



RE: 2019 DUCK HUNTING SEASON ARRANGEMENTS

Core message

Under the *Game Management Authority Act 2014*, the Game Management Authority (GMA) may make recommendations to relevant Ministers in relation to open and closed seasons and bag limits for game hunting. After analysing annual game duck distribution and abundance, current and future climatic conditions and habitat availability and distribution, the GMA Board recommends a modified duck season for 2019 to ensure hunting is sustainable.

When briefing the previous Minister for Agriculture regarding 2018 duck season arrangements on 22 December 2017, GMA advised that if environmental conditions didn't significantly improve, actions would be required to reduce the impact of harvest on game duck populations. Conditions for game ducks across eastern Australia have continued to deteriorate since then.

GMA recommends a reduction in the prescribed daily bag limit from 10 birds per day to 4 birds per day on the opening weekend and 5 for every day thereafter. In addition, GMA recommends that the season length be reduced from 12 to 9 weeks. In combination, these actions are estimated to reduce the total seasonal harvest by 40%.

In recognition of the continued low abundance of Blue-winged Shoveler, it is recommended that this species be prohibited from hunting for the whole of the 2019 season.

These recommendations are consistent with efforts to reduce harvests in South Australia and New South Wales.

Due	As soon as possible
Explanation	To allow industry, the hunting community and government agencies to prepare for the upcoming season

Recommendation

That you:

1. approve the GMA recommendation to modify the duck season, reducing its length by 3 weeks and changing the daily bag limit to 4 birds per day over the opening weekend and 5 birds per day for the remainder of the season
2. approve the GMA recommendation to prohibit the hunting, taking or destroying of Blue-winged Shoveler for 2019

Recommendation 1 ☐ Approved ☐ Not approved ☐ Noted ☐ Returned for review

Recommendation 2 ☐ Approved ☐ Not approved ☐ Noted ☐ Returned for review

Minister's Comments

Signed Jaclyn Symes MP Date _____
Minister for Agriculture

Approved by  Date 21/12/18

Brian Hine, Chair Game Management Authority ☎ (03) 8512 1226

Endorsed by: Graeme Ford, CEO Game Management Authority ☎ (03) 22(1) 7

Prepared by: 23(1) Policy Officer Game Management Authority ☎ (03) 8512 1226

From	GAME MANAGEMENT AUTHORITY	Ref	GMA
Title	2019 DUCK HUNTING SEASON ARRANGEMENTS	File	CM/01/0311
		Due	N/A

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 and distribution 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 taken into account in recognition of the highly mobile nature of game ducks and their ability to move large distances in short periods of time. *Considerations for the 2019 duck season* (see **Attachment 1**) provides up-to-date information relating to the status of game duck populations and their habitats across eastern Australia.

Where conditions for game ducks are poor and the population is reduced, there may be cause to restrict the prescribed hunting arrangements to reduce the seasonal harvest to ensure sustainability. Where conditions are exceptional, there may be cause to increase bag limits and/or season length to allow hunters to take advantage of an increased harvestable surplus.

On 22 December 2017, GMA briefed the previous minister for Agriculture regarding the 2018 duck season arrangements. GMA advised that if environmental conditions didn't significantly improve, actions would be required to reduce the impact of harvest on game duck populations. Conditions for game ducks across eastern Australia have continued to deteriorate since then.

Factors presently affecting game ducks

Habitat extent and distribution

Since December 2017, the majority of eastern Australia experienced 'below average' and 'very much below average' rainfall. It was previously predicted that early 2018 may be wetter due to the emergence of a La Nina weather pattern and, while La Nina thresholds were reached, it did not translate into above average rainfall.

Year-to-date rainfall has been the third-lowest on record for the Murray-Darling Basin, fourth-lowest for NSW, and eighth-lowest for Victoria. Only twice since 1900 have such dry conditions been sustained for a period of nearly two years across the Murray-Darling Basin. The Murray-Darling Basin is considered a key waterfowl production area for eastern Australia.

Most Cooper Creek wetlands in the Lake Eyre Basin, apart from Lake Dunn were dry including Lake Galilee. These wetlands and their feeder systems are considered key waterfowl production areas. Where other important wetlands persisted in the Lake Eyre Basin, such as the Diamantina and Georgina rivers, only low numbers of waterbirds were observed.

Below average rainfall was recorded over the winter to spring period throughout eastern Victoria and south-eastern South Australia. There was mostly average rainfall throughout eastern Australia, except for central and northern QLD, western Tasmania and all of Victoria, with much of Victoria receiving 'very much below average' rainfall.

In response to the dry conditions, the Eastern Australian Aerial Waterbird Survey (EAAWS) wetland area index is well below the long-term median, being the third-lowest on record. Declines in wetland area correlates with declines in waterbird abundance and breeding.

Where suitable waterbird habitat persists, it is distributed sparsely throughout eastern Australia. The greatest wetland areas were observed throughout western-central and southern NSW, northern Victoria and south-eastern South Australia. Waterbirds were less concentrated and more dispersed than the previous years.

Game duck abundance

The game duck abundance index is below the long-term median and was the ninth-lowest recorded in 36 years. Both Pink-eared Duck and Grey Teal indices have declined significantly, as a consequence of the very dry conditions in the major production areas of the Murray-Darling and Lake Eyre basins. Other game duck indices (six remaining species) slightly increased, however, except for Hardhead, they remained well below the long-term median abundance for each species.

Waterbirds were scattered in relatively small concentrations across a wide area of eastern Australia. The highest indices of waterbird abundance were recorded at isolated locations in northern QLD, and throughout the Riverina (southern NSW and northern Victoria) and south-eastern South Australia. Other notable abundances were also recorded in western and central NSW. However, there were very few large concentrations of waterbirds. Only nine sites recorded more than 5,000 birds, which is not a large concentration of waterbirds.

Climate predictions

Climate predictions for January to March 2019 are for below average rainfall for eastern Australia, with hotter than average days.

Climate models are currently predicting a 70% chance of El Nino developing. El Nino is generally associated with drought conditions, increased heatwaves and high fire-risk across the landscape.

Recent rainfall events

During the first week of December, significant rainfall events occurred throughout north-western, central and north-eastern Victoria. These events have resulted in localised flooding and the filling of some small ephemeral wetlands, including throughout the Mallee. If these wetlands persist until the start of the 2019 duck season, they may provide suitable habitat and refuge for waterfowl. However, these rainfall events have not occurred in the major production areas for waterbirds in the Lake Eyre or Murray-Darling Basins. Rain events associated with Tropical Cyclone Owen were generally restricted to the coastal and near coastal areas of eastern Australia and will do little in the way of providing substantial habitat for breeding.

Current predictions from BoM of a hotter and drier first quarter of 2019 will nullify any perceived gains from recent rainfall events.

Blue-winged Shoveler

The current prescribed bag limit for Blue-winged Shoveler already recognises the naturally low abundance of this species and sets a daily bag limit of two, whereas the limit for the remaining seven game duck species is 10 birds. The indices of abundance for Blue-winged Shoveler have remained very low for the last two decades, despite periods of improved environmental conditions, particularly between 2010 – 2012. The species has failed to respond to these improvements which is cause for concern.

Blue-winged Shoveler have not been permitted to be hunted since 2016. In 2017, GMA engaged the Arthur Rylah Institute for Environmental Research to undertake research into the Blue-winged Shoveler to determine its population status and viability as a game species. Based on the finding of the report, GMA recommends the prohibition to hunting of Blue-winged Shoveler until further research has been undertaken.

Some data will be collected during the operation of the Waterfowl Conservation and Harvest Model (an election commitment) and additional information will need to be collected specially on this species.

Duck season arrangements in adjacent states*South Australia*

The South Australia Government has announced its 2019 duck hunting season which will have a reduced bag from 12 to 8 birds per day and a reduction in season length of one month. The South Australian season traditionally commences one month prior to the Victorian season, however, they have aligned the start of their season with Victoria's prescribed start, in an effort to reduce the total seasonal harvest by reducing the

amount of prospective hunters from Victoria (i.e. Victorian hunters won't have the opportunity to hunt in South Australia prior to the Victorian opening).

South Australia has also continued the prohibition on the hunting of Blue-winged Shoveler (which hasn't been permitted to be hunted since 2003).

These arrangements are a decrease from last year where a full season was declared but Blue-winged Shoveler were prohibited from hunting.

New South Wales

The New South Wales government has adopted a low risk, conservative quota for the 2018-19 waterfowl damage mitigation program which aims to protect rice crops from damage by waterfowl. The quota for this rice growing season has been set at 41,046, a 44% decrease from the previous year's quota of 72,814 birds and 124,275 for 2016-17.

Tasmania

The Department of Primary Industries, Parks, Water and Environment has advised that a normal duck season will proceed in Tasmania in 2019. The duck hunting season commences on 9 March 2019 and closes on 10 June 2019. Tasmania has only five game ducks. In contrast to Victoria, Hardhead, Blue-winged Shoveler and Pink-eared Ducks are not listed as game birds.

Game Management Authority recommendation

The objective for duck hunting in Victoria is to ensure the long-term conservation status of game ducks while maximising sustainable hunting opportunities and the economic and social benefits that duck hunting brings to the Victorian community.

In summary, the combination of the following factors informs GMA's recommendation:

- Total waterbird abundance (game and non-game species) for eastern Australia is the ninth-lowest recorded in 36 years, and the 2018 game duck abundance index has decreased by 31% compared with the long-term median
- wetland area index for eastern Australia has been in decline since 2016 and was well below the long-term average, declining from 2017 and being the third-lowest on record
- climate predictions indicate average to below average rainfall with hotter than average days for eastern Australia between January to March 2019. Current predictions indicate that an El Nino event has a 70% chance of developing
- recent rainfall events in Victoria have provided some localised habitat and may support localised breeding. However, it is considered that these short-term events will have little to no impact on overall game duck abundance as the events have not occurred in major waterbird production areas in NSW and southern QLD
- NSW, who estimate an absolute duck abundance and manage offtake through a quota of 10% of the total estimated Riverina population, have reduced their total harvests by 44% compared to last year
- South Australia has announced a modified 2019 duck hunting season, with a reduction in daily bag from 12 to 8 and a reduction in season length by one month. South Australia has also continued the prohibition on the hunting of Blue-winged Shoveler

- waterbirds were less concentrated and more dispersed throughout eastern Australia than the previous year. This wide distribution means that game ducks are not concentrated only in Victoria and subject to harvesting pressure.

Recommendation

After considering environmental conditions and game duck abundance, climatic outlooks and in combination with adjoining states' (NSW and SA) approach to reduce harvest levels, GMA recommends a modified duck season for 2019, with a 4 bird daily bag for the opening weekend and 5 bird daily bag thereafter. It also recommends a reduction in the season length by 3 weeks, providing a 9 week season. This reduction should occur at the end of the season to compliment South Australia's approach to aligning the start of its season with Victoria's.

It is estimated that this combination of management actions will potentially reduce the total seasonal harvest by approximately 40%. This assessment is based on the best available information and leaves the GMA Board to believe this level of harvest is sustainable.

Process for modification

Policy responsibility for game hunting and game management rests with the Department of Economic Development, Jobs, Transport and Resources (soon to be Department of Jobs, Precincts and Regions). If you approve the GMA's recommendation to modify the 2019 duck hunting season, the department will take carriage of preparing legal notices and liaising with the Minister for Energy, Environment and Climate Change to implement the modification of the 2019 duck hunting season.

Timing of a decision

In the past, government has made the announcement on duck season arrangements prior to or shortly after Christmas. This is to ensure industry has sufficient time to source and supply goods and hunters can make holiday arrangements. This timing also allows the GMA and partner agencies DELWP, DEDJTR, Victoria Police and Parks Victoria to plan and prepare for the commencement of the season.

Adaptive Harvest Management

Implementation of the Waterfowl Conservation Harvest Model, a key action under the government's *Sustainable Hunting Action Plan*, will provide a robust, evidence-based and defensible approach to setting game duck harvest arrangements while gathering vital information on game duck population dynamics.

The government, as part of its election commitment, has agreed to fund this model and finalise its development of it by 2020. An expert-panel will be appointed in the New-Year to review the current proposals. Both hunting, conservation and animal welfare stakeholders support the implementation of this model. It is also strongly supported by GMA.

Start time two-year trial

In 2018, government announced a two-year trial to change the permitted hunting start times over the opening weekend of the duck hunting season. The permitted hunting start times were moved to 9:00am on the Saturday and 8:00am on the Sunday. These changes were designed to de-emphasise hunting activity that occurs during early hours of the opening weekend to improve animal-welfare outcomes, reduce non-target species being illegally taken, improve visibility for compliance officers and generally improve hunter behaviour. These start times will be in place for 2019.

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.

Duck hunting is a popular recreation in Victoria with approximately 26,000 licensed hunters who harvest 386,000 game ducks, on average.

Duck hunting generates significant economic activity in Victoria and benefits many regional towns and centres. In 2013, game hunting (including pest hunting by licensed game hunters) in Victoria had a total economic impact of \$439 million and supported almost 3,500 full time equivalent jobs directly and indirectly across Victoria.

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.

Game Management Authority

The Game Management Authority (GMA) was created on 1 July 2014, under the *Game Management Authority Act 2014* to, amongst other things, “*promote sustainability and responsibility in game hunting in Victoria*”. The GMA is the primary regulator for game hunting and its legislated functions include making recommendations to relevant Ministers in relation to:

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

Also, 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”.

3. Consultation

On 12 December 2018, Department of Environment, Land, Water and Planning (DELWP) and Department of Economic Development, Jobs, Transport and Resources (DEDJTR) were briefed by GMA regarding the current environmental conditions.

The following stakeholders were invited to provide a written submission and present to the GMA, DELWP and DEDJTR on 14 December 2018:

- Field and Game Australia
- Sporting Shooters’ Association of Australia (Vic)
- RSPCA
- BirdLife Australia (Vic) *
- Animals Australia

*(Birdlife didn’t attend, however, it provided a written submission)

The following stakeholders were provided with a template and invited to provide a written submission by 14 December 2018:

- Shooting Sports Council of Victoria
- Coalition Against Duck Shooting
- Regional Victorians Opposed to Duck Shooting

A summary of stakeholder recommendations is provided in the table below.

Organisation	Recommendation
Field and Game Australia	A normal duck hunting season (full bag and length) with the inclusion of Blue-winged Shoveler
Sporting Shooters' Association Australia (Vic)	A normal duck hunting season (full bag and length) with the inclusion of Blue-winged Shoveler
Shooting Sports Council of Victoria	A normal duck hunting season (full bag and length) with the inclusion of Blue-winged Shoveler
BirdLife Australia (Vic)	Cancel the 2019 duck hunting season
RSPCA	Cancel the 2019 duck hunting season
Animals Australia	Cancel the 2019 duck season
Coalition Against Duck Shooting	Cancel the 2019 duck season
Regional Victorians Opposed to Duck Shooting	Cancel the 2019 duck season

A summary of issues raised by the stakeholders is included in **Attachment 2**.

Some stakeholders provided additional data, however, when considered, it did not change the recommendations of the GMA Board.

Field and Game Australia (FGA) noted that its members had recorded a significant increase in Blue-winged Shoveler, 13,666 compared with 3,727 in 2017. However, FGA noted that their count was not statistically robust as their members were instructed to specifically search for Blue-winged Shoveler as opposed to the random sampling historically undertaken.

FGA believes that there is sufficient habitat and refuge available for game ducks such as the Murray River, dams, natural wetlands, channels, watercourses and estuaries. These areas can provide refuge for game ducks, however, they are considered sub-optimal and don't necessarily provide habitat conducive to support breeding.

FGA also highlighted above average rain in western South Australia and continued up into eastern Western Australia over the last twelve months. FGA believe game ducks would have sought refuge there but provided no evidence of the presence or abundance of ducks. However, this is unlikely given that most of the country affected is desert country and wouldn't provide adequate habitat. Further, the rain band fell outside of the preferred habitat range for the three main game ducks (Grey Teal, Black Duck and Wood Duck).

SSAA indicated that ground counts had shown large numbers of ducks, including Blue-winged Shoveler. However, no data was presented to substantiate this.

Animals Australia provided analysis that shows the long-term index of waterbirds in the last 18 years has decreased by 42% when compared to the long-term average of the first 18 years of the Eastern Australian Aerial Waterbird Survey (EAAWS). Animals Australia was concerned with the low wetland index, declines in waterbird abundance and breeding.

RSPCA noted that 15 key duck habitats in Victoria were dry. It also raised concerns regarding the current environmental conditions and the long-term decline in waterbird numbers and wetland availability.

RSPCA noted its policy against recreational hunting, however, while hunting is a legal activity, it believes there are several measures that could be implemented to address welfare concerns – such as mandatory testing for all duck hunters, mandatory attendance at the Shotgunning Education Program field-days, regular sitting of the Waterfowl Identification Test and annual shooting proficiency testing.

FGA, SSAA and RSPCA supported the implementation of the Waterfowl Conservation and Harvest Model.

BirdLife noted that two-thirds of Victoria's wetlands have been lost or are threatened since European settlement. This, in conjunction with the long-term declines in waterbird indices and the poor climatic outlook for 2019 led it to support the precautionary principle and cancel the 2019 duck hunting season.

4. Attachments

Attachment 1 – *Considerations for the 2019 duck season* current as at 11 December 2018

Attachment 2 - Summary of issues raised by stakeholders

Considerations for the 2019 duck season



Current as at 11th December 2018

Content

Duck hunting in Victoria

Climate

Climate conditions and waterfowl

Southern Oscillation Index (Bureau of Meteorology - BOM)

Annual rainfall deciles (BOM)

Long-term rainfall deciles (BOM)

Current rainfall deciles (BOM)

Summer rainfall prediction (BOM)

Summer temperature prediction

Habitat availability

Victorian water storage levels (BOM)

Murray-Darling Basin water storage levels (BOM)

Australian water storage levels (BOM)

Runoff month-to-date (BOM)

Streamflow predictions (BOM)

Pasture conditions (Long Paddock Reports)

Population indices of abundance and distribution

Eastern Australian Aerial Waterbird Survey (EAAWS)

Wetland area index (EAAWS)

Wetland distribution (EAAWS)

Index of waterbird abundance (EAAWS)

Waterbird distribution (EAAWS)

Game duck abundance index (EAAWS)

Relative abundance of game duck species (EAAWS)

Waterbird breeding (EAAWS)

Interactions: abundance, breeding and habitat (EAAWS)

Game duck abundance, distribution and habitat – summary(EAAWS)

Harvest statistics

2018 harvest estimates overview

Long-term harvest estimates

Estimates of harvest per game duck species

Summary

References



Duck hunting in Victoria

- There are approx. 25,799 hunters licensed to hunt duck in Victoria.
- Duck hunting is regulated to ensure it remains safe, sustainable, humane and equitable.
- The Victorian duck season is prescribed under the Wildlife (Game) Regulations 2012 to occur every year between the third Saturday in March and the second Monday in June. Daily bag limits and hunting methods are also prescribed.
- The Ministers may modify (increase/decrease bag limits and season dates, further regulate time, place and methods) the prescribed arrangements under section 86 of the *Wildlife Act 1975*.
- A number of factors are reviewed each year to ensure duck hunting remains sustainable, including current and predicted environmental conditions such as habitat extent and duck population distribution, abundance and breeding.

Climate

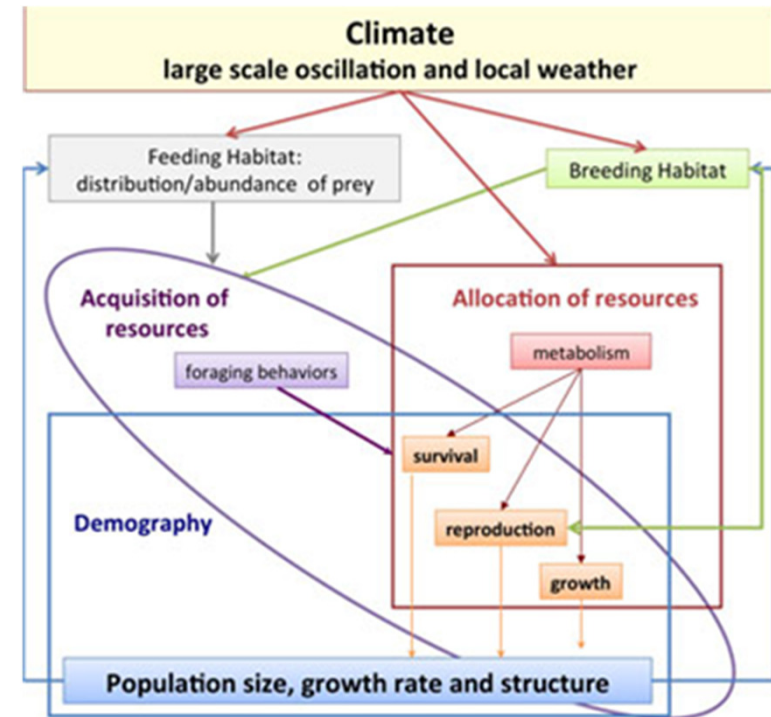
Past and present climatic conditions dictate present environmental conditions

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



Climate Conditions and waterfowl

- Climate conditions such as large scale oscillations (e.g. SOI) and local weather (e.g. rainfall and temperature) can affect distribution and population size of waterfowl.
- For example, waterbird abundance is strongly related to river flows and rainfall.
- Large rainfall events can contribute to population increase as the conditions are enhanced to support breeding. Conversely, during dry periods breeding may be modified or greatly reduced (see Kingsford and Norman 2002).



Climate process of which affect population Source : Jenouvrier 2013

Southern Oscillation Index

The Southern Oscillation Index (SOI) is a proxy used for determining the El Niño Southern Ocean Index (ENSO).

SOI is a key atmospheric index for determining environmental conditions affecting Australia.

SOI can determine two events:

1. La Niña

- Sustained negative values, > 8
- Above average rainfall
- Temperatures are below normal
- Flooding tends to occur

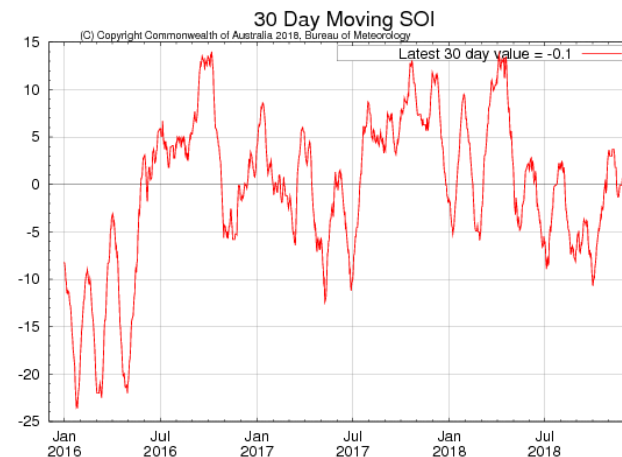
2. El Niño

- Sustained positive values, < 8
- Drought tends to occur
- Increased heatwaves
- High fire risk

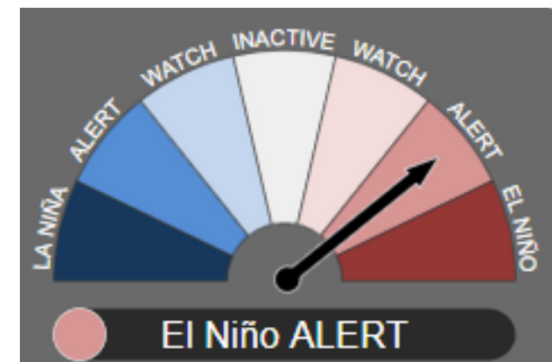
Readings between +7 and -7 are considered neutral (or stable).

Current condition

- The SOI reached El Niño thresholds in late-August/early-September but has remained neutral since early October.
- The 30-day Southern Oscillation Index (SOI) for November was -1.3 (90-day SOI value -2.3).



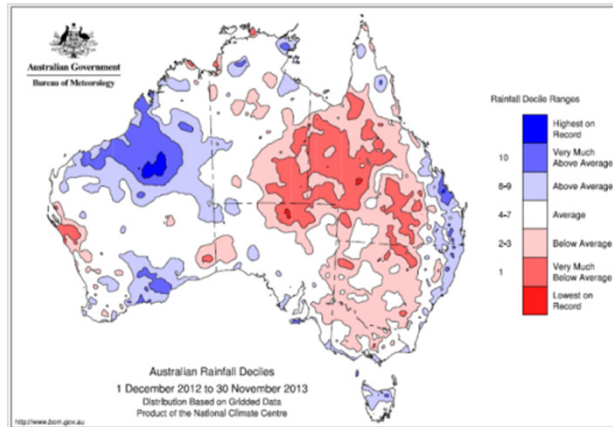
The ENSO outlook remains at 'ALERT'. This means there is a 70% chance of El Niño developing



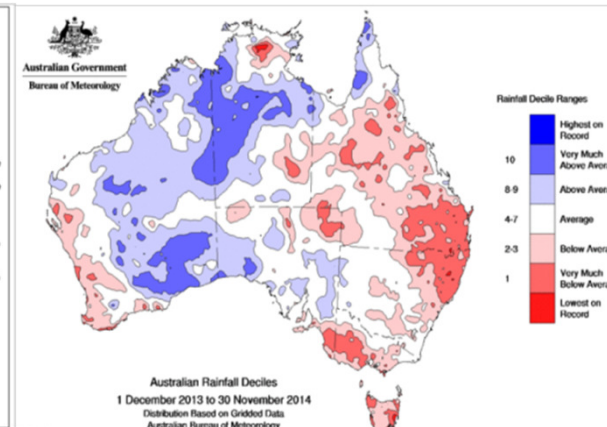
Annual rainfall deciles (2013 to 2018)

(Deciles = rainfall received compared to historical averages)

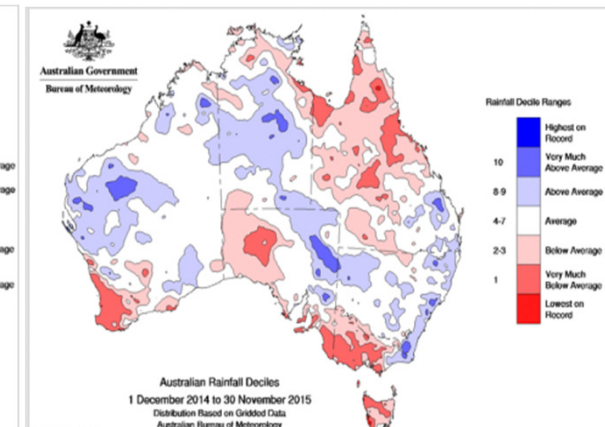
2013



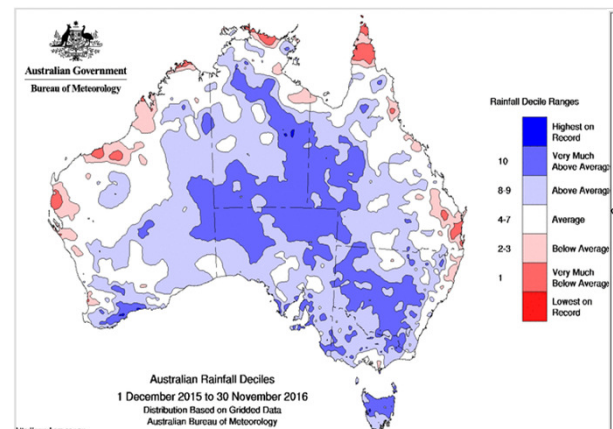
2014



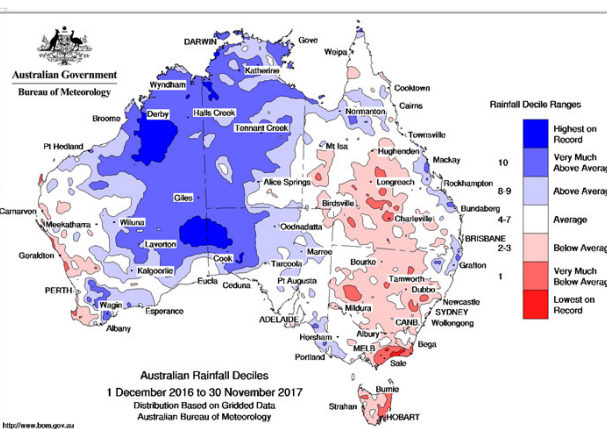
2015



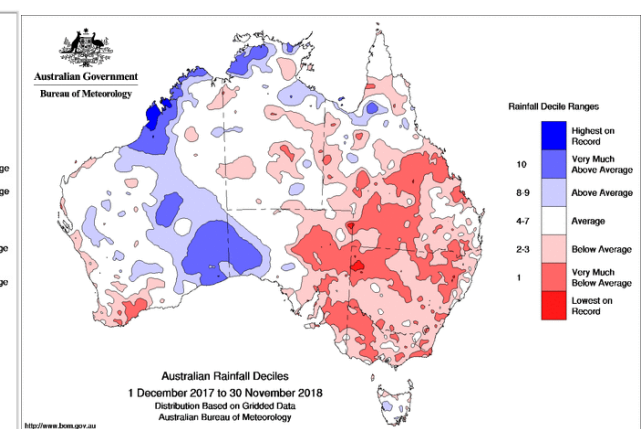
2016



2017



2018



Long-term rainfall deciles (78 Months)

Long-term rainfall deficiencies have occurred since early 2012. 'Below Average' to 'Very Much Below Average' rainfall deciles occurred throughout the majority of eastern Australia.

The primary two regions that exhibited 'Very Much Below Average' rainfall deciles were:

1. Central and western Victoria

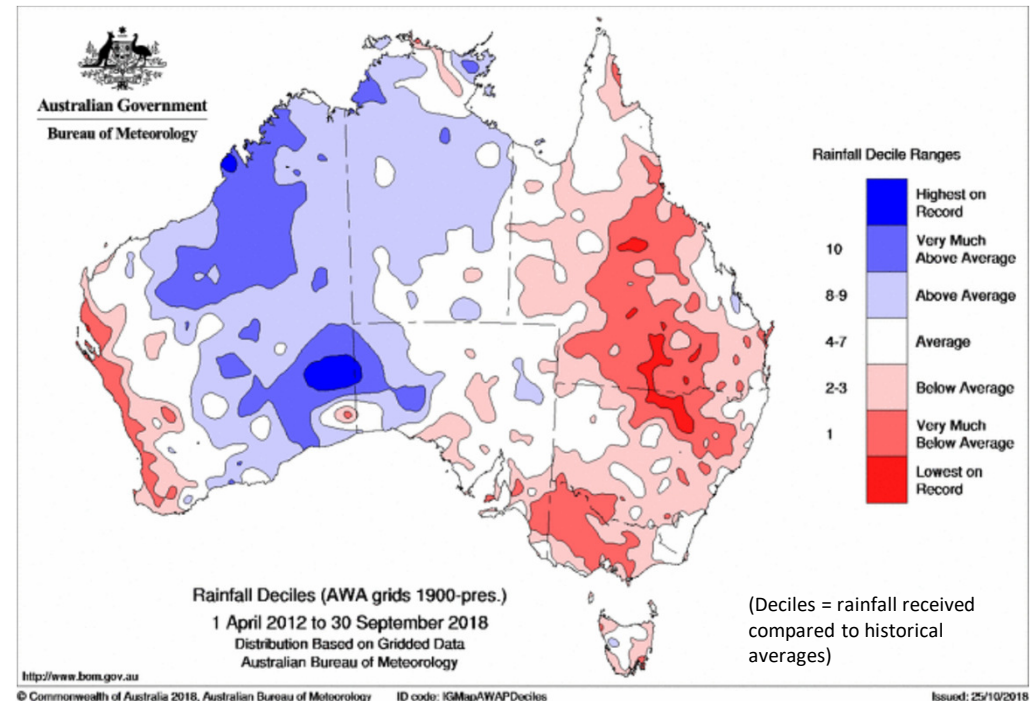
- In this area rainfall since April 2012 is only slightly higher than it was during the peak of the Millennium Drought in the 2000s.

2. Inland Queensland, extending north to parts of the north tropical coast around Townsville and south into northern border areas of New South Wales

- The worst-affected region has been southern inland Queensland and adjacent northern border areas of New South Wales, where rainfall for the 78-month period has been 20% or more below average.

Since early 2012, rainfall deciles were only 'Above Average' for eastern Australia in 2016.

Source: BOM 2018



Australian rainfall deciles for the 78 months from April 2012 to September 2018. Source: BOM 2018

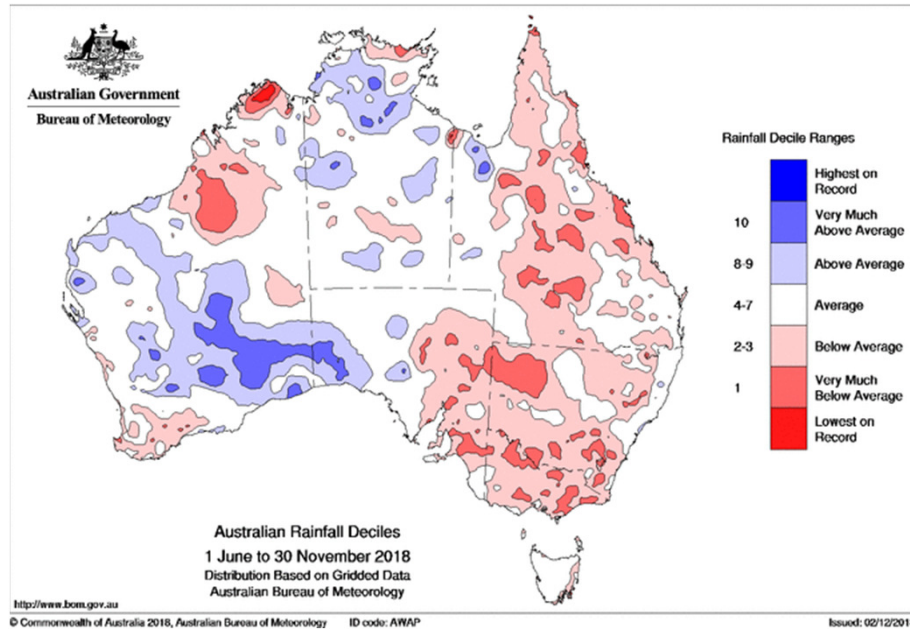
Long-term rainfall deciles (78 Months) contd.

- There are clear downward trends in rainfall since the 1990s in southern parts of eastern Australia, particularly Victoria.
- Only twice since 1900 have such dry conditions been sustained for a period of nearly two years across the Murray-Darling Basin.
- The intensity of the rainfall deficiencies in the Basin over the last two years is on a par with the worst seen in any individual two-year period during the Millennium Drought, although dry conditions have not yet been sustained for as long as they were during that event

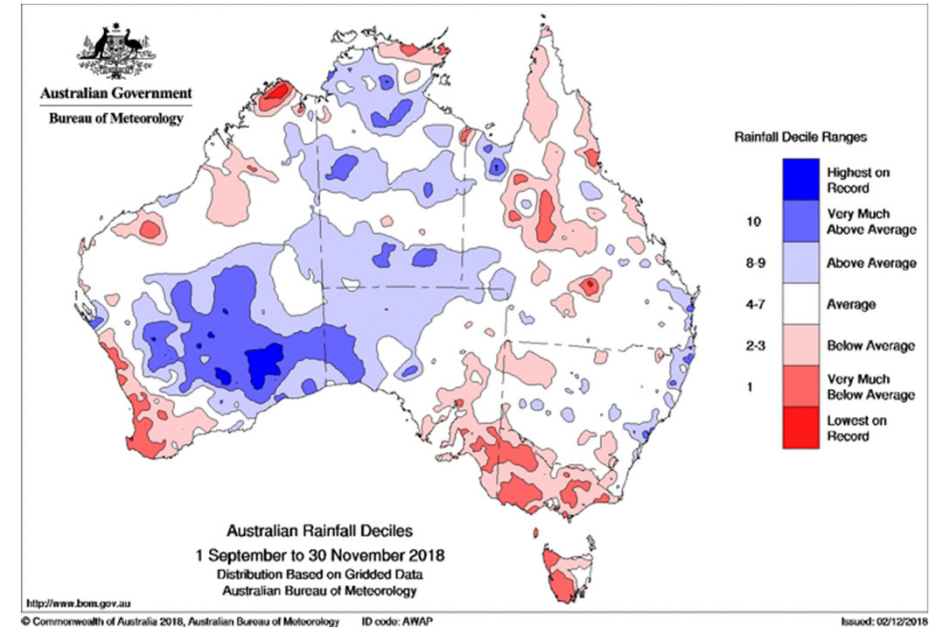
Current rainfall deciles

(Deciles = rainfall received compared to historical averages)

Winter – Spring 2018

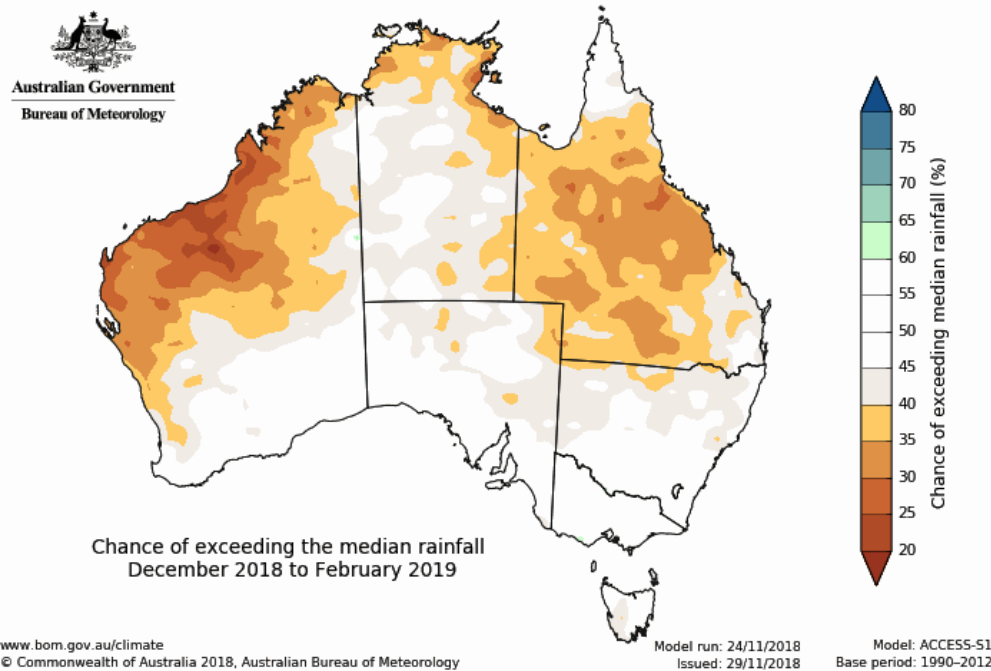


Spring 2018



Summer rainfall prediction (Dec -Feb)

The summer rainfall prediction can be used to indicate the potential impact on habitat for the forthcoming season.



Current prediction

- December to February is likely to be drier than average for large parts of WA, Queensland and the Top End of the NT.
- The rest of Australia there are roughly equal chances of a wetter or drier three months, i.e., no strong tendency towards a wetter or drier than average season ahead. This pattern is fairly typical of a summer El Niño event.

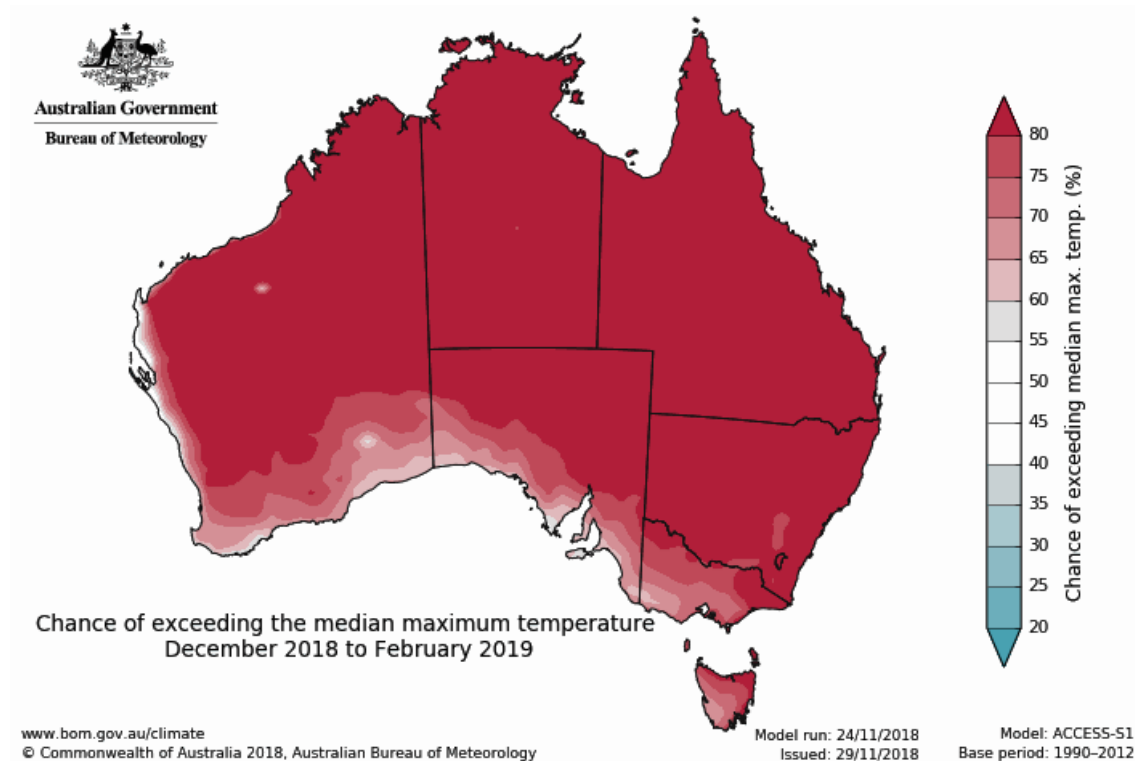


Next update will be on 20 December 2018

Source: www.bom.gov.au

<http://www.bom.gov.au/climate/ahead/archive/outlooks/20180628-outlook.shtml>

Summer temperature prediction (Dec - Feb)



Current prediction

- Summer (December to February) days are very likely to be warmer than average, with probabilities exceeding 80% for almost the whole of Australia.

Next update will be on 20 December 2018

Source: www.bom.gov.au

<http://www.bom.gov.au/climate/ahead/archive/outlooks/20180628-outlook.shtml>



Habitat availability



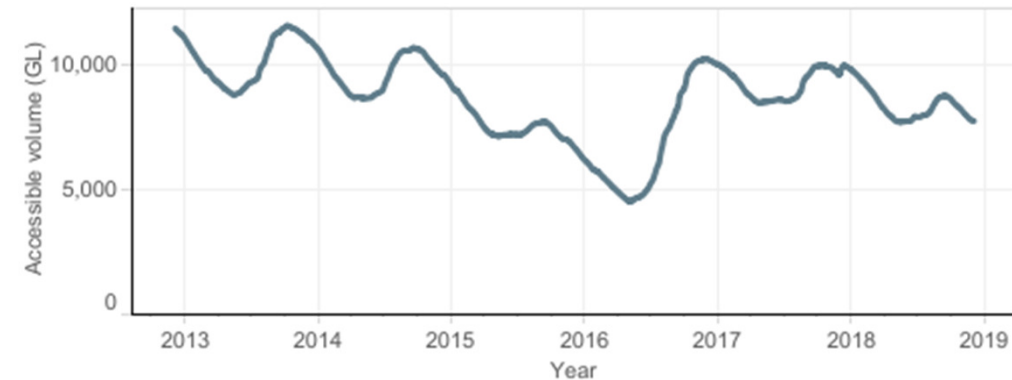
Victorian water storage levels

Victorian Water storage levels provide an indication of the availability of waterbird habitat and water-flow into feeder systems.

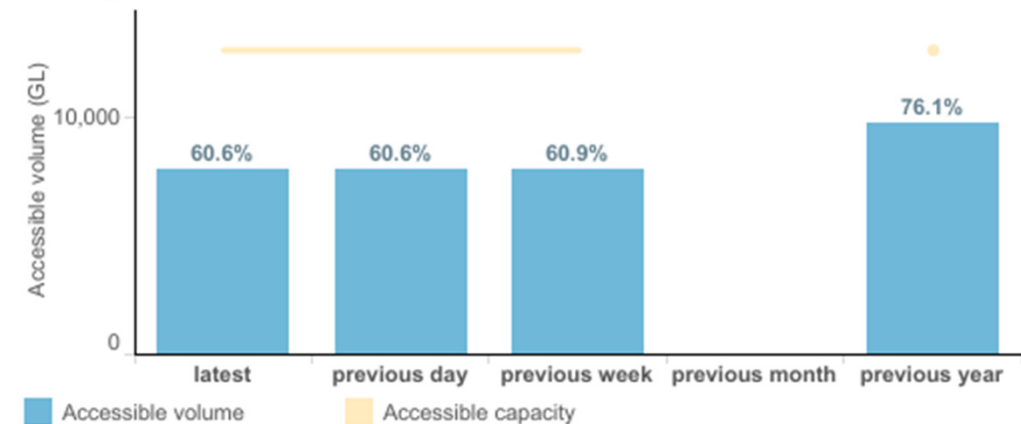
Current condition

- The total (Melbourne and Regional) Victorian water storage levels are currently at 60.6%
- Storage levels decreased by 15.5% from the same time last year.

Accessible volume - Victoria



History - Victoria



Note: These graphs are current as at 3/12/2018

Source: www.bom.gov.au

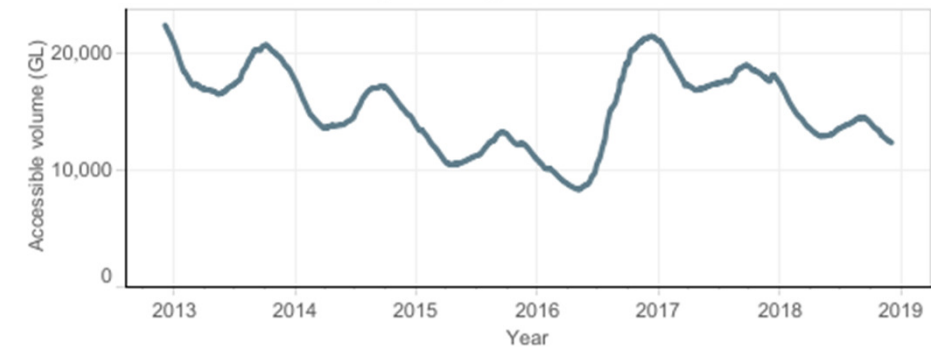
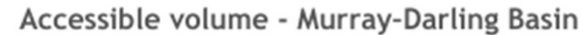
<http://www.bom.gov.au/water/dashboards/#/water-storages/summary/state?location=Victoria>

Murray-Darling Basin water storage levels

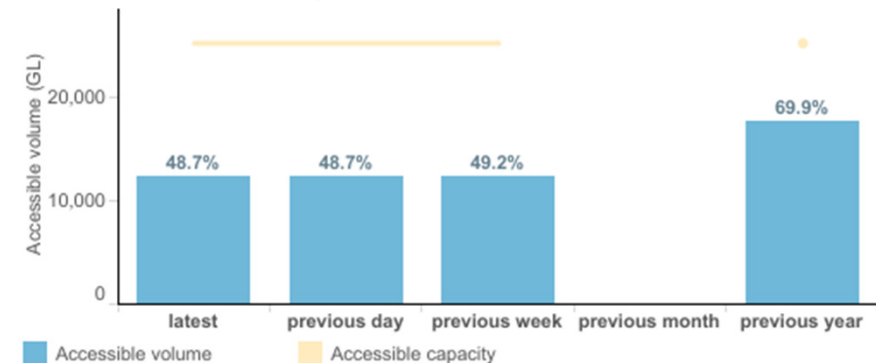
The Murray–Darling Basin is a critical area for waterfowl production and Australia’s most developed river basin (240 dams storing 29,893 GL).

Current condition

- Storage systems are at 48.7% of capacity, 21.2% lower than the same time last year.



History - Murray-Darling Basin



Note: These graphs are current as at 3/12/2018

Australia water storage levels

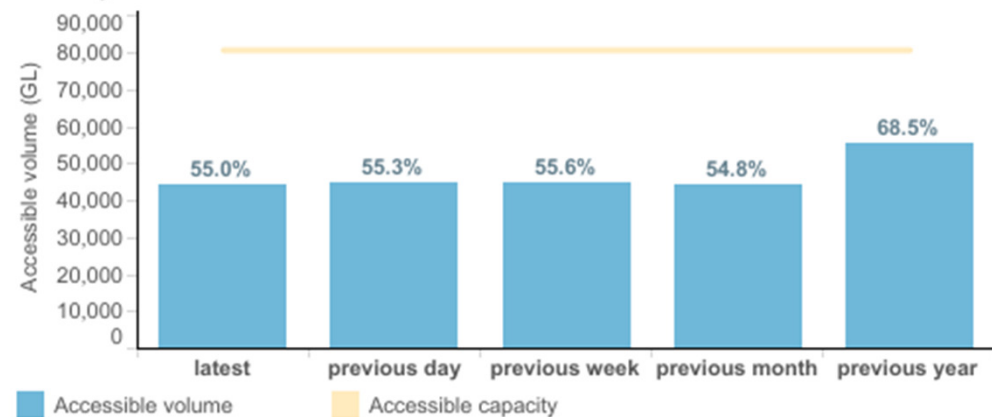
Current condition

- Storage systems are at 55%
- of capacity, 13.9 % lower than the same time last year.

Accessible volume - Australia



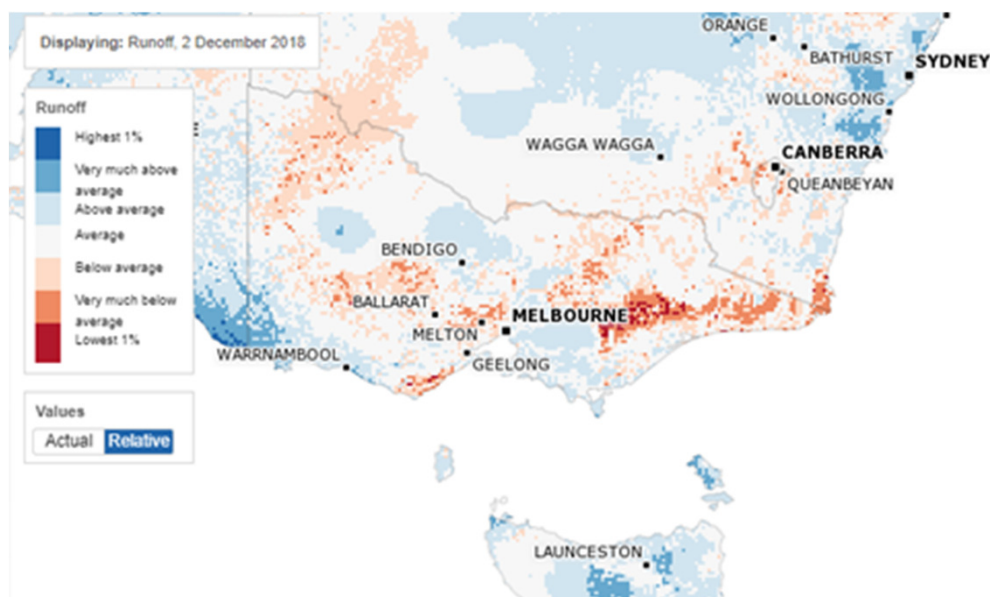
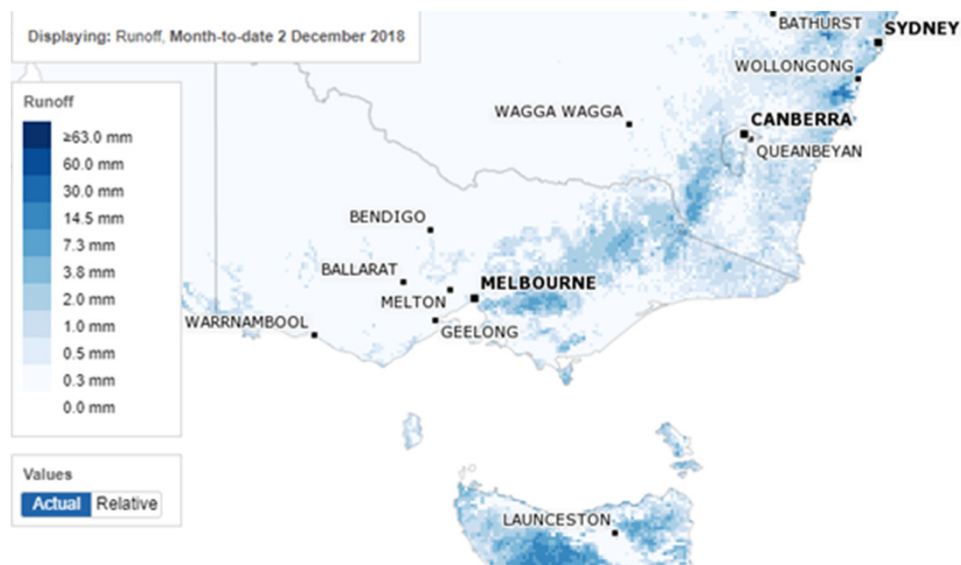
History - Australia



Note: These graphs are current as at 3/12/2018

Source: www.bom.gov.au

Runoff month-to-date



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.

Current condition

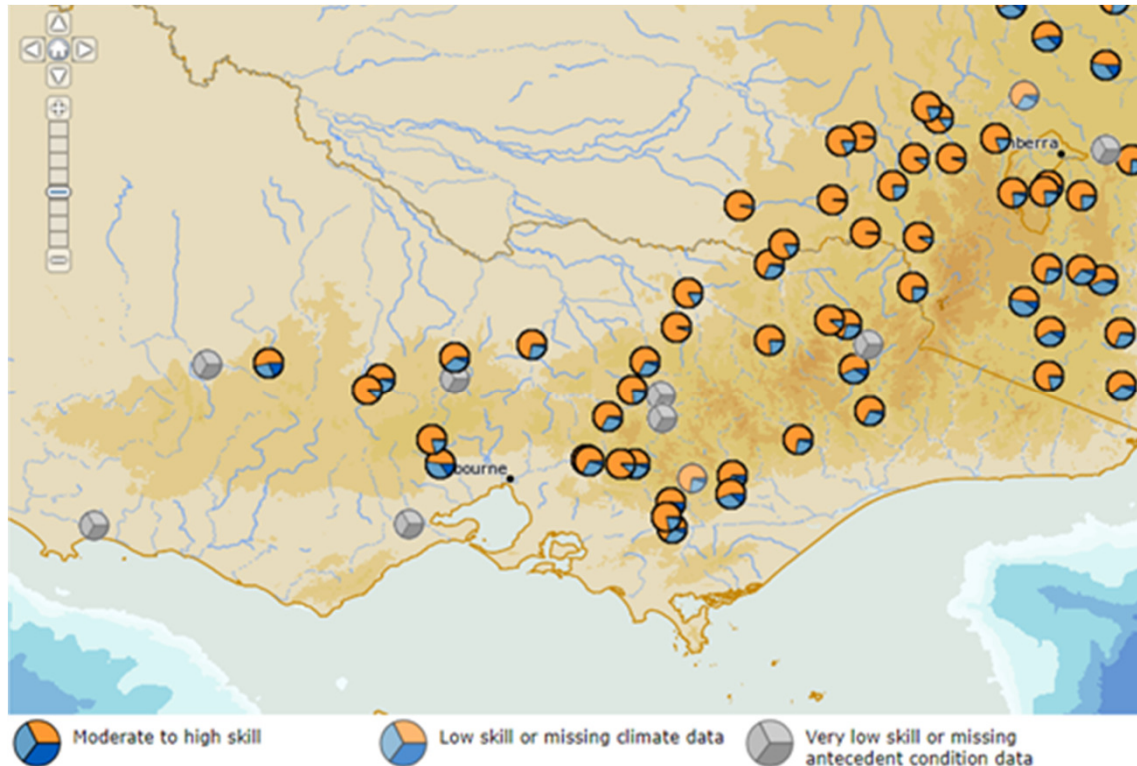
- Much of eastern Victoria and parts of southern NSW has experienced low levels of runoff during the last month.
- Across Victoria, relative runoff over the last month has been varied between average and very much below average.

Note: These graphs are current as at 3/12/2018

Source: www.bom.gov.au

<http://www.bom.gov.au/water/landscape/#/qtot/Actual/day/-39.39/146.47/5/Point////2018/11/20/>

Streamflow predictions (Nov 18- Jan 19)



Streamflow has a direct influence on waterbird habitat and waterbird abundance has been strongly linked to related to river flows.

Current prediction

- For November 2018–January 2019, low stream-flows are more likely at 128 locations, spread across most of Australia.
- Victorian predictions indicate lower than median stream-flows are likely in most survey areas.



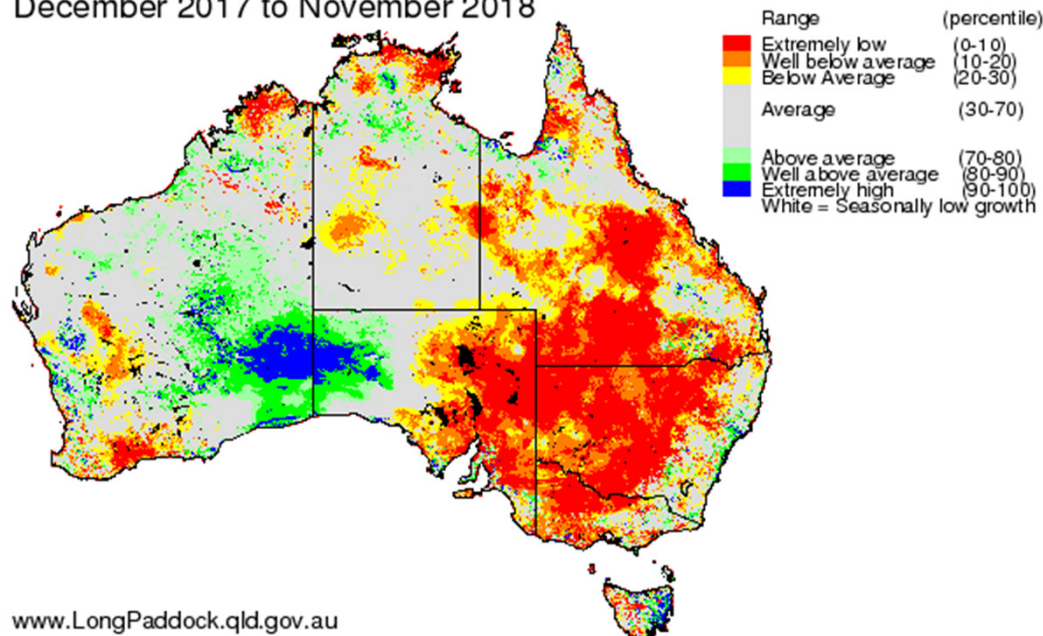
Pasture conditions

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 waterbirds.

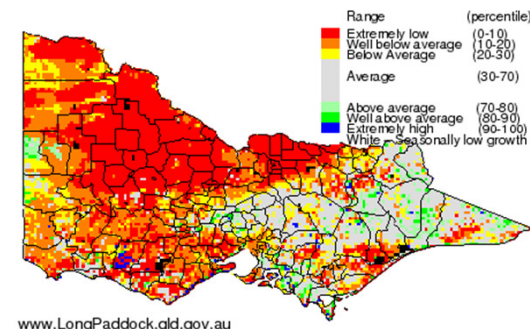
Current conditions

- Compared to historical records, the majority of eastern Australia has recorded 'Extremely low' pasture growth, except for areas along the eastern seaboard and northern QLD.
- Pasture growth over the last 12 months throughout Victoria has generally been 'Extremely low' in the western side of the state and average in the east, compared to historical records.

Pasture Growth Relative to Historical Records from 1957
December 2017 to November 2018



Pasture Growth Relative to Historical Records from 1957
December 2017 to November 2018





Population indices of abundance and distribution

Eastern Australian Aerial Waterbird Survey (EAAWS)

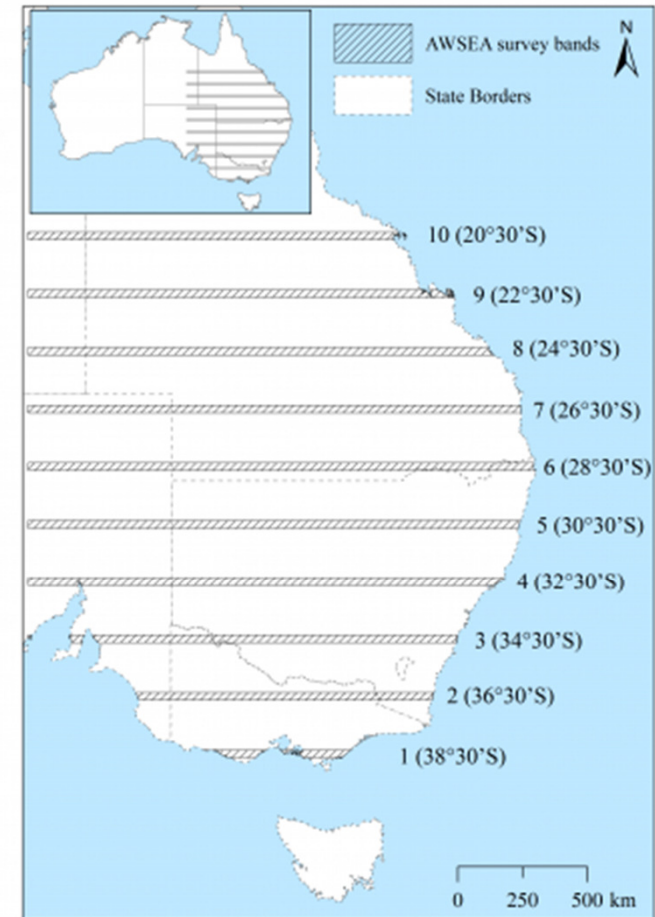
The EAAWS monitors changes in the abundance and distribution indices of 50 waterbird species in eastern Australia.

EAAWS 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 up to 2000 wetlands.

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
- limited information on waterbird breeding.

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



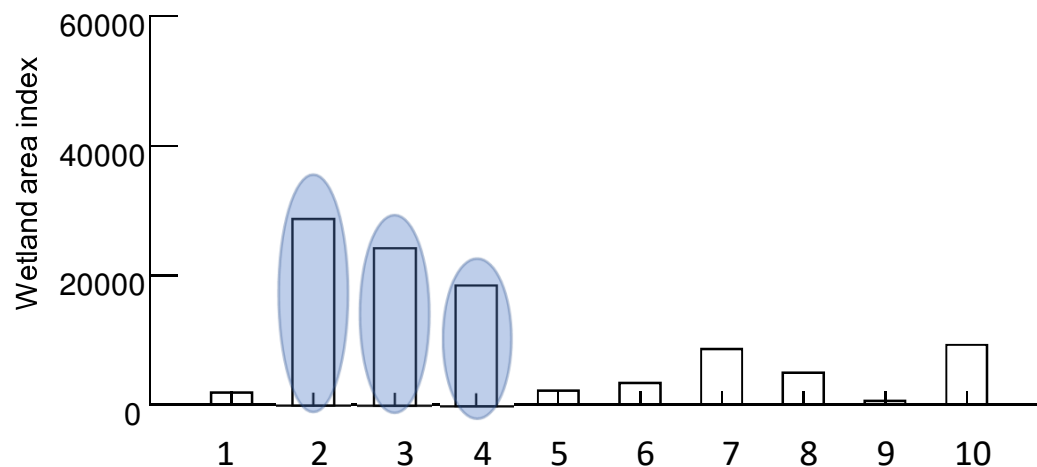
Wetland area index

The wetland area index is a measure of wetland availability across all 10 EAAWS transects. This gives an indication of the habitat availability for waterbirds.

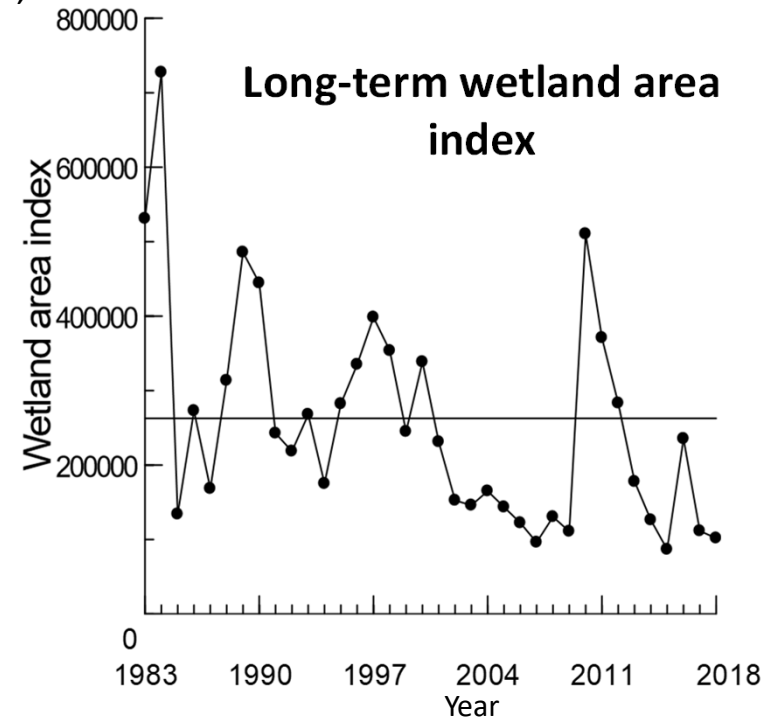
Current condition

- The 2018 wetland area index was well below the long-term average.
- The majority of the habitat surveyed occurred in Bands 2, 3 and 4.

2018 Total wetland area index

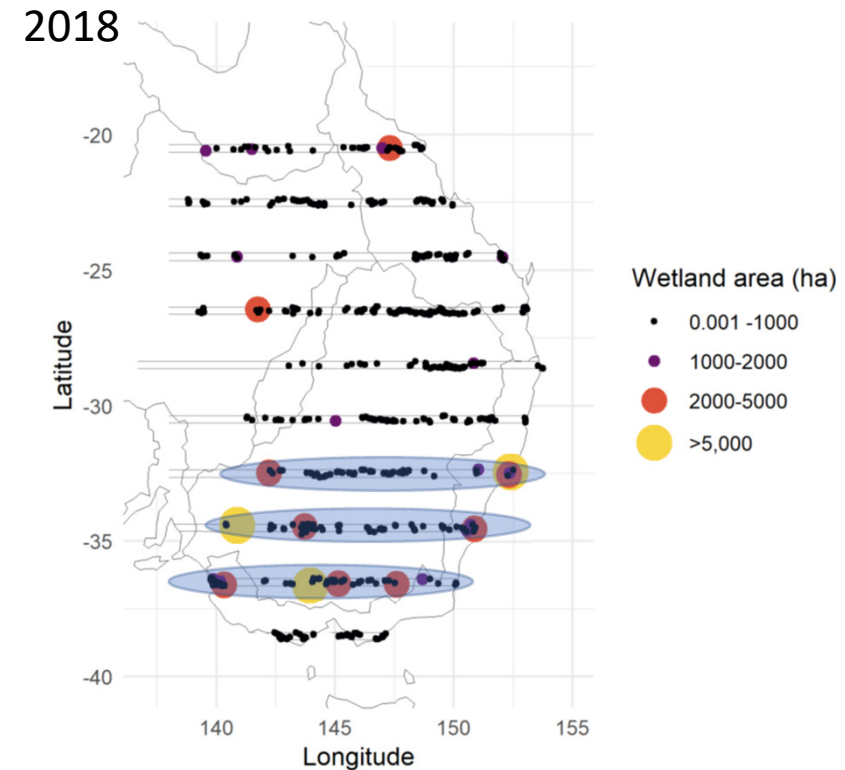
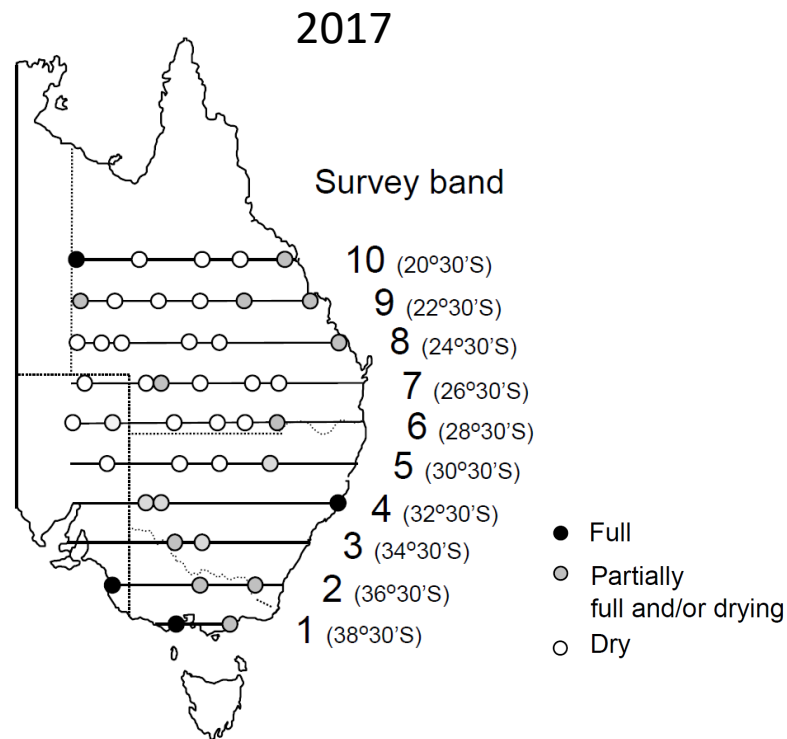


Wetland area index in relation to the 10 survey bands of the Eastern Australian Aerial Waterbird Survey in 2018.



Changes over time in wetland area in the Eastern Australian Aerial Waterbird Survey (1983 - 2018); horizontal lines show long-term averages

Wetland distribution



- The majority of the habitat surveyed occurred in Bands 2, 3 and 4.
- The year 2018 has been exceptionally dry over the mainland southeast, with significant rainfall deficiencies continuing to affect large areas of eastern Australia.
- Most Cooper Creek wetlands in the Lake Eyre Basin, apart from Lake Dunn, were dry, including Lake Galilee.
- Wetlands in the Lake Eyre Basin including the Diamantina and Georgina rivers, supported low numbers of waterbirds. Lakes Torquinnie and Mumbleberry were dry.

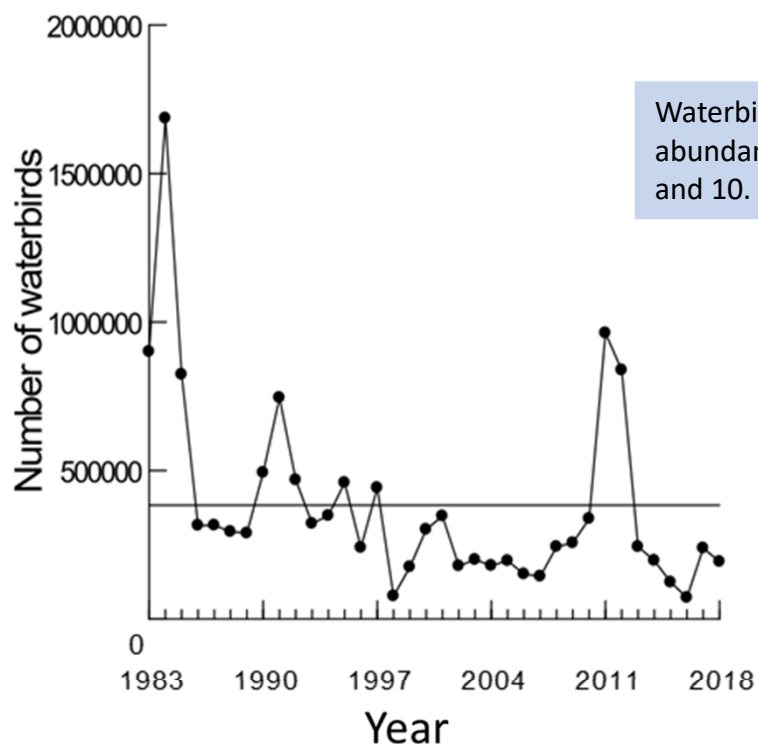
Circles indicate major wetlands or complexes along transects. However, all wetlands over 1 ha are counted along transects

Index of waterbird abundance (all waterbirds)

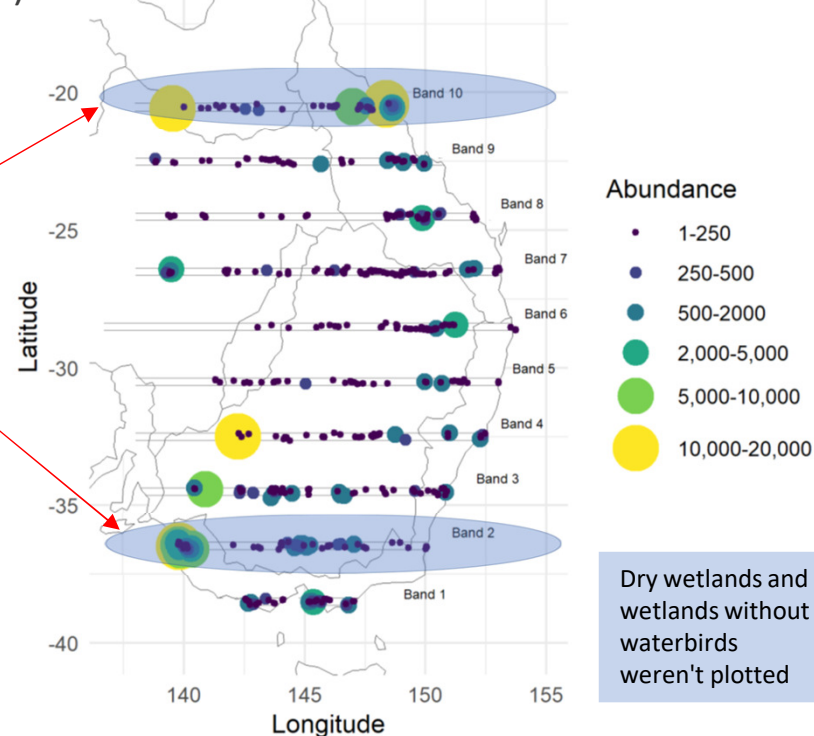
Up to fifty waterbirds species are surveyed in October each year and includes all Victorian game duck species and non-game species such as swans, Freckled Duck, ibis, coots etc.

Current survey

- The total index of waterbird abundance (n=192,906) decreased from 2017 and is below the long-term average
- It is the 9th lowest in 36 years.



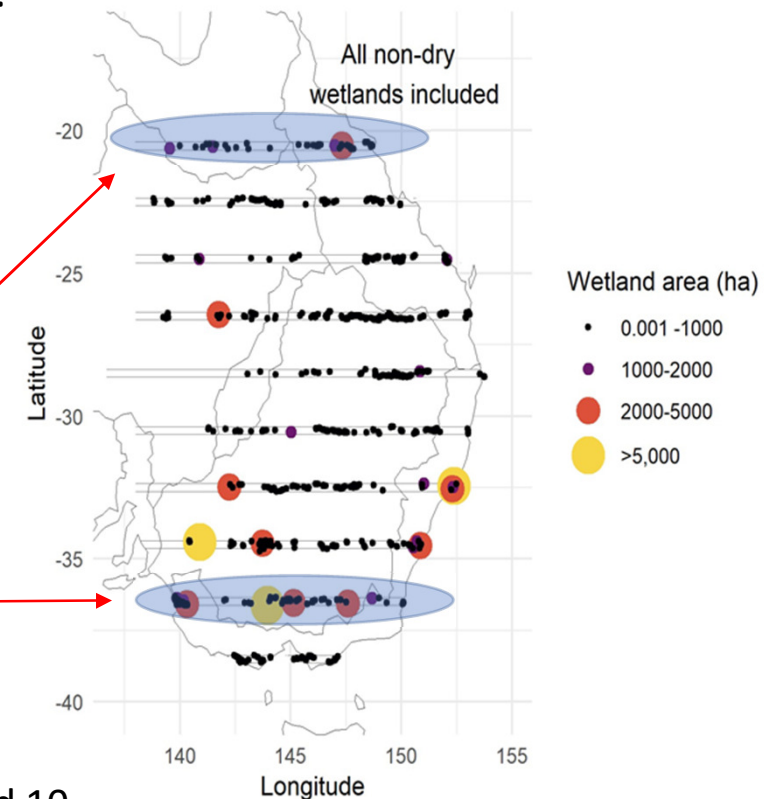
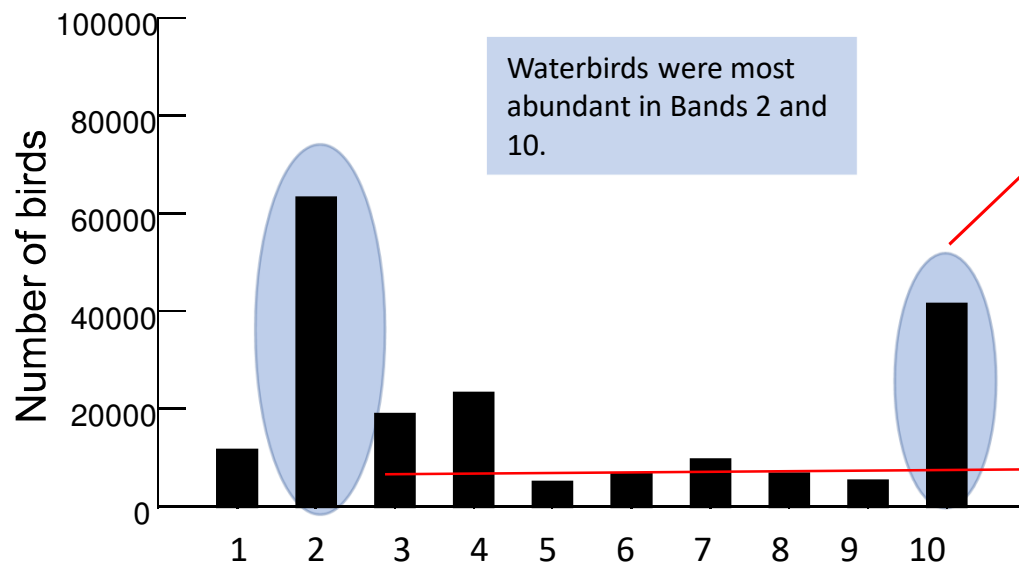
Waterbirds were most abundant in Bands 2 and 10.



The abundance index is not a total count. It provides information on the trends in waterbird abundance along the survey bands.

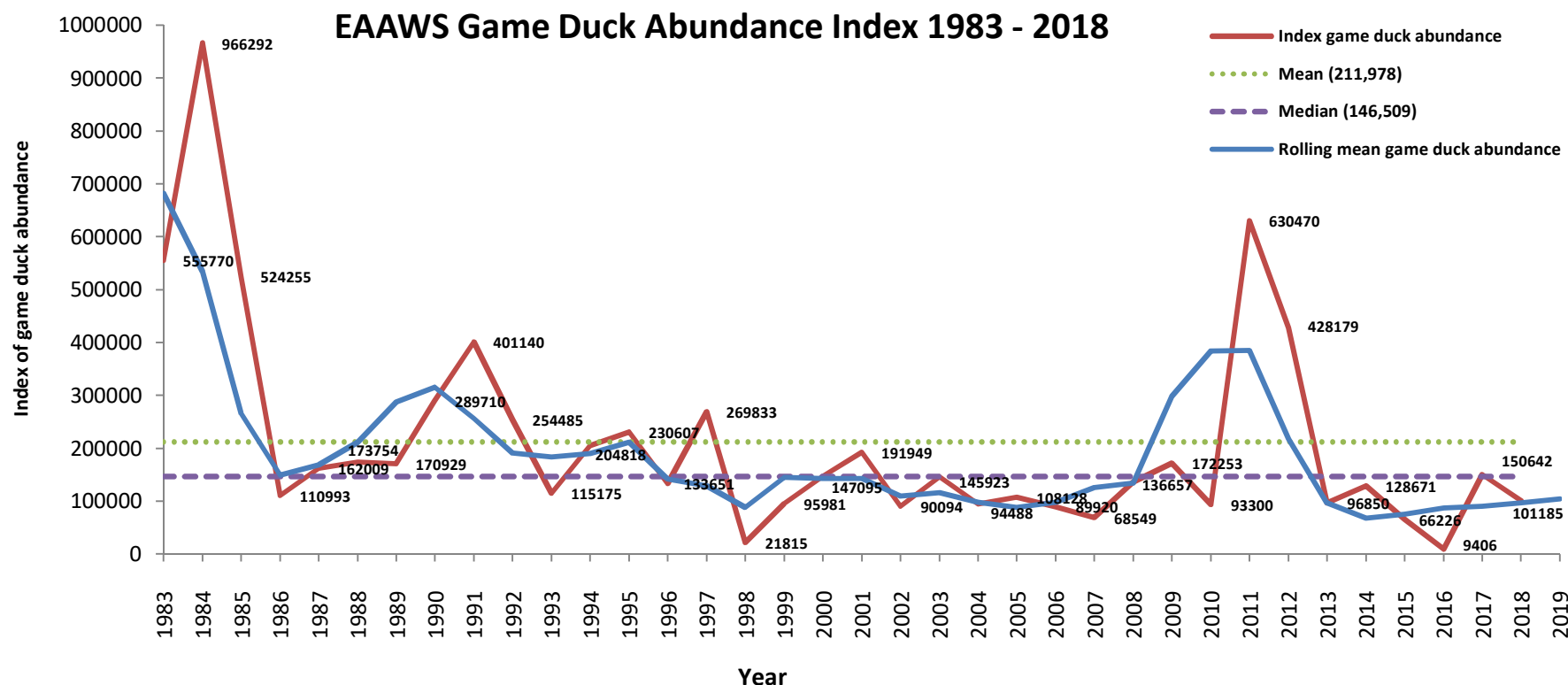
EAAWS waterbird distribution

Where are the most birds in relation to wetlands?



- Surveyed waterbirds were most abundant in Bands 2 and 10.
- The majority of the habitat surveyed occurred in Bands 2, 3 and 4.
- Waterbirds were less concentrated and more widely dispersed than in the previous year.
- Nine wetlands supported more than 5,000 waterbirds representing 47% of the total abundance. These areas were distributed across Bands 2-4 and 10 and generally supported high species diversity.

Game duck abundance index



- This index includes information on game ducks only.
- Index has decreased from 2017 due to declines in indices for Grey Teal and Pink-eared ducks.
- The 2018 game duck index was below the median and the 10th lowest recorded in 36 years.

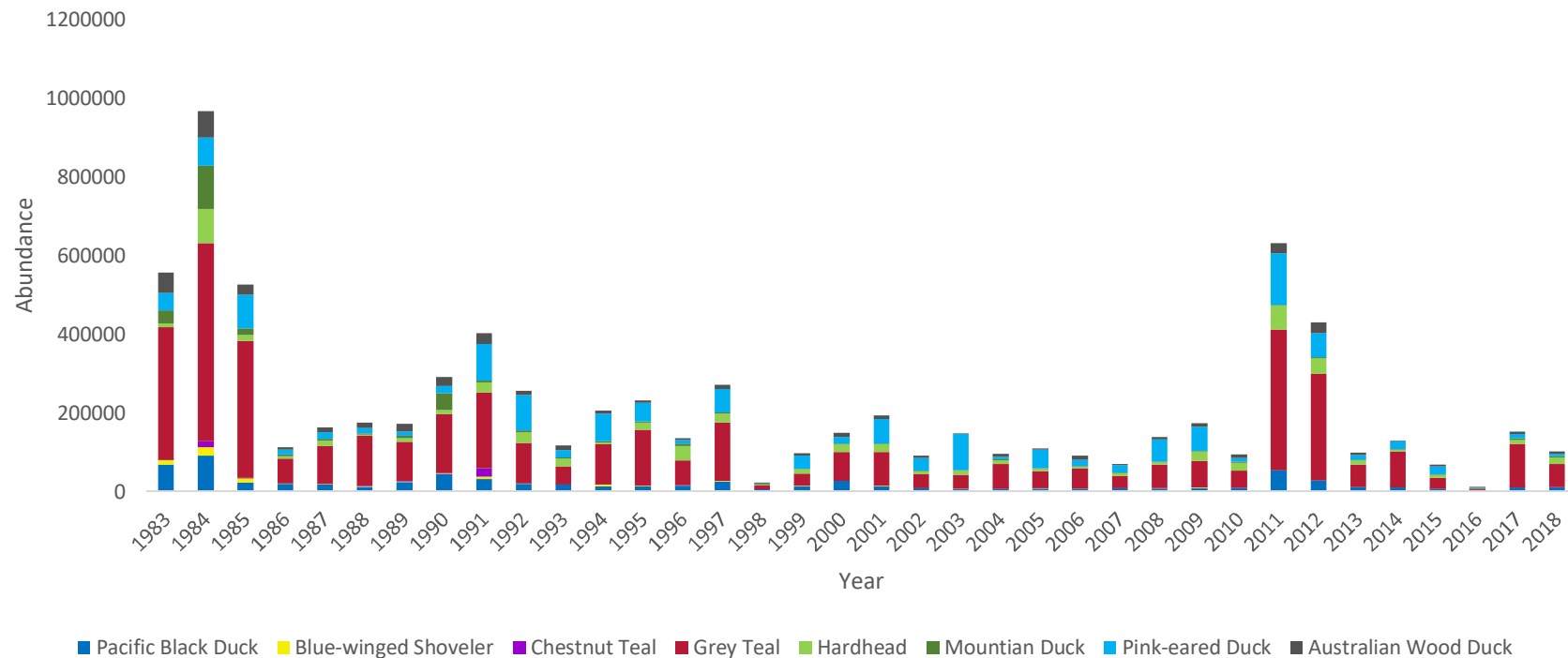
The abundance index **must** be considered in context with a number of factors including:

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

- The rolling mean is over a 3 year period
- The median is the mid value and more statistically suitable than a mean, when outliers are present

Relative abundance of game duck species 1983-2018 (EAAWS)

Relative abundance of game waterfowl species
1983 - 2018



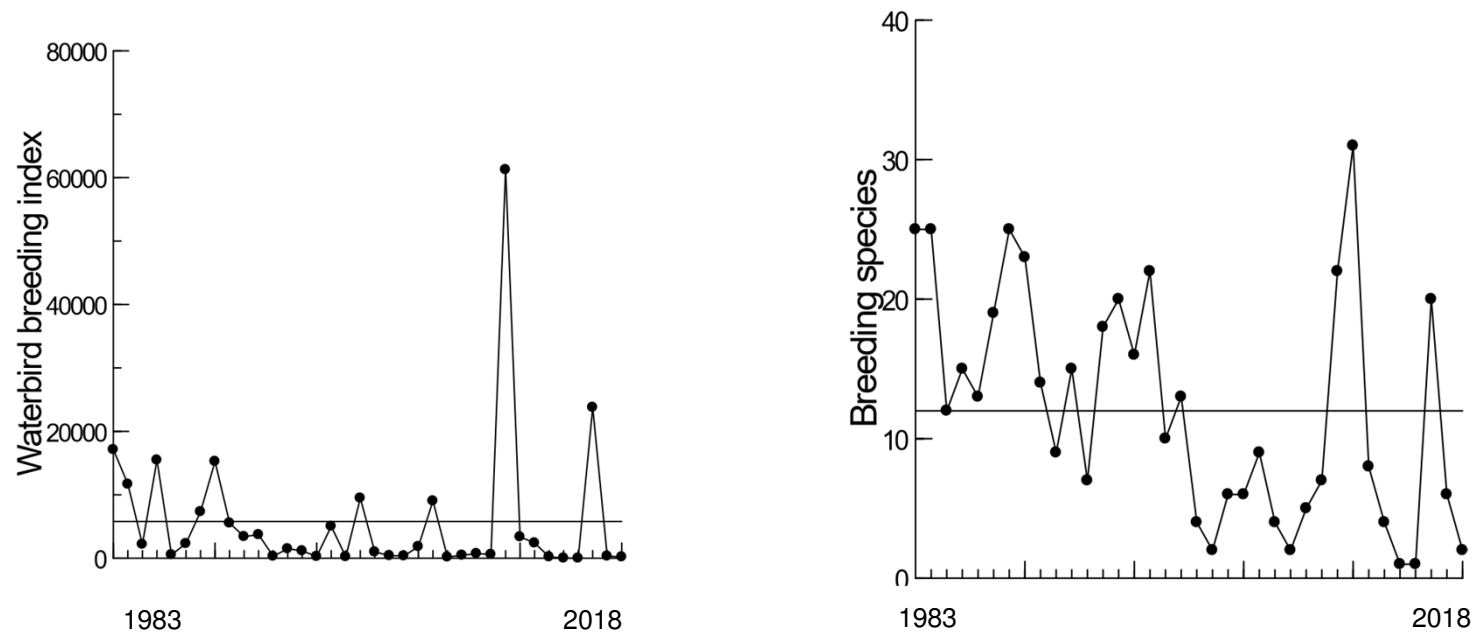
The majority of game ducks detected in 2018 EAAWS were:

- Grey Teal 56.8%, Hardhead 17.0%, Black Duck 8.5%, Wood Duck 6.7% and Pink-eared Duck 5.8%.



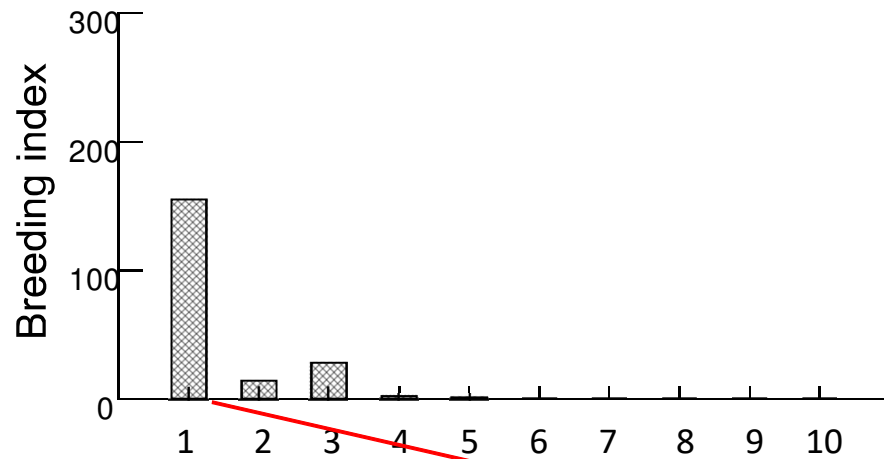
This aerial survey is not well suited to detecting Wood Duck or other species that inhabit rivers, creeks and waterways

Waterbird breeding (all species combined)

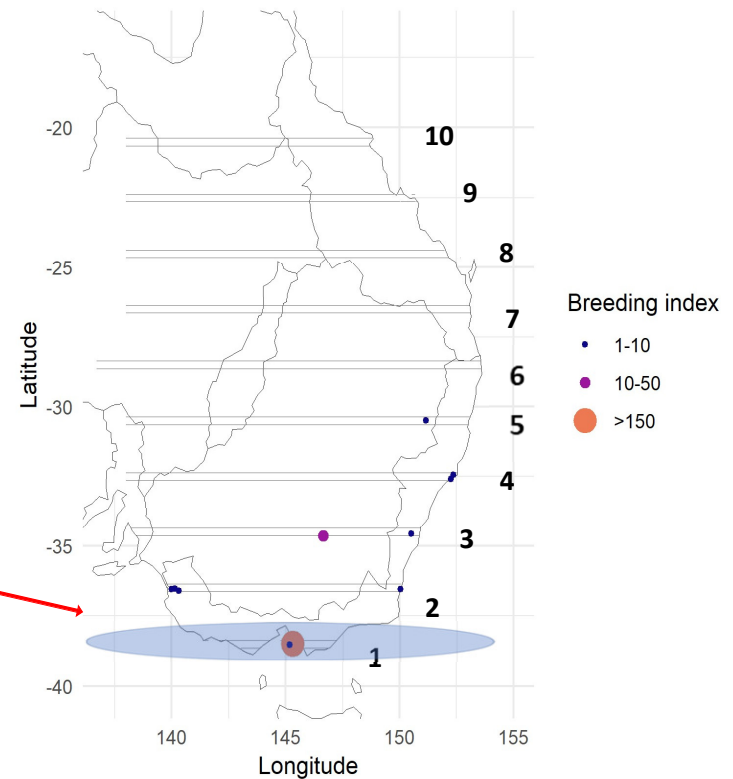


- The total breeding index of 200 (all species combined) declined from the previous year and remains well below the long term average
- Breeding species' richness was also low, with only two species recorded breeding: White Ibis and Black Swan

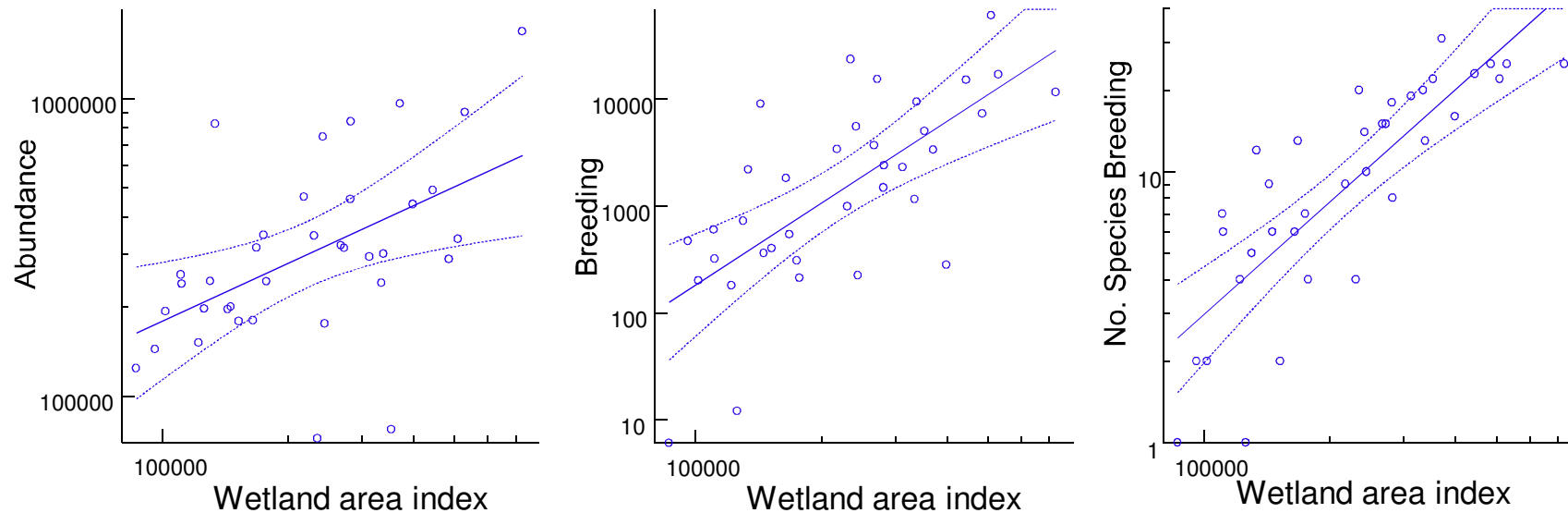
Waterbird breeding (all species combined)



- Most of the breeding occurred in Band 1, which is consistent with 2017

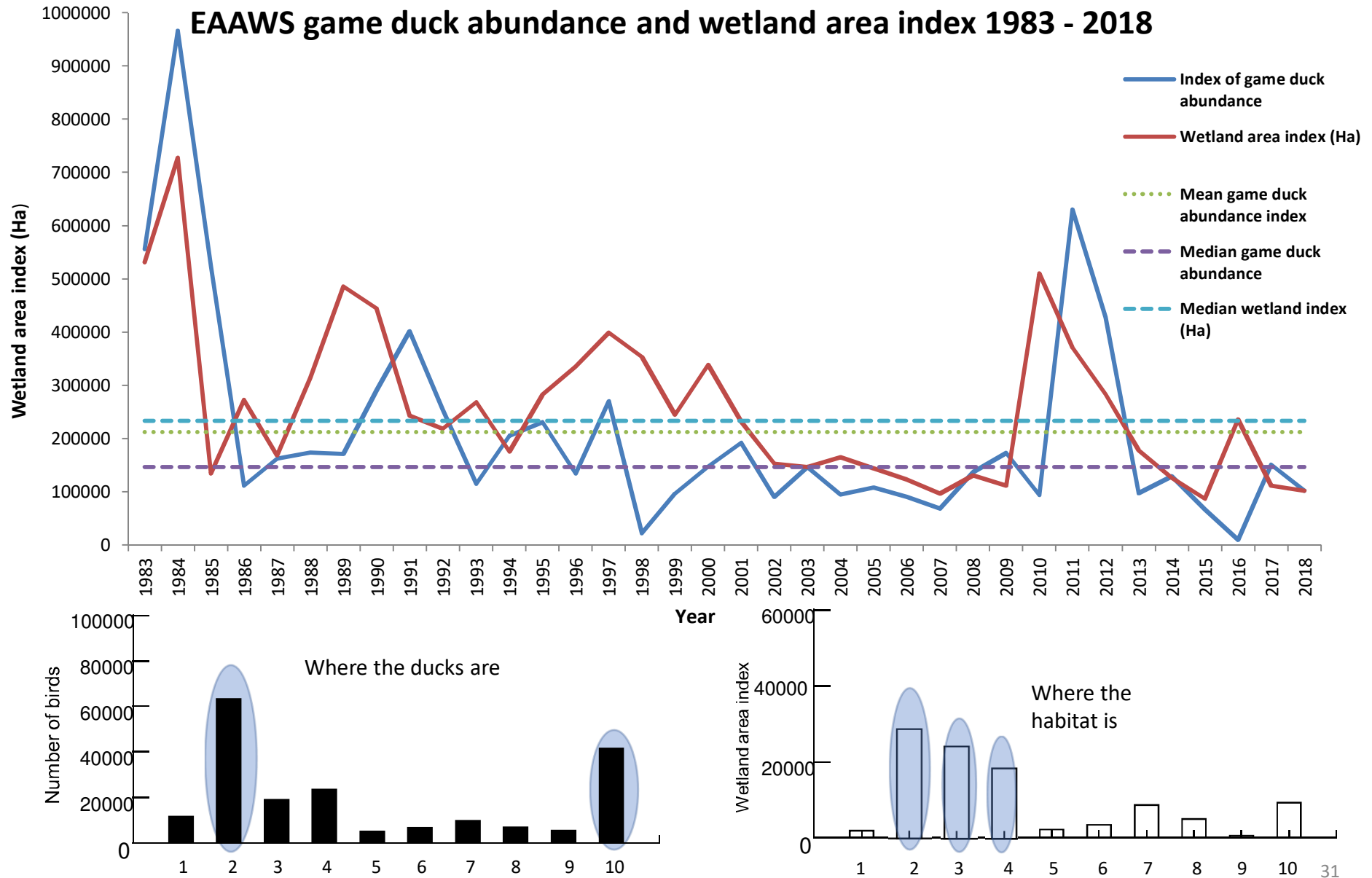


Interactions: Abundance, breeding and habitat



- Overall waterbird abundance, breeding index and breeding species increase with available habitat (wetland area index).
- Declines in wetland area are likely to result in declines in waterbird abundance, breeding and breeding species richness

Game duck abundance, distribution and habitat - summary



A large flock of birds, likely terns, is captured in flight against a vibrant sunset sky. The sky transitions from a deep orange near the horizon to a darker, more muted orange at the top. The birds are silhouetted against the bright sky, creating a dense pattern of small, dark shapes. In the foreground, the dark silhouettes of trees and a line of vegetation are visible along the bottom edge of the frame. The overall scene conveys a sense of natural abundance and movement.

Victorian Harvest Estimates 2018

2018 harvest estimates overview

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

In 2018:

- There was a maximum of 25,799 Game Licence holders endorsed to hunt duck, compared to 26,324 in 2017.
- Total seasonal harvest was estimated at 396,965 ducks (long-term average is 386,711 ducks).

Opening weekend

- 36% of licence holders (~8,958 licence holders) hunted, compared to 43% (~10,383 licence holders) in 2017.
- 14% of the total estimated seasonal harvest (~56,609 ducks) occurred.
- An estimate of 6.3 ducks per licence holder was harvested during opening weekend.



2018 harvest estimates overview contd.

Entire season

- 55% of licensed duck hunters (~14,125 duck hunters), hunted at some point during the season.
- Total hunting days was an estimated 91,570, below the long-term average of 96,564 days.
- Each licence holder hunted an average of 3.6 days, below the long-term average of 4.04. However, they took an average of 4.33 ducks per hunter day, which is above the long-term average of 3.97.
- An estimate of 15.7 ducks were harvested per licence holder for the season, below the long-term average of 16.05.

Land Use

- More duck hunting occurred on private land (50.1%) than on public land (46.5%), with the remainder reporting they hunted on both land classifications.
- Similarly, 52.5% of the estimated harvest occurred on private land compared to 43.6% on public land, with the remaining balance occurring on both.
- Total harvest was estimated to be greatest in the West Gippsland CMA, followed by the Goulburn Broken CMA and the North Central CMA. The five towns with the highest total reported number of ducks harvested were (in descending order) Sale, Kerang, Horsham, Bairnsdale and Shepparton.

The following table summarises this information

Long-term harvest estimates

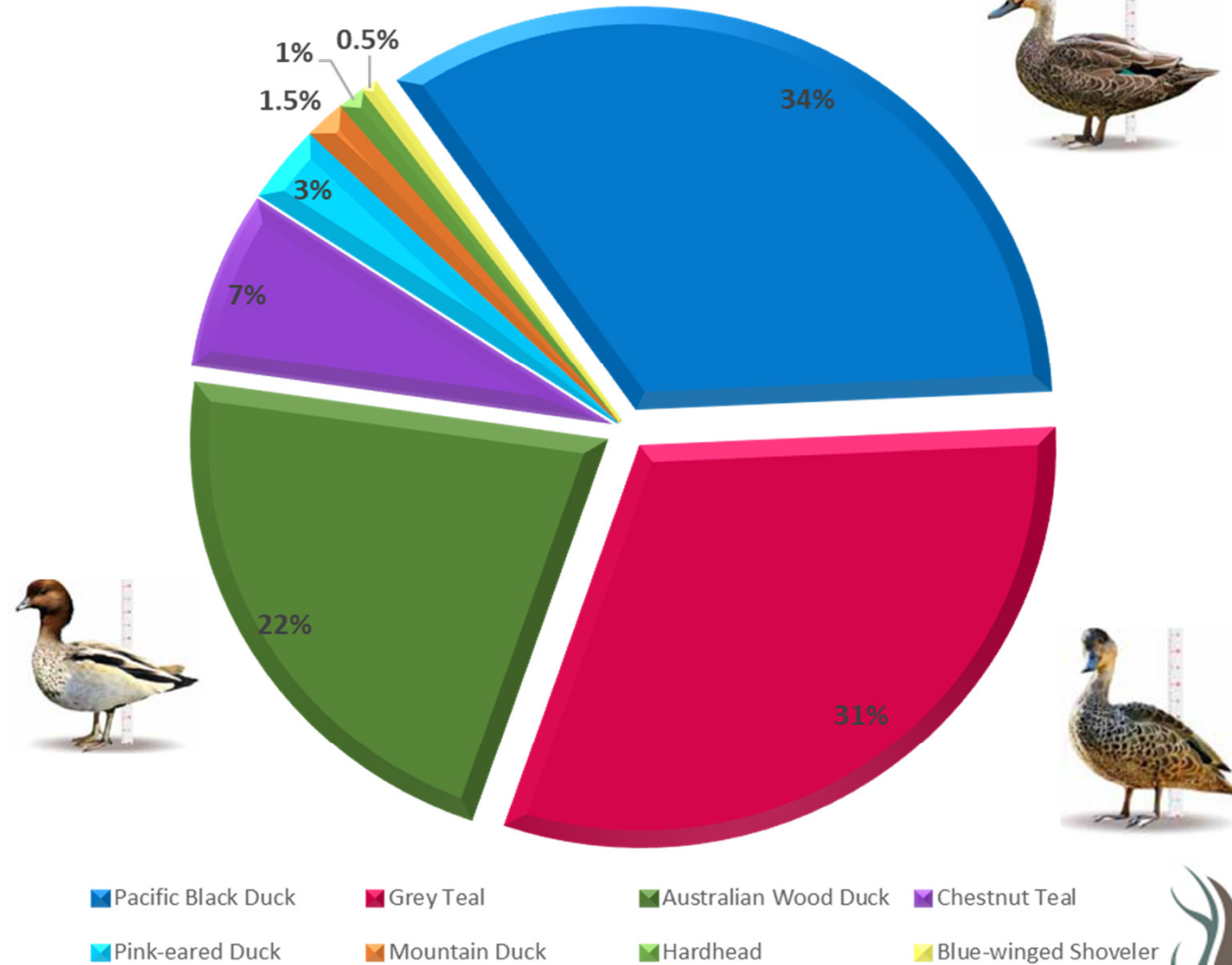
Estimates	2009 ¹	2010 ²	2011	2012	2013	2014	2015 ³	2016 ⁴	2017 ⁵	2018 ⁶	Average 2009- 2018
Licensed hunters	18,348	21,861	23,716	24,533	24,036	26,261	25,837	25,681	26,324	25,799	24,240
Total # hunter days	76,659	85,801	103,450	109,718	91,748	118,800	91,264	100,749	96,508	91,570	96,627
Total harvest	222,302	270,574	600,739	508,256	422,294	449,032	286,729	271,576	438,353	396,965	386,682
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	4.0
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	16.0
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	6.3
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	4.1

Harvest estimates are at 95% confidence intervals

Modified season

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)

Estimates of harvest per game duck species



Pacific Black Duck

Grey Teal

Australian Wood Duck

Chestnut Teal

Pink-eared Duck

Mountain Duck

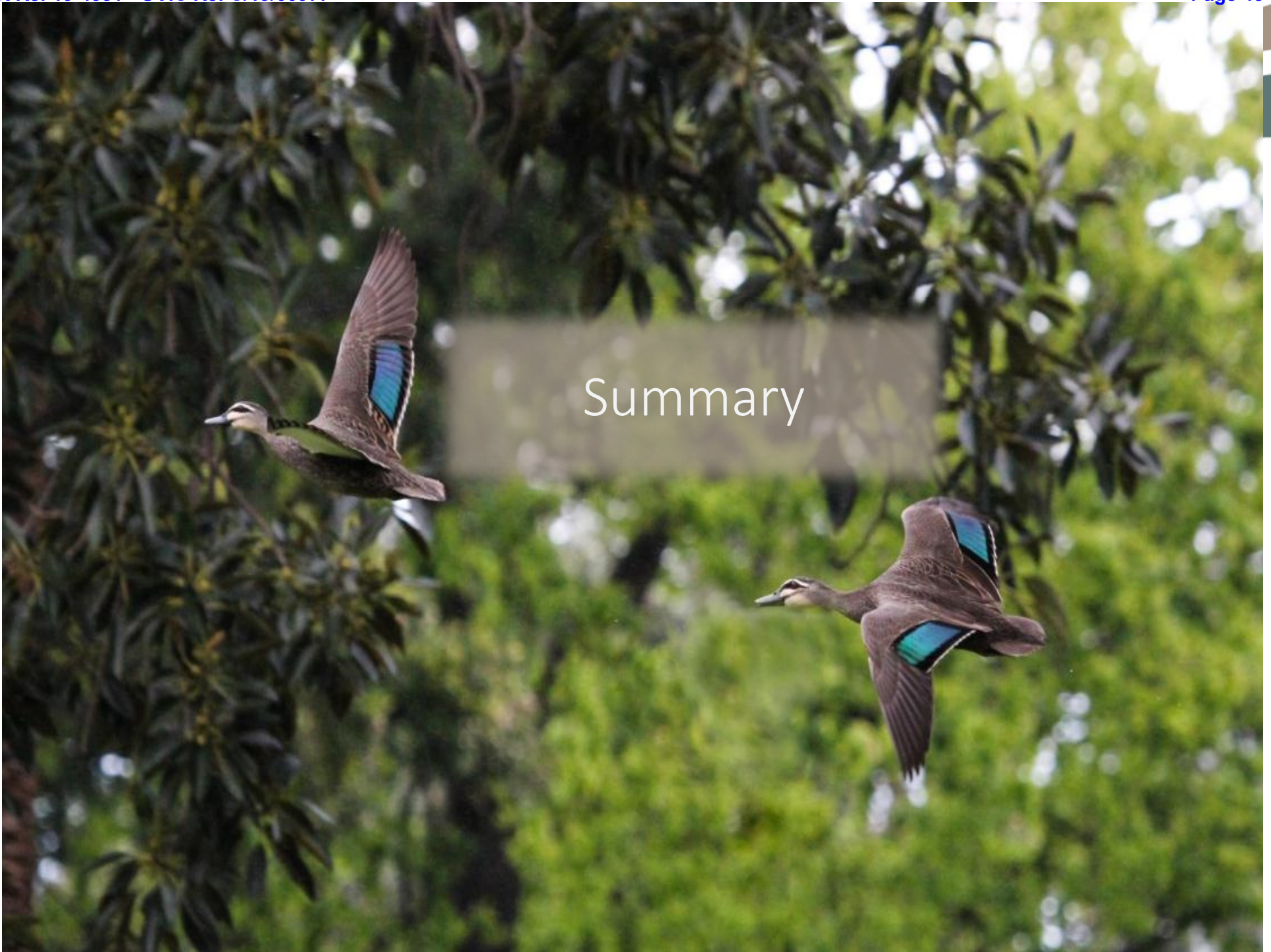
Hardhead

Blue-winged Shoveler



Black Duck, Grey Teal and Wood Duck consistently make up the majority of the harvest each year

Summary



General summary

Climate

- Since December 2017 the majority of eastern Australia experienced 'Below Average' and 'Very Much Below Average' rainfall.
- The El Niño Southern Ocean Index outlook remains at 'ALERT'. This means there is a 70% chance of El Niño developing .
- Prediction is for average to below average rainfall during Summer for eastern Australia, with hotter than average days.

Habitat and bird distribution and abundance

- The index of wetland area is below the long-term average. The majority of the habitat was recorded in Bands 2, 3 and 4, covering western-central and southern NSW, northern Victoria and south-eastern South Australia.
- Waterbirds were less concentrated and more dispersed than the previous year.
- The highest indices of abundances were recorded in northern QLD (Band 10) and southern NSW, northern Victoria and south-eastern South-Australia (Band 2). Other high abundances were recorded in western and central NSW (Band 2-4).
- The index of abundance for game ducks was below the long-term median. This was due to lower Pink-eared Duck and Grey Teal indices. While the other game duck indices (6 remaining species) have all increased. However, this should be considered in the context of declining habitat availability.



References

- Bureau of Meteorology - www.bom.gov.au
- Bureau of Meteorology (2018) *Special Climate Statement 66- and abnormally dry period in eastern Australia*, Australian Government.
- 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)
- Moloney, P.D. and Turnbull J.D. (2018) *Estimate of duck and Stubble Quail harvest in Victoria for 2018: results from surveys of Victorian Game Licence holders in 2018*. Unpublished Client Report for the Game Management Authority. Arthur Rylah Institute for Environmental Research, Department of Environment, Land, Water and Planning, Heidelberg, Victoria.
- Porter JL. Kingsford RT. Brandis K (2018) *Aerial Survey of Wetland Birds in Eastern Australia- October 2018 Annual Summary Report*, University of New South Wales 2018.
- The Long Paddock- www.longpaddock.qld.gov.au

Attachment 2 – Summary of stakeholder submissions received 14 December 2019

*Presentations received from stakeholders:***Field and Game Australia****Recommendations:**

- Full unmodified 2019 season, including all eight-game species.

New information:

- Increase in Blue-winged Shoveler detected by Field and Game in the November count from 3,727 in 2017 to 13,666.
- Believes that there is sufficient habitat and refuge available for game duck when collectively taking into account the Murray River, 450,000 dams, 13,000 natural wetlands, 6,300 kilometers of constructed channels, 85,000 kilometres of natural watercourses and 120 estuaries.

Issues:

- Duck hunting has a huge economic benefit 24%, or \$99.4 million of the total Victorian hunting expenditure (DEPI Economic Report 2013).
- No scientific evidence that duck hunting is not sustainable, therefore duck hunting has proven to be safe, sustainable, humane and equitable.
- Reduced bag limits, have minimal effect on duck harvest, but can have large economic implications.
- Wants to see a more scientific approach to management of duck hunting including the reports from NSW, SA and VIC (Summer Waterbird Count), included in the considerations for the seasonal arrangements.
- There is more refuge and habitat available to ducks than what has been considered in the EAAWS report, such as saline wetlands, wastewater stabilisation ponds, waste treatment plants, waterways (i.e. Goulburn- Murray Water), natural wetlands, large impounds such as Dartmouth and Lake Eildon.
- Ducks are nomadic and will seek refuge where there is higher rainfall i.e. in the west of Australia.
- Implementation of the Waterfowl Conservation Harvest Model (WCHM) using scientifically robust climate, abundance and harvest data should occur.
- Would like the monitoring of waterfowl abundance in Victoria undertaken using all available methods including aerial and ground-based techniques.
- Would like government to fulfill its commitment to improving wetland habitat for waterfowl across the state of Victoria, as outlined in the *Sustainable Hunting Action Plan*.
- Believes that aerial surveys are insufficient to accurately monitor waterbird distribution and abundance and all available methods should be used, such as ground counts, helicopter and drone.
- Additional surveys should be utilised in seasonal assessments to provide a more complete picture, noting that game ducks regularly migrate in response to climatic conditions.
- There is a lack of scientific rigour when determining bag limits, season duration and species composition.

Sporting Shooters' Association of Australia (Vic)**Recommendation:**

- Full unmodified 2019 season, including all eight-game species.

New information:

- Ground counts show large numbers of ducks are present throughout Victoria (no figures provided).
- Blue-winged Shoveler numbers have correspondingly increased (no figures provided) and the species should be allowed to be hunted.

Issues:

- There needs to be ducks to hunt. Duck population levels must be able to cope with hunting pressure without threatening the long-term survival of the species.
- SSAA considers habitat protection and restoration to be critical to long term sustainability

- Seasons should only be modified in exceptional circumstances. Does not believe that currently there are any exceptional circumstances that would warrant modifying the 2018 duck hunting season.
- Notes that the current and forecast climatic conditions across Victoria are not ideal for maintaining ideal duck habitat or breeding conditions. However, the widespread significant weather events of early December have positive implications for improved habitat and the potential for breeding.
- The EAAWS, although providing a long-term reference, should not be relied on excessively when considering the Victorian duck season as it does not predict game duck populations in Victoria during the hunting season.
- There are refuges available for birds, such as dams and waterways, that would protect the base population of game birds.
- Believes that the current Summer Waterfowl Count (SWC) could be expanded and included in the report. Suggests that an earlier survey is undertaken to provide more timely and relevant abundance data in the lead up to a duck season and, a follow-up SWC undertaken just prior to the duck hunting season to inform any closures or further regulation.
- Supports more extensive research and data into duck populations and habitats to support more informed decisions. Supports the concept of the Waterfowl Conservation Harvest Model (WCHM) and would like to see it implemented by 2020.
- Should introduce regulated seasons and bag limits for a period of five years to allow relevant data to be collected while WCHM is implemented.

Royal Society for the Prevention of Cruelty to Animals (RSPCA Vic)

Recommendation:

- Cancel the 2019 duck hunting season.

New information:

- Survey information from BirdLife Australia suggest at least 15 key duck habitats in Victoria are dry.

Issues:

- Recommendation to cancel the 2019 duck season are based on low breeding numbers and breeding indices, drought conditions and low habitat availability.
- Game duck species are in decline, based on the findings in the 2018 Eastern Australian Aerial Waterbird Survey (EAAWS).
- A Waterfowl Conservation Harvest Model (WCHM) needs to be developed to inform the season properly.
- Animal welfare impacts of duck hunting, concerns that the wounding rates are not taken in consideration when determining the season.
- Concerns of the lack of progress, improvement, and effectiveness of GMA compliance and enforcement officers.
- Would like to see the GMA introduce an awareness campaign to improve hunting practices.
- Would like to see the GMA introduce mandatory Shotgunning Education Program training for all duck hunters.
- Would like to see GMA introduce an annual practical shooting accuracy test.
- Would like the Waterfowl Identification Test extended to make it an annual requirement.
- Would like to introduce regulations that prescribe the maximum distance a bird can be shot at.

Animals Australia

Recommendation:

- Cancel the 2019 duck hunting season.

New information:

- Provided a graph suggesting that duck hunting is a dying sport and participation has reduced
- Provided analysis showing that the waterbird abundance detected in the annual surveys shows a 42% decrease between the averages in the first 18 years (1983-2000) and the second 18 years (2001-2018).

Issues:

- Native water birds are at low numbers due to long-term drier conditions resulting in a depletion of habitat on the east coast of Australia.
- Highly concerned of the drought conditions and lack of habitat for ducks.
- Highly concerned about the Bureau of Meteorology (BOM) climate prediction, in particular 70% chance of El Nino developing, which will lead to drier conditions. There is also no indication of a reprieve of these conditions.
- The Eastern Australian Aerial Waterbird Survey (EAAWS) detected no game ducks breeding
- All four of the major indices - total waterbird abundance, breeding index, number of species breeding, and wetland area index - show statistically significant declines over time for the period 1983-2018 in the EAAWS.
- Historically, duck hunting seasons have been cancelled when the wetland index has been low.
- Suggest reduced quotas do not work as species concentration will be higher on wetlands with waters, as many are dry.
- Concerns over the Pegasus report and the GMA's ability to effectively regulate duck hunters.
- Don't believe that legal complaints are being dealt with effectively.
- Believes there is a continued lack of transparency with the GMA.
- Animal welfare impacts of duck hunting are a concern, particular with the high wounding rates, resulting from shotgun spray pellets and inaccuracy of shooters.
- Evidence that hunters are failing to kill ducks immediately as prescribed by the regulation.
- There should be mandatory requirements for testing of hunting laws and shooting skills training.
- Believe that the GMA is more interested in the sustainability of game hunting (the practice), rather than promoting sustainability of the waterbird populations.

Written submissions received from stakeholders:

BirdLife Australia –

Recommendation:

- Cancel the 2019 duck hunting season.

New information:

- 2012 review of Victoria Wetlands, By the Environmental Defenders office demonstrate that two thirds of Victoria's Wetlands, have been lost to settlement and are continued to be threatened by development, lack of water, pollution, poor land management and climate change.

Issues:

- Due to the climate outlook for 2019 which entails hotter than average conditions over summer, lower than average runoff and the potential for lower than average rainfall, taken with water storage levels below this time last year, suggests strongly that waterbirds will be under extreme pressure.
- There is severe drought condition in other states, cancelling the season would allow waterbirds to take up refuge in Victoria.
- EAAWS survey have shown long term declines in waterbird indices including abundance, breeding and breeding species richness across eastern Australia.
- Most game species abundances in EAAWS report were well below the long-term average
- Due to the long-term decline and existing pressures on waterbirds and their habitats, including hunting of game species, BirdLife Australia holds that the precautionary principle inherent in international, national and State conservation agreements and legislation must be adhered to.

Shooting Sports Council of Victoria

Recommendation:

- Full unmodified 2019 season, including all eight-game species.

New information:

- None.

Issues:

- There is a lack of natural habitat available for species, at this time.

- The lack of water available for rice crops within the NSW growing areas, which may impact the breeding cycle.
- The possibility of extreme weather conditions that may have an impact on the habitat and breeding cycles.
- Believes that if few birds are present then birds cannot be harvested by hunters.

Coalition Against Duck Shooting

Recommendation:

- Cancel the 2019 season

New information:

- Have been working along-side, a “skilled bird counter” who has visited Victorian wetlands in recent days, with 13 wetlands dry already.
- Minimal game birds have been sighted and no game breeding birds were found at Lake Murphy, Lake Cullen, Lake Elizabeth, Lake Lonsdale and Lake Colac.
- There is a high number of endangered species present such as Freckled Duck and Blue-billed Duck, also the critically endangered Curlew Sandpiper has been observed.

Issues:

- Don't believe that changing seasonal bag limits makes any difference.
- Wounding, abandoned birds and those that are illegally shot and dumped are not considered in harvest numbers.
- Concerned that a duck hunting season will result in endangered and critically endangered water birds being shot.
- Decline in the abundance of waterbirds over more than four decades.
- The EAAWS 2018 Summary Report uses statistical analysis to prove there has been a long-term decline for 6 of the 8 game duck species.
- The EAAWS pointed out that this has been a record year for high temperatures and a near-record for dryness. This historically severe drought (possibly the worst on record) has received widespread media coverage
- Concerns over the GMA, as was found by an independent review (Pegasus Economics) to have failed in law enforcement.
- Heavy rains are predicted for Victoria this week. One heavy rain event does not solve a severe drought. The Bureau of Meteorology's Summer Outlook predicts hotter and drier than usual weather
- Recommend an annual WIT and accuracy test to help combat wounding and non-game species being shot.
- Concerned that the GMA cannot effectively manage/regulate duck season, as outlined in the Pegasus report.

Regional Victorians Opposed to Duck Shooting Inc.

Recommendations:

- 2019 Duck season should be closed

New information:

- Concern about Grey Teal abundance as not only is it in decline and well below average, but now it is recorded at the lowest level in 36 years, which reflects the fragility of populations which could otherwise look stable at a point in time.
- Birds are twice as vulnerable to climate change as mammals, an international team of scientists has concluded after checking 481 species in 987 populations around the world (Global Change Biology, Zoological Society of London).

Issues:

- Continued significant long-term decline in abundance, breeding and habitat.

- Hotter and drier environmental conditions persist (despite bursts of rain), concerned with long-term climate change and downward trend of rain-fall.
- Significant long term downward trend, continuing to be well below average with game bird numbers low by an order of magnitude (EAAWS).
- All game birds are in decline and well below average abundance.
- Insufficient data regarding impact of shooting on native waterbird populations.
- Insufficient data on the monitoring of waterbird populations.
- Inability for GMA to monitor compliance.
- Significant changes in community attitudes since the *Wildlife Act 1975* was established. There has also been significant biodiversity loss.
- Hunting may have other impact on waterbirds, such as loss of mate leading to a decline in breeding.
- Concerned over the impacts of steel shot on waterbird wounding as well as environment
- To allow a further season would be irresponsible and against respect for sustainability.
- Should be concentrating efforts to boost rural tourism, believes that hunting deters holiday makers.