getting shot and maimed or killed.
  - This area is important habitat for a wide range of birds and other animals. It is also too close to houses to be safe for shooting
  - Our native wildlife has already been under enough stress with bushfires, drought, climate change and shooters. Please protect out native waterbirds
- 
- I am opposed to duck shooting as an amateur sport. Duck shooters are rarely discriminatory in their targets and our diminishing numbers of native wildfowl deserve to be protected. The only justification for shooting is culling overpopulations, particularly of feral animals - this should be done by professional shooters.
  - Our waterbird populations are in decline, and need more protected habitat
  - Shooting and visitors enjoying nature don't mix. Wetland habitat is increasingly rare.
  - Because we have already destroyed so much.
  - Habitat for wildlife is depleting rapidly in Australia
  - We need to protect all native species including ducks. Duck shooting is brutal and not a sport. A sanctuary will inhibit the capacity of shooters to unnecessarily kill native birds.
  - We need sanctuaries for waterbirds, not hunters.
  - Wild animals are important to our ecosystem.
  - Wetlands are of huge ecological importance. Victoria has lost large areas of wetlands and swamps. Naturalists from Alexander Humboldt onwards have pointed out the damage to economies and to society as a whole. Killing wildlife of any kind has been shown to be detrimental. Duck shooting is cruel, and shooters are repeatedly shown to be killing protected species. Areas of the Western District are now being rehabilitated and the wildlife is returning. The economic benefits from tourists interested in wildlife will far outweigh the benefits from duck shooters. We urge you to protect this area and to make it into a sanctuary.
  - As humans, inhuman acts like shooting wildlife in the name of recreation is not needed. Some may want it, but it is not needed
  - It is refuge for people and wildlife alike
  - Our native wildlife need protection. At the moment they have very little.
  - I regularly go bird watching there.
  - Our remaining wetlands are extremely important reservoirs of biodiversity. Not many of them remain after the massive effort throughout SE Australia to drain them.
  - Animal welfare, public safety and amenity reasons

- Such an important area needs protection as do the species who either live there or move in and out.
- I believe that the wildlife of our Shire and particularly the birdlife which includes migratory species is in dire need of our protection in order to survive. Much of our birdlife is endangered, some critically and it is our duty to do everything to help them.
- We actually need more & more areas for sanctuaries, there isn't enough & there can never be too many.
- Wildlife keeps getting pushed out of their habitats.
- It is so valuable for future generations.
- I oppose recreational bird shooting. It is barbaric. I support the proposal to make Cairn Curran and its surrounds a wildlife reserve, to protect and support a wide range of bird species.
- Although some shooters are responsible, many are not. Our native wildlife suffers the consequences of mistaken identity or simply the thrill of the moment. Even without the killing/wounding aspect, the roar of gunfire frightens and disorients not just target species but all wildlife. Public amenity and safety are also an issue. It's pretty difficult to go for a walk with gunfire blasting. Time for a change to a more considered, respectful and educated future for us and our native birds, mammals and ecosystems.
- We are rapidly losing these places of beauty and where the welfare of our birds, fauna and flora can be protected.
- We need to provide habitat for native species in order that we can all survive on this planet
- It's a public area for recreation and observing the natural flora and fauna. It is NOT a place for shooters who pose a danger to people, animals and birds in general.
- The life of these wetland birds is important for future generations to enjoy/appreciate
- Duck shooting is cruel and unnecessary
- For nature conservation
- The ongoing habitat degradation and climate change is causing a major decline in waterfowl and other species which will likely cause the extinction of some species. Duck hunting exacerbates this problem as well as adding a significant level of cruelty to the species concerned. No hunter can guarantee an instant kill of a fast moving bird and the spray of pellets usually causes injuries that are not immediately fatal. In addition, many other species are killed, either through mis-identification or hunters deliberately shooting these species. Finally, there is a significant number of birdwatchers and wildlife photographers (more in number than registered hunters) who spend as much, if not more in regional communities but who avoid areas where there is active hunting thus depriving local businesses of their custom during the hunting season.
- Or wildlife is struggling
- I am a local resident and feel unsafe with shooting occurring in my area, also I don't think the birds like being shot.
- With so many endangered birds we need to stop pleasure shooting. NOW



- We need to preserve our precious wildlife and habitats for all living creatures including ourselves, especially for next generations, to be able to continue appreciate what we have now.
- We have an extinction crisis and need to protect all species. Killing innocent animals, birds or fish is not okay. Shooting must end.
- Duck hunting is a totally outdated practice that leads to damage to many other bird species.
- Hunting is practiced by a tiny percentage of the population and is allowed to continue in spite of the view of the majority.
- in a time of climate change all species need sanctuaries if they are to survive, let alone thrive. Too many species are in the vulnerable to endangered category and this will only get worse if a strategy of protection is not implemented.
- I am a frequent visitor to the area and appreciate the environment of the area.
- It is an important refuge for many bird species, including the magnificent White-bellied Sea Eagle, a variety of ducks, as well as several species of shore birds who rely on this area for feeding before undertaking their amazing journey to the far north for breeding. Duck shooting is barbaric and an insult to a beautiful and peaceful environment.
- Cairn Curran is an important wetland for both human recreational purposes and for bird habitat and conservation. A sound and appropriate decision has already been made. It must be acted upon urgently.
- To watch the birds-not kill them!
- Our native wildlife and wetlands are very precious
- I value the environmental asset that our shire may provide for many species of wildlife including some rare migratory species.
- Cairn Curran is also a valuable asset and resource for human health and wellbeing.
- Wonderful BirdLife
- It's a place that has lost all of its natural habitats... it would be nice to protect and support life that doesn't have a voice in politics
- We fish and water ski here with our kids we don't want people shooting the wildlife it's unsafe and unnecessary
- Our native wildlife needs protection.
- It is a precious resource for humans and animals. Shooters can still practice their skills using targets. Lead pellets pollute the water affecting all organisms from insects to humans. In this day and age, we should have more respect for the animals and environment.
- Our birdlife is so threatened, and the lake hosts a huge range of birds.
- I love watching the birds in the area
- It is a beautiful spot that needs protecting
- Way too much land has been for human use.
- Our wildlife has suffered terribly due to lost habitat.
- We need to everything we can to preserve our environment and to protect our wildlife
- Many species are threatened with extinction and this loss of biodiversity will eventually affect the health of all life on earth
- Many birds are at risk here. We need to be proactive and protect what is left

- C.Curran is an important refuge for wildlife
- These areas need to be preserved or the natural progression of man will eventually destroy them and the creatures that live there.
- Cairn Curran Reservoir is a home to many species of birds, both on the water and around the adjacent land and vegetation.
- waterbirds have been subject to massive population declines due to recent droughts and wetland drainage. Cairn Curran could be a local refuge.
- It is the main wetlands area in this region, and many different species of birds and animals live there including turtles, platypus, ibis, cranes, pelicans, ducks to only name a few. It is a special area and should be treated as such.
- Now is the time to preserve as much of our natural habitat that we have remaining to us.
- Because we need to protect what wildlife we have
- It's urgent that we leave safe refuges for the diminishing numbers of waterbirds. An added bonus it would bring ecotourism to the Shire.
- I would like the area to remain as interesting for bird life as it was whenever I visited in the past.
- Cairn Curran is a beautiful peaceful area which I visit frequently as a birdwatcher. It should NOT be used as a killing ground of our unique wildlife and waterbeds in particular during the outdated and barbaric "duck hunting season". Cairn Curran reservoir is also used by migratory birds and they should NOT be at risk of being shot and killed or maimed by gunmen. I have seen this happen first- hand.
- As voted by the council, please implement the ban of hunting at Cairn Curran and make the area a peaceful sanctuary for all time.
- I'd love for those beautiful and endangered creatures to be protected and preserved
- The plant and animal life are entitled to it. We are losing far too much already.
- Our water birds need every wetland to be a safe place. Their numbers are seriously depleted already and should not be reduced even more.
- There are too many cowboy shooters who "accidently" shoot other native birds. The duck population is not out of control. Their numbers do not need reducing.
- I'd like to protect native flora and fauna
- To preserve the habitat for local plant species and wildlife, which also helps maintain water quality and absorbs toxins.
- In a country of mass extinction of native birds and animals we should not have recreational killing of our birds.
- Birds will be protected
- It's obvious that killing defenceless beings is a crime.
- We should be doing our best to protect and enjoy our native birdlife in a natural wetland environment. Shooters could be more useful by shooting at deer that are destroying our natural environment
- Shooting birds of any kind has no place in an area used by many for leisure, recreational activities and camping. Further "recreational" shooters have been demonstrated to be indiscriminate in what they target leading to the death of threatened species. Many Australian birds are already under pressure due to development and climate change; further pressure for the sake of the "recreation"

(destruction?) by some is frankly obscene. Shooting does not belong in this environment. Make Cairn Curran a wildlife sanctuary.

- Duck shooting is abhorrent. All wildlife should be protected. Cairn Curran Reservoir must become a sanctuary.
  - Cairn Curran is a key habitat for many important and threatened bird species.
  - Indigenous birdlife must be protected
  - Our relationship with "Nature" is custodial. Nature will be here long after mankind has been relegated to the rubbish bin of history.
- 
- To encourage and support the appreciation and conservation of our natural heritage
  - It is worth protecting
  - There is no place for further endangering bird species. It is a great place for human recreation (fewer screaming boats and jet skis would be good too), dog walking, bird watching. Shooting foxes and rabbits, at specific times only, could be an option for people desperate to kill things, but leave our peaceful environment and wonderful birdlife alone!
  - We need to put an end to the barbaric slaughter of native wildlife. There are not enough protected areas in this country.
  - Of the beautiful native water birds living here
  - there's a wonderful array of birdlife there
  - it is home to threatened species such as the White-bellied Sea Eagle. Cairn Curran is important for a large range of waterbirds and raptors as well as a feeding ground on the flyways of migratory shore birds, many of which are in significant decline.
  - I grew up in Newstead and I've witnessed the devastation of duck throughout my life, it's time that we conserve our bird life from this senseless slaughter.
  - I frequently visit the Newstead area, to visit the reservoir and surrounding area to view the wildlife
  - It's their home, we can't destroy homes
  - We need protected areas to keep our beautiful wildlife safe
  - Duck shooting is incompatible with the conservation and recreational values of Cairn Curran
  - The waterfowl in our area are a tourist attraction. It makes no sense for birdwatchers and shooters to share this space.
  - We have lived in this area since early childhood, it is special to us. We want to share it with likeminded people who will assist in the protection and security of the local flora and fauna. We have a diamond in our backyards which requires preservation.
  - Duck shooting is brutal and unnecessary. No one likes it. Let's get into the 21st century!!
  - It is important to protect our wetlands
  - The natural environment is the charm of the place. Hearing constant shooting and seeing wounded birds makes my family want to leave. Can't have friends here during duck shooting season because they get very upset. It's a loss of tourism income for the town.
  - Duck shooting makes me feel sick. This area should be so much better than that.
  - Many species need protection, some endangered to the point of extinction, and many water birds' numbers become depleted.

- I am heavily opposed to the recreational shooting of birds, especially in an area home to endangered species.
- It's important to protect endangered birds and the species that are endemic to the local habitat. All bird species that visit and or live within the natural wetlands of Cairn Curran should be protected and the proposed sanctuary will provide that assurance and prohibit the ad hoc slaughter of defenceless birds
- We need to protect our natural environment from the insensitive ravages of man
- Wildlife needs protection
- Changing the way that Cairn Curran is viewed will enable a shift in management to a regenerative conservation process rather than a simple access to recreation.
- There has been too much destruction of flora, fauna and natural ecosystems locally, nationally and globally and I would like to protect what remains.
- Two years ago, the Mount Alexander Shire Council voted to ban recreational native waterbird shooting in the Shire in favor of safer, more peaceful, and beneficial activities. Duck shooting is set to commence again soon and so it is urgent that the Council's decision is now implemented. Public waterways have been closed to shooting elsewhere for safety and public amenity reasons. The same must happen now in the Mount Alexander Shire before the Duck Shooting season begins. Please act to implement the wishes of the Council and the people of Mount Alexander Shire.
- We need to protect our bird species.
- To protect native waterbirds
- Safe places are necessary to ensure the survival of wildlife.
- We need sanctuaries
- Our birdlife needs as much help as we can give to sustain their very existence. Their beauty and presence brings well-being to the community in much need of healing places.
- For reasons of safety and public amenity
- A sanctuary will provide a home to threatened species of waterbirds. Ensuring a natural and safe habitat for a wide range of waterbirds is more important than allowing shooters access to this area. Death and destruction of our native wildlife is intolerable in this day and age and needs to stop. Designating Cairn Curran and the surrounding wetlands as a sanctuary will provide a much-needed protected area for otherwise endangered species of waterbirds.
- Waterbirds should be free to enjoy their life in the wetlands without being occasional targets in a pointless gun sport where none of the shooters actually need to eat them in order to survive. Let the shooters blaze away at clay pigeons that's ok.
- All wildlife needs a safe refuge, especially in an area surrounded by so much agricultural land.
- It will also create an ecotourism opportunity for the region.
- I have never visited Cairn Curran Reservoir, though in our local area, but now I will (TOURISTS!) for the nature and beautiful birds – the only creatures to whom this place truly belongs, not just us AND MOST CERTAINLY NOT BIRDSHOOTERS. Completely outraged and opposed to "recreational" bird shooting in the Shire. SHAME ON YOU YET ANOTHER MINISTER AGAINST THE ENVIRONMENT . We all

need the life support, peace and tranquillity of a healthy natural world, birds and humans alike. HUMANS FOR THE WATER THEY DRINK AND NEED TO GROW FOOD . What no one needs, and I don't understand the power of their minority, are bird shooters! Think about it for a minute or two people. Just one minute or two. What does bird shooting really actually achieve, and please let me know your answer. So sick of this shit to be honest really. Get it together people, with all due respect, I know it's hardly ever simple or easy, but it can be if you just: DO THE RIGHT THING!

- I believe our water birds need protection and a safe place to breed
- It is essential to preserve habitat
- Shooting is dangerous to other recreational users. Threatened species use the area.
- Slaughtering animals for fun is barbaric
- For the protection of vulnerable wildlife
- I enjoy being out in nature, even more so after months of lockdown. Sadly, we continue to lose important habitat everywhere for wildlife both big and small. It is so important to save & protect these habitats. I love to walk, admire the plants, watch & listen to the birds and frogs, to search for tiny insects and even nocturnal animals. There is such a range of bird species to be seen here. What a valuable resource such an area will be for both local residents and visitors.
- I thoroughly oppose the so called "recreational" shooting of our duck species with the death and destruction of other birds which contributes to a significant drop in numbers each year. Cairn Curran needs to be declared as a sanctuary, a haven for the many species of native and migratory birds so they can feed, flourish and live out their lives for the benefit and enjoyment of everybody.
- There is no benefit in shooting birds, only cruelty.
- Duck shooting is a risk to threatened species, creates contamination, and damages the local environment. Duck shooting is totally unnecessary and excludes use and enjoyment of Cairn Curran by community members.
- It is so important to protect the birdlife in this unique area
- In the face of climate change, loss of natural habitat and increasing population growth our local natural areas are under pressure and need protecting and conserving, not harvesting for "sport". Cairn Curran is an important site for many waterbird species, along with the ecology that supports them. Duck hunting does not fit with modern expectations, waterbird numbers are on the decrease according to Birdlife Australia and every year non-target species including protected birds are injured or shot. Not to mention the disturbance of their habitat by shooters' presence. I hear the "hunting" each season from my home, and am disturbed by the shooting, often beginning before the official start time. Our Shire would receive far greater economic benefit from passive and eco- based tourism than from seasonal duck hunters who "own" Cairn Curran during the hunting period.
- It is a key place for waterbirds (and other species) in our local area. I am part of a community group that does local bird surveys in the adjoining Muckleford Forest (part of a Biodiversity hotspot) on a quarterly basis to improve our biodiversity data - and we add our data to the Victoria Biodiversity Atlas.
- Slaughter of our native waterfowl is not recreation or sport. It is perpetrated by 0.04% of the population and brings an immeasurably small amount of revenue to MAS. Only some need to pass an ID test to participate leading to many 'non-target'

species being killed or injured and left. Poor practice with no financial gain for the region involving a very very small number of people yet having a big impact on native fauna. It must stop.

- I write as secretary of the XXXXX, Mount Alexander region. Our reasons for opposing duck shooting are laid out on our website.
- I don't agree with having bird shooting seasons in Victoria, especially at large wetlands like Cairn Curran that are homes and feeding grounds to many species of birds, local and migratory. I want the birds protected. It is a dated practice inhumane to birds injured, not as many birds around now as in past decades
- It is cruel to the injured birds and some species shouldn't be targeted at all. People shoot wrong species. The wetland is a large area and I think should be a non-shooting conservation area because it's good habitat for local and migratory wetland and shore birds. Even for humans, the sound of gunshots can be distressing when out enjoying the natural environment. The area is closed to human other uses when shooting is occurring.
- To protect the diversity of bird life and ensure safety of people.
- Duck shooting is barbaric.
- Avoiding cruelty to birdlife, enhancing the ecological protection of Australian species.
- To preserve native wildlife
- It is critical habitat for native biodiversity and an important place for people to experience the restorative benefits of nature. Duck hunting is a threat to both these functions.
- All creatures deserve to live in habitat which best provides their needs. What they don't need is to have life taken from them in the un-natural way of being shot by a man-made weapon. Outside the duck shooting season, Cairn Curran is peaceful and fulfils the needs of resident and visiting birds. May it continue to do so year-round.
- We live at a time of a biodiversity and extinction crisis, we need to create sanctuaries to save biodiversity, which in turn we need to live.
- A consistent shooter free environment generates more sustained economic benefits than a duck season
- I like to go to regional places for holidays and to undertake bird watching and nature photography ... I opposes the slaughter of our

native wildlife for recreational activities... duck opening this year was unethical given it occurred while there were young ducklings around still dependant on their parents for support ... so parent birds were slaughtered for recreational pleasure while young were left behind defenceless, this is both unethical and has a negative impact on follow on population stability... very poorly timed and managed ... combine this with all the unprofessional identification practices of the sport targeting and killing many endangered, vulnerable and miss identified species ... this sport brings no worth to regional community other than thugs, rubbish, wildlife torture and ugliness.

- We need to protect our flora and fauna

- There is so little land left for biodiversity, and with water a precious resource in the future, the birds and wildlife need all the help they can get to survive. If the environment is healthy, people are healthier too.
  - Cairn Curran is important for a large range of birds
  - We need the wetlands for migrating birds.
  - There needs to be a safe place for ducks to nest and breed, particularly for threatened species that are often indiscriminately shot during shooting season.
  - To protect rare bird species in the area.
  - I was amazed to see swans in the lake recently, and generally think recreational animal massacre is an exceptionally low form of human behaviour.
  - It's time intelligence was used, and man stops slaughtering the innocent
  - I love birds and thing they should be protected before people make them go extinct with their stupidity
  - It is the home of many beautiful birds we want to know are safe
  - We have to do all we can to halt biodiversity loss, valuing current and future generations human and non-human, within the shire whilst recognizing the benefits more globally. In order to sustain life, we must look to think globally while acting locally.
  - We need to preserve our wildlife and bush
  - Recreational shooting has no place in 2021.
  - b-b-b bird bird bird birds the word
- 
- Ducks shouldn't be murdered
  - It is a precious area and these beautiful birds DO NOT DESERVE to barbarically be hunted!
  - Ecological reasons
  - We need to protect native flora and fauna and save habit from destruction and encroachment. Shooting wildlife is barbaric and unnecessary- we are not hunter gatherers and it not something to do for entertainment
  - Allowing ducks swans and other wildlife to flourish enhances our public spaces, bringing diversity and regeneration. It also adds to tourist appeal which benefits everyone
  - So the ducks can have a safe place to love
  - Duck shooting is disgraceful
  - Our wildlife is important for a healthy echo system.
  - Mount Alexander Shire and Cairn Curran Reservoir specifically, is home to threatened species such as the White-bellied Sea Eagle. Cairn Curran is important for a large range of waterbirds and raptors as well as a feeding ground on the flyways of migratory shore birds, many of which are in significant decline.
  - There is no good reason for recreational bird shooting to continue and council should be doing everything in its power to protect the environment.
  - We must preserve waterways that native and vulnerable species call home.
  - We need to care for our environment particularly the flora and fauna so future generations can enjoy them as well.
  - I strongly disagree with duck shooting and believe all birds need our protection. They need this beautiful area as a safe protected sanctuary.



- So much natural habitat in the area has gone, wildlife needs all the help we can muster
  - A beautiful area for birds to live and breed. A wonderful ecosystem man can learn from. We do not need another area of nature destroyed and bullets echoing.
  - Need to preserve our wildlife
  - It is a precious shared area that both residents and visitors enjoy because of its safety and beauty.
  - Safety for people, environment for water birds. There's plenty of feral animals that need culling. Leave the water birds alone.
  - We need to protect the natural environment. I am totally against the slaughter of wildlife.
  - Birds need to be protected. We are so fortunate in this area to have them
  - Too many ducks and other endangered birds will once again be subject to the cruel and unthinkable
  - I want threatened bird species to survive. I want people accessing public space to be safe.
  - We need to protect our precious wildlife and ensure the safety of the people in the area
  - All of nature is under threat from Climate Change, and we need to protect All that we can.
- 
- The ducks need protection having numbers reduced by droughts and fires across Australia. Hunting is a cruel "sport" with many injured birds left to die a slow painful death.
  - We need to protect the waterways that are crucial to endangered wildlife
  - We need to conserve our wetlands and the precious wildlife in it. It's all connected.
  - Should not be killing threatened species
  - Want to protect all species of waterfowl within this habitat
  - The "sport" or "hobby" of shooting birds and animals is cruel and barbaric and has no place in a civilised modern society.
  - All life is precious. Shooting and hunting are violent, dangerous and scary so close to our peaceful community.
  - I prefer live wildlife to dead wildlife.
  - It is a naturally beautiful place, and it would be nice to see a refuge for our water birds.
  - In this era of increasing extinctions and pressure on wildlife everywhere, we need to do all we can to preserve and provide habitat for native water birds and all our native species
  - We must act to protect biodiversity
  - A safe haven for all the wildlife and protection of precious biodiversity.
  - I oppose duck shooting.
  - I love the beautiful wildlife and birds in our area. I think it's barbaric in this day and age to be shooting innocent birds in our beautiful tourist locality of Lake Cairn Curran.
  - Our wildlife needs to be preserved and encouraged to thrive in the years to come.
  - The waterbirds get decimated around Cairn Curran every year with duck shooting season. Soon there will be one left.

- Our native fauna is under threat and needs protection.
  - So that it continues to flourish for my kids to enjoy
  - All animals should be safe to live their lives without fear of an unnatural death for the recreation or pleasure of humans
  - Birds should not be shot just for fun, in such a beautiful public amenity. Cruel and ruins the peace of this beautiful country area.
  - There are so many birds who visit, and they deserve to be encouraged and nurtured...not shot or shit at
  - Cairn Curran was a huge part of my life for 40yrs and somewhere I always come home to. The wildlife, particularly the bird life, permanent or migratory, is a wonder. This reservoir is hugely important for all creatures that use it and as a sanctuary it would be protected, cherished and also used to aid educational resource.
  - We need to protect the wildlife and stop the draconian sport of duck shooting.
  - Living ducks can be enjoyed by all. I'm also concerned that native duck populations will not be able to withstand climate change if shooting continues
- 
- It should be protected for the bird wildlife and for the community and visitors to enjoy.
  - Cairn Curran is a beautiful, tranquil place. The bird life enhances the experience of being in this environment. We need to protect places like this from those who want to exploit them for selfish measures.
  - It's an inappropriate location for duck shooting, given its other recreational value.
  - Habitat for many species is diminishing rapidly and we need to protect the little we have, particularly wetlands. We have a responsibility to future generations rather than continually meeting our own perceived needs instead of considering long term implications.
  - Duck hunting is abhorrent. Native wildlife must be protected.
  - I oppose recreational bird shooting anywhere, and especially in this case Cairn Curran, the home of so many waterbirds, raptors and a safe ground for migratory species.
  - It is a place of beauty for all to enjoy, safely.
  - safety
  - It is a unique area that deserves to be safe both for flora and fauna, but also for peaceful enjoyment by local residents and visitors, and not overrun by shooters.
  - Wildlife is precious.
  - The birdlife is beautiful and an important part of the eco system. I don't support bird shooting at all, and the shire should be implementing the ban that was put in place.
  - It is an important feeding ground for local and migratory birds. Birds are in serious decline across Australia. This is a major problem for our ecosystems as they perform roles in insect control and plant germination.
  - To preserve the bird life of the area and make it a safe environment for our community
  - To protect the local bird life and to have a safe and peaceful environment for people to enjoy the reservoir and its surrounds.
  - Ducks don't need culling
  - The birds and other wildlife that use this area need to have a haven. There are birds that are threatened species that visit Cairn Curran. Recent reports have shown that

Australia doesn't do enough to protect and encourage rebuilding of populations of threatened species. This is a way we can begin to turn that tide. In addition, migratory birds pass through on their migration. Climate change, drainage of swamps and marshes on farmland, removal of remnant vegetation put increased pressure on birds and other wildlife. Refugees and sanctuaries are needed for those who will breed, nest, eat, shelter, recover, within these environs. The local Council has already considered this issue and said it wants no shooting in the area. The majority of Victorians don't support recreational bird shooting.

- I regularly drive from my home in Rocklyn to go bird watching at Cairn Curran Reservoir and surrounding areas. I often shop in the local townships on the way, birders love bakery goods :) I also recommend the Mount Alexander Shire to other birders. Creating a sanctuary and working to stop recreational bird shooting will support the local Shire to attract bird watchers, naturalists and bushwalkers to visit the area.
- It really is special. Let's not take it for granted. Please preserve it for the future.
- It is home to threatened species, the White-bellied Sea Eagle. And because I support Mt Alexander Shire's decision to ban recreational native waterbird shooting.
- there is more value in live birds than dead ones, to be frank... the surrendering of our wildlife to provide amusement and 'sport' for a few gun owners is an obscenity which we should have grown out of by now...
- It's a wetland habitat and we should be protecting it!
- This area is vital for wetland birds to inhabit seasonally for both local and migratory species.
- it's important bird habitat and valued by many for this.
- The restoration of this area will create not only a healthier natural ecology but will create a place of gathering and leisure for visitors and residents. Absolutely brilliant project! Bring it on
- Currently it is full of weeds and not a nice place to be. Years of farming has left it desolate. We would like to see a really wonderful sanctuary for nature, native flora and fauna. Then our family would love to go there. Restrict noise and pollution that is currently a factor with the boats on there now.
- I want to visit there with my children anytime weather permits with peace of mind for our safety.
- I want to help protect the large range of waterbirds and raptors
- Duck shooting is cruel
- Regional Victorians value the diversity of our wild bird populations and other native animals as well. Duck shooters do not increase the economies of regional towns because they don't use the amenities or services. They leave lead pollution via spent cartridges, and they shoot anything in sight. It has been demonstrated year in year out that vulnerable species are shot as well as non-duck water birds such as swans and even pelicans.
- There is no place for this barbarism in 21st century Australia.
- To protect it from inappropriate use and to provide a safe place for our native wildlife
- Oppose duck shooting as cruel and unnecessary and having a negative effect on many bird species.

- Cruel and barbaric sport killing innocent birds from a variety of species
- I'm completely opposed to this senseless activity and want to see this beautiful area preserved for all to enjoy safely, birds and people together
- Ducks do not deserve to be killed.
- Ducks deserve our protection - we have no right to shoot them for our pleasure.
- The birds & animals deserve to live peacefully as do visiting humans. Shooting isn't a recreational sport, it's killing innocent beings & driving tourism away.
- Ducks need protection.
- There are already so many pressures on native duck and other bird populations, that ANYTHING we can do to provide safe habitat for them ought to be a top priority.
- Protect wildlife
- It's our closest large body of water, but I don't feel safe going there during hunting season. I would like to see wildlife protected and biodiversity supported.
- It's where the duck lives and everyone should feel safe in their home
- Shooting animals is not a sport but an expression of intellectual and emotional inadequacy.
- I believe that our native animals should not be shot for recreational activities and that they are already struggling to survive.
- We should not be the cause of more extinctions or near extinctions. Drought, fires and land clearing have drastically reduced numbers of water birds.
- I would hate shooters allowed.
- I believe our native birdlife should be protected and our beautiful natural areas should be available for passive enjoyment and recreation by local residents visitors alike. Shot gunning birds is inherently cruel and shooting is permitted in so many of our wetlands and waterways that it seems fitting to provide some safe havens for both game species and those wishing to enjoy our natural assets in peace.
- Many bird species are in significant decline across the region why would we encourage a practice that hastens this travesty on our communities.
- Simply put, they need Somewhere safe, and it will enhance the overall attractiveness and appeal to the otherwise fairly uninspiring look of the lake
- Our wildlife needs to be protected
- Killing placid animals is the exact opposite of a sanctuary!
- Our wildlife is vulnerable.
- Duck shooting for sport is a barbaric practice.
- Ducks and other animals must be protected.
- We need less urban sprawl and Farmland and more sanctuaries and rewilding

## **ATTACHMENT C – Home and business under siege.**

*I am one of the forgotten victims of duck shooting.*

*My land has been vandalized. I have been shot at and abused. I've had to stand by and watch groups of army clad men with guns, speed up and down the waterway in boats, shooting only meters from my house.*

*Shooters have hidden in tree stumps and bushes meters from my house and shot bullets towards me. I have cried seeing many baby ducklings without mothers left to fend for themselves. The poor things are only golf ball size. Their mothers shot dead in front of them, while some are injured, taking days to die. Feathers, guts, body parts are left along the banks of [the wetland].*

*Human faeces have littered my property with toilet paper strewn on top and alongside.*

*Trees have been cut down. Bullet cartridges left on the land and in the water.*

*I have been advised by the police to stay inside my house during the siege. But I refuse to hide in my house while duck shooters wreak havoc in my immediate surrounds and on my private property.*

*I have witnessed the hundreds of native water birds that lived here, fly confused amidst thousands shot. They are all but gone now.*

*I am a land owner and I make my living from this land as do other farmers along the banks of [this wetland].*

*I have witnessed blatant disregard and disrespect for this Cultural site. My land is a Wollithica Burial ground and I the keeper.*

*I have witnessed the blatant disregard for the law. Shooting on private property and carrying firearms on private property without permission.*

*I have been bullied, intimidated, forced to retaliate and put into a corner with no other means of justice.*

*Farmers and landowners such as myself are tired of the strong gun lobby groups that exercise their power along the peaceful waterways.*

*All farmers know about guns, we use them in our daily living to rid our lands of pest animal species like rabbits, foxes and feral cats and to put down sick and dying farm stock and animals. We know about guns.*

*I have witnessed the total waste of taxpayers money to monitor and negotiate situations with duck shooters and landowners.*

*The mass carnage and killing orgy of native bird species is abominable and repulsive and does not sit congruently with the landowner's responsibility of caring for country and sustainable farm practise. \_ Our Lagoon like many wetlands, are living museums of nature and history. They are being desecrated by a bunch of red necks that think that they can come from the city and blast away all life and nature, shit on the land and then leave to go home on Sunday afternoon.*

*I have complained to the authorities and to GMA to no avail.*

*For our children and our grand children, policy makers must listen.*

**Nanna Against Duck Shooting**

*Recreational native duck shooting is allowed at thousands of public waterways around Victoria.*

*There has never been any risk assessment nor consultation with nearby residents.*

**More of what regional Victorians have to say about being victims of Victoria's annual recreational native duck shoot can be seen at <https://www.regionalvictoriansotds.com/rural-voices>**

## **Stakeholder Submissions/Comments (unsolicited) – 2022**

### **Duck Season arrangements**

- 1. Honker Hunters**
- 2. Duck and Quail Hunting Australia**
- 3. Geelong Duck Rescue**



Game Management Authority

121 Exhibition Street

MELBOURNE VIC

3000

Honker Hunters would like the opportunity to make a recommendation for the 2022 duck Hunting Season.

It would be an honor to receive an invitation to be involved in the process for the Proposed 2022 Duck Hunting Season.

### **Summary:**

We would like to Call attention to the abundance of waterfowl across private dams, farmland, rivers and creeks in Victoria.

Each and every year we believe populations of waterfowl are missed during the annual waterfowl counts and observations across Victoria.

The Recommendation would like to highlight the abundance of waterfowl across these private property's in Victoria. E.g. dams, farmland rivers and creeks across parts of Victoria

Provided is an observation and some considering factors for your review.

---

Phone-

Email – [Honkerhunters.outlook.com.au](mailto:Honkerhunters.outlook.com.au)

ASIC Approved Registration 2019 – HONKER HUNTERS



## FACTORS FOR CONSIDERATION

The following major factors should be reviewed for consideration.

- The Devastation the Wood duck and Mountain duck have on farmers crops in and out of a Waterfowl season.
- The two species are labelled a (pest) within the farming districts for the state of Victoria.
- The La Nina has been Firmly established in the tropical Pacific.

Climate models suggest La Nina will persist until the late southern hemisphere summer or early autumn 2022. La Nina events increase the chance of above average rainfall across much of northern and eastern Australia during summer.

- We can expect increased chances of wet conditions over summer leading into Autumn.
- As it stands now with increased habitat and conditions waterfowl breeding cycles have doubled and are still expected to improve as we move forward into 2022
- The current trend of waterfowl observations only include a very small percentage of Wetlands rivers and creeks and do not include private dams or farmland in Victoria.
- The current trend of waterfowl observation fails to see the majority of birds on these private dams and private land.

Dams- [Water.viv.gov.au](http://Water.viv.gov.au). Environment, land, water and planning Victoria estimates there are approximately 450,000 dams across Victoria.

Together Victoria's dams have an estimated total storage capacity of about 13,4000,000 megalitres. The size of our dams range from major storage dams to privately owned farm dams. The smaller privately-owned dams are the most common type of dam in Victoria.

Some consist of a small swimming pool size on farms or lifestyle properties but still hold major value to the economy and our way of life.

There are approximately 85,000 kilometers of rivers, streams and creeks in Victoria according to Travel Victoria. As well as providing for people and the life blood of the environment the possibility of habitat for waterfowl is extraordinary.

Agricultural land area is about 50 per cent of the total land area in Victoria.

Approximately 40 per cent (4.6 million hectares) is used for cropping, and 54per cent (6.2 million hectares) is used for grazing, with the remainder used for forestry and conservation purposes.

- **With the estimated private land and water coverage across Victoria the current waterfowl observations need to consider the possibility of the abundance of waterfowl being missed.**

## **OBSERVATION**

Southern Victoria, Western Victoria, Northwest Victoria

The observation included private properties and general meetings with landowners to gain access for observation.

We travelled main roads, accessed private property and detoured when possible to pinpoint private water over the region.

Starting point Geelong - Observation over consecutive Days – Friday / Saturday / Sunday (4 Observers) 2 vehicles

**TRAVEL AREA** - Geelong, Modewarre, Winchelsea, Birregurra, Colac, Ondit, Beeac, Cressy, Berrybank, Lismore, Rokewood, Shelford, Inverleigh.

**Note** – High volume of Mountain Duck and Wood duck in the Cressy, Berrybank, Shelford area.

Landowners are concerned about the abundance of birds in the area. Birds are already moving in and onto their crops.

Farmers are asking for crop protection action.

**TRAVEL AREA** - Freshwater creek, Torquay, Breamlea, Ocean Grove, Mannerim, Swan Bay, Bellarine, Clifton Springs, Curlewis, Geelong – Corio Bay, Avalon, Point Wilson, Little River , Balliang

**Note** – high volume of Grey teal in Corio Bay and surrounding edges.

**TRAVEL AREA** - Rokewood, Skipton, Tatyoon, Ararat, Stawell, Dadswell's bridge, Wonwoondah, Nurrabiel, Toolondo,

**TRAVEL AREA** - Toolondo, West Toolondo, South Toolondo, Telangatuk East, Kanagulk

Balmoral, Gatum, Cavendish, Dunkeld, Penshurst, Mortlake, Terang

**Note** – High volume of Mountain Duck and Wood duck in the Toolondo, Telangatuk East, Kanagulk area. Birds are already moving in and onto the crops.

Again, some farmers were asking about crop protection.

## **CONCLUSION –**

**The 2022 waterfowl season for Victoria will be more than sustainable.**

Due to the recent rain events the 2021/2022 crop harvest has been delayed.

We observed Mountain Duck feeding on established crops on numerous occasions.

Extremely high volumes of Mountain duck are moving in and decimating Farmers crops.

We observed Mountain duck moving from lakes and wetlands into farmland feeding on freshly harvested crops.

We observed an abundance of Mountain duck, Wood duck, Pacific Black duck, Grey teal on Private property dams and farmland.

We observed an abundance of wood duck on private dams, creeks and surrounding property.

Water levels and habitat on private property are above average.

Breeding is still active.

Wetlands observed were holding good numbers of species. Grey teal were predominant especially in Corio Bay area Geelong.

We located all 8 game species.

We see merit in increasing the daily limit to include extra numbers of Mountain duck and Wood duck.

Farmers would like to highlight wood duck and Mountain duck are pests.

Farmers and private landowners are continually viewing the 2 species grazing on freshly sown crops during the general preparation periods in March and April. They continue to move in and decimate the crop.

## **HONKER HUNTERS RECOMMEND**

A Full-length season of 12 weeks

### **OPENING WEEKEND**

Honker Hunters agree to help ease the pressure of the opening weekend.

Start time 8.00am for all of Victoria

Daily limit for opening weekend of - **5 birds**

### **The remainder of the Season should be:**

Daily bag limit of 10 Birds – (plus additional)

Daily limit to include 2 Blue wing shovelers.

Daily limit to include an additional 2 birds – (Wood duck and or Mountain Duck)

The two species are predominantly deemed to be a (pest) of destruction by farmers. Especially in March/April when the crop is sown and the birds are grazing on fresh shoots.

The additional numbers included in the daily limit takes into consideration the concerns of farmers as many deem the birds to be pests over many districts.

Daily hunting times to start half an hour before sunrise and end half an hour after sunset.

### **Variations -** Honker hunters would like to suggest the following modifications.

The daily limit to increase as per the recommendation and receive additional Mountain duck and Wood duck.

If hunting on private land that does not consist of any body of water then lead shot maybe used. Lead shot may be used if it does NOT poison the water e.g.: creek dam or spillage

## CONCLUSION -

We conclude with the objective of the Game Management Authority.

We as hunters rely on the organisation to administer game management within Victoria.

The Game management Authority should not be considering arguments, recommendations or objections from anti-hunting groups pushing their own agenda. These groups should have no insight or value to determine a waterfowl season.

The decision for the 2022 waterfowl season should be based on facts and relevant data available. It should not be influenced by anti-hunting groups or political views.

Honker Hunters strongly advises the game Management Authority should not rely heavily on the Eastern Australian Water Bird survey. The Plane does not intersect major wetlands and while flying at excessive speed the height of the plane can NOT clearly identify species. The process is flawed and inaccurate and should not be used to determine a waterfowl season.

Honker Hunters would welcome an invitation to be part of the decision for the 2022 season and would be pleased to discuss the recommendation in greater detail with the Game Management Authority if requested.

Honker Hunters would like to thank you for your time in reading this recommendation

Yours faithfully

Troy Skene

Honker Hunters Australia



Game Management Authority  
Level 2, 535 Bourke Street  
MELBOURNE Vic 3000

## **Duck And Quail Hunting Australia Victorian Duck Season Submission 2022**

Duck and Quail Hunting Australia are privileged to be able to make this submission we strongly recommend a full 12 week duck season in 2022 with a ten bird per day bag limit and a additional two Blue-winged Shoveler.

*“The Victorian duck season is prescribed under the Wildlife (Game) Regulations 2012 to occur every year between the third Saturday in March and ending on the second Monday in June.*

-Ten bird per day bag limit, with an additional two Blue-winged Shoveler added back to the bag limit.  
Blue-winged Shoveler numbers have also increased over the past 5 years and the reinstatement of a limited number of that species to the bag is highly recommended.

*All game species and season lengths in Victoria are legislated, yet the duck season is the only one that undergoes a process of annual submissions and relies on the Ministerial review.*

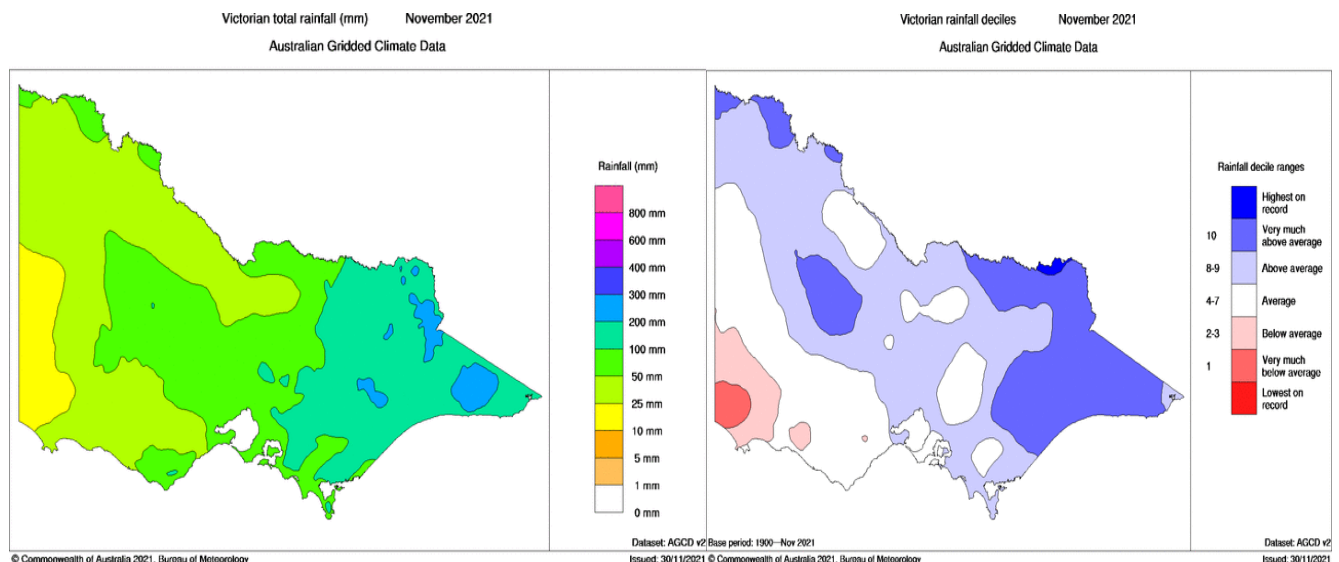
*The duck season needs to stay as to what is legislated.*

-Hunting in Victoria, including duck and quail hunting, is a legal and legitimate activity carried out by tens of thousands of Victorians each year. It brings hundreds of millions of dollars annually into the Victorian economy.

-Due to Covid-19 restrictions placed on all Victorian hunters and with a highly modified 20/21 duck season, which not much hunting occurred.

Its estimated tens of thousands of birds which would have normally been harvested, did not occur and the duck populations were not impacted. Juvenile birds that would have normally been harvested have survived and will be breeding under the current prime duck breeding conditions. With above average rainfalls throughout the year leading to an increasing duck population.

The BOM has now stated that the State-wide, rainfall was 50% above the November average of 52 mm, the highest since 2011. Most of Eastern and Northern Victoria were wetter than average, while parts of Gippsland, Northeast, Northern Country and Mallee districts were much wetter than average.



-In conclusion, based on Victoria having above average rainfalls and not having a full duck season for the past two years there are no valid reasons for Victorians not to have a full duck season in 2022.

**Rafic Dimachki**  
*Duck and Quail Hunting Australia*

*17 December 2021*



# Geelong Duck Rescue

PO Box 620, ALTONA, VIC, 3018

Phone: 03 9071 1813

[info@geelongduckrescue.org.au](mailto:info@geelongduckrescue.org.au)

[www.geelongduckrescue.org.au](http://www.geelongduckrescue.org.au)



## **Considerations for the proposed 2022 recreational duck shooting season: Geelong Duck Rescue submission**

### **Geelong Duck Rescue**

Our organisation was established in 2010 in response to the concerns of local residents and visitors for the welfare of native waterbirds and other wildlife in the Geelong and Western Victoria Region. Whilst Geelong Duck Rescue (GDR) has been in existence only 11 years, individual members have been involved in wildlife rescue and rehabilitation for much longer.

GDR has sought to work with other community groups, authorities, residents, local council, local government, veterinarians and other wildlife rescue groups to protect and assist wounded wildlife and to monitor for illegal activities including (but not limited to) shooting before and after legal times, shooting protected and non-game species, shooting above daily bag limits, and cruelty offences.

Members of GDR have a comprehensive knowledge of wetlands and waterways in the Geelong region gained through many hours spent both during, and outside of, the 'season'. The continuity of time spent in one area also allows for a unique comparative perspective on water levels, bird numbers, climatic conditions and shooter behaviour over the years.

We thank you for this opportunity to provide our submission for consideration during discussion of the proposed 2022 recreational duck shooting season.

## Introduction

Geelong Duck Rescue does not support the recreational duck shooting season in Victoria (or elsewhere), due to the inherent cruelty of the activity. However, this submission will not be addressing this point; it will instead focus on considerations for the decision-making process regarding calling a duck season in Victoria for 2022.

We will address the declining bird numbers in our state and across Eastern Australia, the reliability of the methodology used for data collection to support decision-making, considerations around biodiversity and supporting 'one health' policies, and the ability of authorities to adequately monitor duck shooting across Victoria. The impacts of restricting access to wetlands and waterways across the state on regional communities, who are desperate to welcome back tourism dollars after almost two years of on and off restrictions to visitors, will also be discussed.

We believe it is irresponsible to hold a 2022 recreational duck shooting season in Victoria. It risks the long term viability of duck populations, increases the risks to humans and animals from the loss of biodiversity and the increased risk of zoonotic diseases and has negative impacts on already struggling regional communities. We therefore recommend that the Game Management Authority (GMA) supports a moratorium on the 2022 duck season.

## Bird Numbers

The 'Eastern Australian Waterbird Survey', (also known as the 'Kingsford Survey') conducted annually since 1983 by a team associated with the UNSW Sydney, "*provides one the few quantitative, large scale biodiversity datasets that can monitor changes in the distribution and abundance of 50 waterbird species, including threatened species, and the health of rivers and wetlands.*"<sup>1</sup>

The survey is conducted to high standards of scientific research using a consistent methodology, at the same time of year, across the same areas, and implementing a consistent counting and reporting process. Data accuracy is therefore of a high calibre and provides a strong basis for comparison and the evaluation of trends.

---

<sup>1</sup> <https://www.ecosystem.unsw.edu.au/research-projects/rivers-and-wetlands/waterbirds/eastern-australian-waterbird-survey>

## **Duck numbers are in Decline**

***“Four major indices for waterbirds (total abundance, breeding index, number of species breeding and wetland area index, Fig. 1) continue to show significant declines since 1983. If 1983 & 1984 peak years are omitted then 3 of the 4 major indices still show significant decline (OLS regression at  $p=0.05$ ; variables 4th root or log transformed where appropriate; Table 1). Long term trends are more informative for predicting population status than year to year fluctuations.”***

*(Aerial Survey of Waterbirds in Eastern Australia - October 2021 Annual Summary Report J.L. Porter, R.T. Kingsford<sup>2</sup>, R. Francis and K. Brandis)*

Duck numbers are in decline in Victoria. This is indisputable. The scientific waterbird surveys support this fact, the observations of birdwatchers and wildlife rescuers support this fact, and even duck shooters support this fact.

Therefore to actively seek to kill **more** of a population in decline, for no purpose other than the recreational pursuit of a few, makes no sense and is not at all in line with community expectations. Duck shooting no longer has a social licence with a Roy Morgan poll indicating that 75 percent of people want this activity banned.

The Arthur Rylah report indicated that numbers of pink-eared ducks and blue-winged shoveler ducks were too low to allow any ‘robust’ analysis.<sup>2</sup> If a duck shooting season is held in 2022, the only responsible course of action in regard to these specific species is to remove them from the game bird list for 2022.

GMA states on their website that:

“The GMA has an important role in managing natural resources across Victoria addressing:

- the sustainable harvest of game species”<sup>3</sup>

Additionally, recreational ‘hunting’ is governed by a number of pieces of legislation, including the ‘Wildlife Act 1975’, which states as its purpose:

### *1A Purposes*

*The purposes of this Act are—*

*(a) to establish procedures in order to promote—*

*(i) the protection and conservation of wildlife; and*

---

<sup>2</sup> [https://www.ari.vic.gov.au/\\_data/assets/pdf\\_file/0029/519239/ARI-Technical-Report-325-Abundance-estimates-of-game-ducks-in-Victoria-2020-aerial-survey.pdf](https://www.ari.vic.gov.au/_data/assets/pdf_file/0029/519239/ARI-Technical-Report-325-Abundance-estimates-of-game-ducks-in-Victoria-2020-aerial-survey.pdf)

<sup>3</sup> <https://www.gma.vic.gov.au/about-us>

(ii) the prevention of taxa of wildlife from becoming extinct; and  
(iii) the sustainable use of and access to wildlife; and  
(b) to prohibit and regulate the conduct of persons engaged in activities concerning or related to wildlife.<sup>4</sup>

Hunting a species in decline cannot be construed as 'sustainable' use and GMA cannot justify supporting an activity which directly contravenes their stated purpose.

### **Accuracy of data**

***"Total waterbird abundance in 2021 (n=95,306) decreased from 2020 and remains well below average: the 3rd lowest in 39 years."***

*(Aerial Survey of Waterbirds in Eastern Australia - October 2021 Annual Summary Report J.L. Porter, R.T. Kingsford<sup>2</sup>, R. Francis and K. Brandis)*

The Kingsford survey has been conducted since 1983 and is accepted and highly regarded within the scientific community, as stated previously.

Coincidentally, after a number of years where results show declining bird numbers which have affected the length, and permitted bag limit, of the recreational duck shooting season in Victoria, the GMA have decided to conduct their own aerial bird surveys.

These surveys were conducted as follows:

Aerial and ground counts were conducted on **randomly selected** farm dams, sewage ponds, wetlands, creeks, rivers and irrigation channels throughout Victoria in October.

And results showed:

The total state-wide abundance of game ducks was higher than in 2020, mainly due to the inclusion of estimates for rivers/streams and sewage treatment ponds, which were not included in the pilot survey in 2020.

So in conclusion:

**NO scientific methodology was detailed**  
**NO scientific methodology was followed**  
**NO consistency of data collection across years was followed**

---

<sup>4</sup> <https://content.legislation.vic.gov.au/sites/default/files/2021-12/75-8699aa126%20authorised.pdf>

Naturally, bird numbers will appear higher if a larger number of areas are surveyed. This data and the conclusions drawn from it are spurious and clearly being used with the intention to deceive.

Using the GMA counts to inform decision making makes a mockery of any pretence that there is any scientific rigour in the decision making process when determining whether to hold a recreational duck shooting season. It is the commonly held belief by our membership, and parts of the broader community, that the only reason the GMA has opted to conduct its own aerial surveys is that it was continually embarrassed by the Kingsford report and sought 'alternative facts' to better support its agenda of continuing a duck shooting season against the scientific advice.

## **Climate change and Environmental considerations**

The Anthropocene climate change has brought multiple new and varied threats that disproportionately impact water systems. Freshwater systems such as lakes, reservoirs and rivers are estimated to cover only 2.3% of the Earth's surface while simultaneously hosting at least 9.5% of the Earth's described animal species within their ecosystems<sup>5</sup> (Reid et al. 2019). The continued decline in biodiversity of freshwater ecosystems could have drastic effects that could see a decrease in waterfowl numbers.

Climatic conditions strongly influence the movement and breeding biology of many Australian waterfowl at local, regional and continental scales<sup>6</sup> (Briggs 1992). The increased rainfall as a result of changes in the climate has the potential to influence the prevalence of Avian Influenza Virus (AIV) in waterfowl populations within South-Eastern Australia, putting both humans and domestic animals at risk<sup>7</sup> (Ferenczi et al. 2016). The consequences of allowing and encouraging humans to interact with native waterfowl for the sake of hunting has the possible implication of creating the next zoonotic disease.

Protecting Victoria's waterbirds, wildlife, threatened species and ecological communities is important, to ensure that we have a state rich in biodiversity, clean air, healthy waterways, and therefore healthy humans. In short, we must protect the health and wellbeing of the planet. Massive declines in biodiversity and increased human contact

---

<sup>5</sup> <https://onlinelibrary.wiley.com/doi/10.1111/brv.12480>

<sup>6</sup> [https://absa.asn.au/wp-content/uploads/2021/08/Cor-Vol-16-Pg15-22\\_MovementBreeding\\_AridZoneDucks.pdf](https://absa.asn.au/wp-content/uploads/2021/08/Cor-Vol-16-Pg15-22_MovementBreeding_AridZoneDucks.pdf)

<sup>7</sup> <https://veterinaryresearch.biomedcentral.com/articles/10.1186/s13567-016-0308-2>

with wildlife also increases the risk of creating conditions for pandemics<sup>8,9</sup>, as seen on a global scale in 2020 and ongoing. We are currently living with the global economic and health consequences of interfering with wildlife. Three major crises are threatening life on Earth - biodiversity emergency, climate emergency and emerging diseases<sup>10</sup>. Killing thousands of native waterbirds can have far-reaching impacts beyond simply threatening population numbers. We support a 'One Health'<sup>11</sup> approach to decision-making as endorsed by the World Health Organisation (WHO).

## Enforcement

Each year the GMA has the responsibility for enforcing the Wildlife Act and the regulations as relates to the duck shooting season. Each year since the inception of the GMA, the agency has been critically understaffed rendering them unable to competently attend to, and police, the vast majority of shooting locations. With fewer than 20 of their own enforcement officers and several hundred, if not thousands of sites, there is no pretence that the officers are going to attend anything more than a fraction of sites where shooting may occur.

Additionally, the majority of wetlands available to recreational duck shooting are not observable from the waterline due to the vegetation concealing the duck shooters and any potential offences they may be enacting. The vast majority of authorised officers witnessed by our members do not even attend the wetlands dressed to go into the water to seek out offences, and many do not even exit their cars. The authorised officers we have generally encountered have relied almost solely on information and evidence of wrong-doing from volunteer members of the public.

In instances where the GMA have recruited additional support from other enforcement agencies including Victoria Police, Fisheries and Parks Victoria, these officers have been demonstrably under-trained and are inexperienced in the full range of potential offences for which they need to observe.

---

<sup>8</sup> Grandcolas P. & Justine J-L. (2020) COVID-19 or the pandemic of mistreated biodiversity. The Conversation 30/4/2020 <https://theconversation.com/covid-19-or-the-pandemic-of-mistreated-biodiversity-136447>

<sup>9</sup> Armstrong F. Capon A. & McFarlane R. (2020) Coronavirus is a wake-up call: Our war with the environment is leading to pandemics. The Conversation 31/3/2020 <https://theconversation.com/coronavirus-is-a-wake-up-call-our-war-with-the-environment-is-leading-to-pandemics-135023>

<sup>10</sup> IPBES (2020) Workshop Report on Biodiversity and Pandemics of the Intergovernmental Platform on Biodiversity and Ecosystem Services. Daszak, P., das Neves, C., Amuasi, J., Hayman, D., Kuiken, T., Roche, B., Zambrana-Torrel, C., Buss, P., Dundarova, H., Feferholtz, Y., Foldvari, G., Igbinsosa, E., Junglen, S., Liu, Q., Suzan, G., Uhart, M., Wannous, C., Woolaston, K., Mosig Reidl, P., O'Brien, K., Pascual, U., Stoett, P., Li, H., Ngo, H. T., IPBES secretariat, Bonn, Germany, DOI:10.5281/zenodo.4147317

<sup>11</sup> <https://www.who.int/news-room/questions-and-answers/item/one-health>

If GMA is to have any legitimacy as an enforcement agency, it must commit to staffing and training their enforcement team adequately so as to properly police a significant number of wetlands throughout the entire season.

In past years, enforcement officers have disclosed to Geelong Duck Rescue that their maximum shift time ends earlier than the close of legal shooting time. This has left no enforcement officers available at all during peak times of shooting, such as the closing hours of the first day of the season, when a large number of offences occur. This has been allowed to happen as all the staff were rostered on for the opening morning of the season. We understand that recently GMA have sought to correct that problem somewhat but the fact remains that a legal shooting period in a day is often longer than that of the officers' shift so that staggering work shifts becomes a necessary technique which cannot be achieved with such an understaffed team.

The critical point in the staffing issues of the GMA is that all duck shooters are keenly aware of the limits of the GMA's abilities and they can, and frequently do, take full advantage of the knowledge that they are very unlikely to ever be caught in the commission of an offence.

It has also come to the attention of Geelong Duck Rescue that the GMA do not even have a reliable database of all the legitimate shooting locations across Victoria, let alone a full knowledge of possible private lands to which their responsibility also extends. The public would expect that the enforcement authority responsible for regulating an activity in which firearms are principally involved should at least have a thorough knowledge of where that activity could occur. The maps made available online are acknowledged to be incomplete and rife with errors. Duck shooters cannot comply with the law when the information provided to them by the GMA is faulty in the first place.

Furthermore, the vast number of alleged offences by duck shooters witnessed by community volunteers and duly reported to GMA with evidence provided, receive no attention or follow-up from officers. It was noted in the Pegasus report of 2017<sup>12</sup> that enforcement was significantly biased in this way, but it appears that no real change has occurred within the agency in the intervening time. In order for the GMA to attempt to regain public trust they must be seen to be actively pursuing cases fairly and a much greater degree of effort in community collaboration and trust-building is required.

---

<sup>12</sup> [https://8c4b987c-4d72-4044-ac79-99bcaca78791.filesusr.com/ugd/b097cb\\_97d51dc5a28a4c9e992c231ee0e9cf1e.pdf](https://8c4b987c-4d72-4044-ac79-99bcaca78791.filesusr.com/ugd/b097cb_97d51dc5a28a4c9e992c231ee0e9cf1e.pdf)

## GMA Bias

The Game Management Authority has not existed without controversy. The 2017 Pegasus Report<sup>13</sup> discusses the implications of GMA promoting hunting (Pegasus Economics 2017). GMA has been criticised for being 'neither impartial nor independent' (Pegasus Economics 2017). The current *Game Hunting in Victoria: A manual for responsible and sustainable hunting*<sup>14</sup> from 2018 discusses the economical and social benefits of hunting, showing a bias towards the promotion of the hunting (GMA 2018).

As an organisation paid to monitor compliance of the season, it is in the best interests of the GMA to continue to hold duck shooting seasons because they are financially dependent on it. This is a clear conflict of interest. This bias should prevent the GMA from having the ability to make recommendations based on their own research.

## Safety of duck shooting

Urban areas are expanding and encroaching upon game reserves and other nature areas where duck shooting occurs, making the safety of residents and visitors of paramount concern to everyone. This is especially worrying in areas such as Geelong where housing estates such as Armstrong Creek, (which will house tens of thousands of residents when complete), are closer than 2 kilometres from where recreational duck shooting takes place. Considering that there is no boundary for where shooting 'finishes' until you reach the Barwon Heads Rd, shooting may occur within the range of vehicles, as well as local community facilities.

Recreational firearm use does not belong in proximity to residential living, shopping centres, schools and sporting grounds, all of which exist in abundance surrounding the Lake Connemara wetlands. The vast majority of residents are unaware that shooting is permitted so close to their homes or community hubs and can become alarmed when hearing gunshots. Continuing to allow firearms to be discharged so close to highly populated and actively used areas is a recipe for disaster that could easily be avoided.

If these wetlands are going to be used for duck shooting, then adequate signage aimed at warning the community that duck shooting is taking place in the area, and of the potential dangers, should be placed at every entrance to the wetlands which is in close proximity to populated areas.

---

<sup>13</sup> [https://www.gma.vic.gov.au/\\_\\_data/assets/pdf\\_file/0011/481682/Assessment-of-the-GMAs-compliance-and.pdf](https://www.gma.vic.gov.au/__data/assets/pdf_file/0011/481682/Assessment-of-the-GMAs-compliance-and.pdf)

<sup>14</sup> [https://www.gma.vic.gov.au/\\_\\_data/assets/pdf\\_file/0010/499096/Game-Hunting-in-Victoria-2nd-edition.pdf](https://www.gma.vic.gov.au/__data/assets/pdf_file/0010/499096/Game-Hunting-in-Victoria-2nd-edition.pdf)



## Regional Victorian Tourism

The past two years have had unprecedented impacts on all businesses, communities and individuals. Populations who have been significantly affected by the COVID-19 imposed lockdowns and restricted travel are our regional towns and communities, many of whom rely heavily on tourism for jobs and financial stability.

*“In the six months ending June 2020, total visitors to and within Victoria was 30.7 million, a decline of 19.9 million visitors (-39%) compared to the same period in 2019. Total visitor spend in Victoria over this period experienced a deeper decline (-43%, or down \$7.0 billion) to \$9.3 billion.”<sup>15</sup>*

Eco-tourism was on the rise pre-pandemic, across the general population, who were looking to lessen their environmental footprint whilst travelling<sup>16</sup>. This value should be considered when making decisions about who can access our natural environment and when.

Many of our outdoor pursuits revolve around the tranquillity of water. Swimming and kayaking require healthy, clean bodies of water. Birdwatching and wildlife watching depend upon the presence of established wetlands where birds reside or migrate to, or where wildlife visits regularly.

The economic value of birdwatching is often overlooked, however studies have shown this to be significant contributor to tourism<sup>17</sup>. The construction of raised boardwalks, bird hides and viewpoints in wetland and natural areas, can provide substantial recreation opportunities for many people, not just birdwatchers, and building all-access pathways creates equal opportunity for all to enjoy the region.

Unfortunately, a duck shooting season creates an environment where the locals, visitors and tourists are prevented from taking part in these nature activities and pursuits. Access to wetlands and waterways is restricted for 3 months of the year (if a ‘full’ duck season is held) for those who don’t hold the relevant duck shooting and firearms licences.

**According to the GMA’s ‘Considerations for the 2022 duck season’ document, this means that the ‘24,330 Game Licence holders endorsed to hunt duck in 2021’ have free**

---

<sup>15</sup> [https://business.vic.gov.au/\\_\\_data/assets/pdf\\_file/0003/1984620/Coronavirus-COVID-19-impact-on-Victorias-Visitor-Economy-released-April-2021.pdf](https://business.vic.gov.au/__data/assets/pdf_file/0003/1984620/Coronavirus-COVID-19-impact-on-Victorias-Visitor-Economy-released-April-2021.pdf)

<sup>16</sup> <https://www.nielsen.com/au/en/insights/article/2019/eco-tourism-is-not-just-for-greenies/>

<sup>17</sup> <https://www.responsibletravel.org/wp-content/uploads/sites/213/2021/03/market-analysis-bird-based-tourism.pdf>

reign for their recreational activities, which leaves the remaining 99.634% of Victoria's population<sup>18</sup> are unable to freely access public nature areas.

The challenges of COVID-19 lockdowns and high case numbers, has also changed how we use our recreation time. People feel more comfortable, 'safer' and are more likely to meet outside rather than in a confined space. Additionally after many months of people being restricted to a 5km radius from home, or being confined to their homes in isolation, there is a strong desire for many to return to nature and to spend time away from crowded, urban environments. Supporting the physical and mental health of individuals and the struggling communities in which they will spend time and tourism dollars is vitally important and we also have an obligation to support regional Victoria to the best of our ability. This means opening regional to all Victorians and interstate visitors and not restricting our public areas to only those who wish to shoot ducks.

## Recommendations

1. The 2022 recreational duck shooting season should not proceed. The GMA should advise the Minister that the season in 2022 is unsustainable and inappropriate in the eyes of the community.
2. Consider the protocol used for data collection of bird numbers, breeding abundance and wetland conditions and only accept data collected by methods which would stand up to the scrutiny of the scientific community for acceptability/accuracy.
3. Consider that GMA aerial surveys should be used only as supplementary data to the Kingsford report, until such a time as a legitimate and respectable methodology is developed and publicly disclosed and the surveys have built up a history of data to show trends comparable to the Kingsford report..
4. Consider the long term implications on biodiversity from removing significant numbers of native waterbirds from local populations.
5. The Victorian Government must commission a follow up review of the GMA by Pegasus Economics, to determine if the issues identified in 2017 have been adequately addressed and corrected .
6. GMA should provide a detailed response to how they have addressed each issue and how they are planning to tackle any unresolved problems and over what time frame. Responses must be reviewed by an independent panel of experts and a report submitted to the Minister.

---

<sup>18</sup> <https://www.abs.gov.au/statistics/people/population/national-state-and-territory-population/latest-release>

7. Develop an independent panel of experts and community stakeholders to provide advice and recommendations to the government regarding duck shooting as GMA have a clear conflict of interest..
8. Employ and adequately train and resource a far larger enforcement team capable of monitoring the wetlands across the state to meet community expectations.
9. Pledge to support tourism and local economies across regional Victoria by supporting and promoting tourism opportunities which include and benefit all of the population.

**In the event that the season does go ahead against our recommendations, the following applies:**

10. The season should be significantly reduced in length.
11. The Blue-Winged Shoveler should remain a prohibited species as it has for the past few years, due to its ongoing low numbers.
12. The Pink-Eared Duck should be added to the prohibited species list due to low numbers.
13. Each game species must be given a significantly reduced bag limit (especially the 5 game birds recognised by GMA as experiencing ‘long-term declines’) as well as having a reduced daily bag limit overall. Each of the game species is acknowledged to be under pressure.
14. Any designated hunting area that is now within 2km of a major community facility, such as shopping centres, schools, sports grounds and community halls, should be closed to shooting for the duration of the season. This particularly applies in the case of Connewarre wetlands in Geelong.
15. Install adequate warning signs at all locations where shooting is allowed.

## **Conclusion**

Duck shooting in Victoria has lost its social licence with surveys indicating that over 75 percent of people want this activity banned. Wildlife is in serious decline especially in Australia and we should be protecting our native species, not killing them for “sport”. Nature tourism has been shown to be much more economically viable than any monetary benefit related to duck shooting.

If the duck shooting season does go ahead, despite clear evidence that it should not, then significant restraints must be placed upon the season and GMA must undergo a serious review of their functioning and their method of conducting aerial surveys.

We believe it is irresponsible to hold a 2022 recreational duck shooting season in Victoria. It risks the long term viability of duck populations, increases the risks to humans and animals from the loss of biodiversity and the increased risk of zoonotic diseases and has negative impacts on already struggling regional communities. Wetlands are being destroyed and illegal shooting of waterbirds is pervasive throughout Victoria. We therefore recommend that the Game Management Authority (GMA) supports a moratorium on the 2022 duck season.

Critically, the Minister's decision about whether to hold a duck shooting season should be based upon recommendations from an independent body with no financial interest in the outcome due to the clear conflict of interest that exists when the GMA are responsible for this recommendation.