2018

Hog Deer Harvest Report

Game Management Authority

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Game Management Authority

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Summary

The Hog Deer harvest report is based on the 2018 and historical mainland harvest data obtained from Checking Stations and hunter Hog Deer Return forms. The report analyses and compares data related to tag uptake, hunter success and the biological parameters recorded for each Hog Deer presented at Checking Stations.

The interest in Hog Deer hunting continues to grow. The number of Tags Packs issued in 2018 (1,078) increased by 3.4% from the highest number recorded in 2017. One hundred and fifteen hunters were successful in harvesting a Hog Deer during the 2018 season, including the balloted hunting periods on Blond Bay State Game Reserve and the Boole Poole Peninsula. It should be noted that harvest data from Sunday Island (Para Park; a private game cooperative) and Snake Island (a two-year balloted hunting trial at the time of the report) has not been included in this report.

Hunter success on private land (65.2%) continues to be significantly higher than on public land (34.8%).

The total harvest of Hog Deer (123) in 2018 decreased by 25% from the 2017 harvest (164) level, however, the 2018 Hog Deer harvest was 7.8% above 2008-2018 average harvest level. Seven deer (5.7%) were harvested by balloted hunters from the Blond Bay and Boole Poole. This represents a 50% reduction from previous year harvest level, noting that only one Hog Deer per hunter could be harvested.

In general, there was a lower average body weight for hinds compared to the long-term average. This may suggest that the environmental conditions for Hog Deer have declined due to continued dry conditions across parts of Gippsland.

The impact of dry conditions on the Hog Deer population is less clear when the stag data is analysed. Stag average weight was in general consistent with the 2008-2018 average. Average antler length was above the 2008-2018 average length for all age classes above the 1.5 age class.

The percentage of hinds above 12 months of age in reproductive condition (45%), was consistent with the long-term (2008-2018) average (47%).

The strong bias towards stag harvest continues, however, the harvest sex ratio in 2018 narrowed to 2.27:1(stags to hinds), a decrease of 39% from the 2017 ratio of 4.47:1. The strong correlation between antler length and age class is confirmed by the 2018 data. The longest average antler length of 35.98cm was recorded in the 6.5 + years age class.

Data obtained in 2018 suggests that the Hog Deer population in Gippsland appears to be reasonably healthy. However, anecdotal observations suggest that some localised populations (Blond Bay and Boole Poole) may be in decline. Hunting success at those locations was relatively low, however it is unclear if the low success rate was due to lower Hog Deer densities or other factors.

Introduction

Hog Deer (*Axis porcinus*) were introduced into Victoria from Sri Lanka and India in 1865. Today, Hog Deer are distributed in isolated groups along the south-eastern coast of Victoria from the Tarwin River area to the Gippsland Lakes region. Larger populations are found on Wilsons Promontory and the off-shore islands of Corner Inlet, the Boole Poole Peninsula and the southern shore of Lake Wellington (including Dowd Morass and Lake Coleman State Game Reserves), Lake Reeve and the Lakes National Park.

Hog Deer can be hunted across a range of land types within the region, including coastal parks, specified State Game Reserves, unreserved Crown land, state forest and private property with land owner's permission. Additional hunting opportunities exist under a ballot system administered by the Blond Bay Hog Deer Advisory Group and authorised by Game Management Authority and Parks Victoria. Under the ballot arrangements, Hog Deer hunting takes place at Blond Bay State Game Reserve and Boole Poole Peninsula between February and May. In 2018, only one animal (stag or hind) per hunter was permitted to be taken under this ballot.

In addition, during February-May 2017 and 2018, a balloted Hog Deer hunting trial was conducted on Snake Island. A five-year Snake Island ballot extension has been recently announced by the Victorian Government. Harvest data from Snake Island balloted hunting will be included in future reports.

To hunt Hog Deer in Victoria, hunters must hold a current Victorian Game Licence endorsed for hunting deer. They must also obtain a set of Hog Deer Tags from the Game Management Authority and have the tags in their possession while they are hunting. Hunters wishing to hunt Hog Deer with a firearm must hold a current Victorian Firearms Licence or an interstate equivalent Firearms Licence. All hunters must complete and return the Hog Deer Tag return forms that are included in the Tag pack within 28 days of the completion of their hunting period (regular season or ballot).

Current Hog Deer hunting arrangements include a one-month season in April, a bag limit restricted to one stag and one hind per hunter per season (note that in some ballot areas, the take was restricted to one animal per hunter), and the requirement to tag harvested deer and present them to a designated Checking Station within 24 hours of being taken.

At the Checking Station, bio-morphological data like length, weight, height, girth and sex is recorded. For hinds, the pregnancy and lactation condition are assessed and recorded. If a foetus is present, the foetus length is recorded.

All antlered stags have their antler growth stage recorded and measurements taken, including length, spread and coronet circumference.

All deer have their lower jaw removed. Game Management Authority staff subsequently assess molar eruption and teeth wear and estimate the age of harvested deer.

The 2018 Hog Deer harvest report is based on historical data (2008-2018) and information obtained at the Checking Stations and from the Hog Deer Tag Return forms for the 2018 Hog Deer season. The harvest data for the Hog Deer harvested on Sunday Island (Para Park) has not been included in the Hog Deer harvest report.

Data collected during the 2018 balloted hunting trial on Snake Island is not included in this report but has been attached for reference (see Appendix 1).

2018 Hog Deer Season Results

1. Tag Packs

One thousand and seventy-eight Tags Packs were issued for the 2018 season. This was a 3.4% increase on the 2017 season (highest recorded of 1,043 Tag Packs) and 17% increase on the 2016 season (921 Tag Packs).

The majority (91.1%) of the Tag Packs were issued to Victorian hunters. Hunters from NSW constituted the second largest group (4.7%) and those from Tasmania the third largest (1.4%). Hunters from remaining states and territories shared the remaining tags.

The increase in Tag Packs issued may in part be a result of greater interest generated by the Snake Island balloted hunting trial.

2. Hunter success

One hundred and fifteen hunters harvested Hog Deer on the mainland during the 2018 season. Eighty-two of the successful hunters (71%) harvested a stag only, 25 hunters (22%) harvested a hind only, and eight hunters (7%) filled their bag (i.e. one stag and one hind).

Fifty-three hunters (64.6%) took a stag on private land, while 29 (35.4%) where successful on public land. Seventeen hunters took one hind on private land (68%) and eight hunters (22%) took a hind on public land. The hunter success for filling the bag (one male and one female) was strongly biased towards private property. Five hunters (62.5%) filled their bag on private property as opposed to 3 hunters (37.5%) on public land.

The overall hunter success rate on private land (65.2%) was significantly higher than that on public land (34.8%).

3. Hog Deer Harvest

The total number of Hog Deer harvested on mainland (2008–2018) is shown in Figure 1.

In 2018, 123 Hog Deer were harvested (90 stags and 33 hinds), a 25% decrease from the 2017 harvest levels. However, the 2018 harvest was 7.8% above the 2008-2018 average (113.3).

Seven deer (5.7%) were harvested from the Blond Bay (five) and Boole Poole (two) as part of the balloted hunting program. This represents a 50% reduction from the previous year harvest level, noting that for 2018 only one animal was permitted to be taken compared to two animals in previous years.

Hunting success continued to be significantly higher on private land. During the 2018 Hog Deer season, 58 stags (64.4% of total stags) and 22 hinds (66.6% of total hinds) were harvested on private land. The number of stags harvested on private land (64.4%) was significantly higher than on public land (35.6%). The number of hinds harvested on private land (22) was 50% higher than those harvested on public land (11). Overall, 46.2% more Hog Deer were harvested on private land as compared to those harvested on public land.

The lower number of Hog Deer harvested on public land could be attributed to multiple factors. High concentrations of hunters on public land (including duck hunters at some locations where duck and Hog Deer hunting is permitted) during the Hog Deer open season often impact deer behaviour making them more difficult to hunt. In many public hunting areas Hog Deer are competing for diminishing resources with increasing number of macropods and other deer (mainly Sambar and Fallow Deer).

Anecdotal evidence suggests lower number of Hog Deer are available to hunt on public land that has undergone successional vegetation changes and habitat change.

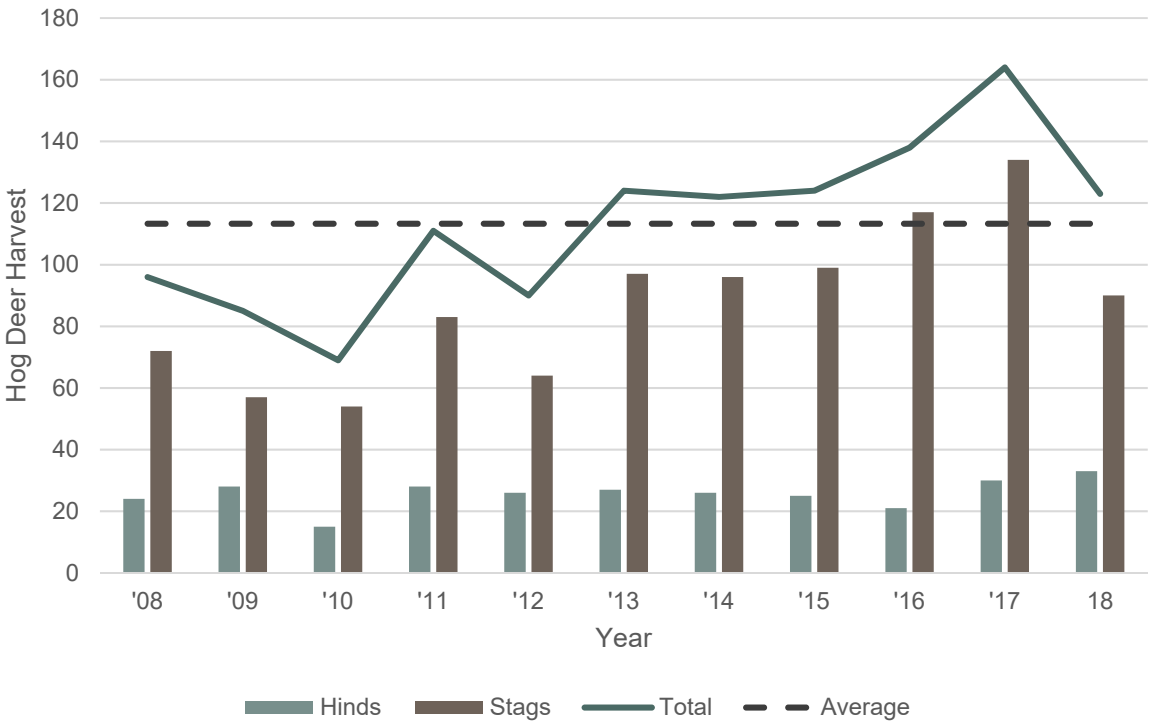

Figure 1. Hog Deer harvested 2008-2018.

4. Sex Ratio

Many healthy wildlife populations have a sex ratio of roughly 1:1. As such, it is important that stags and hinds are harvested at similar levels. However, a slightly biased harvest towards one sex could be acceptable and may not negatively impact the productivity and quality of the population.

Nevertheless, in some Hog Deer populations, long term selective preferential harvest (i.e. stags over hinds) could unbalance the 1:1 sex ratio and have negative impacts on the population health and productivity. Removing the most genetically 'fit' dominant stags from the population, may result in protracted breeding season leading to late born calves. These calves would not have enough time to mature before winter resulting in increased mortality.

The sex ratio percentage of the harvested Hog Deer from 2008 to 2018 can be seen in Figure 2.

The harvest is traditionally biased towards stags. Recent trends (2012-2016) indicate that the preferential take of stags was increasing, however, after 2016 the sex ratio harvest tightened. During 2015-2018 period, the sex ratio of the harvest was 3.96:1, 5.57:1, 4.47:1 and 2.72:1 respectively.

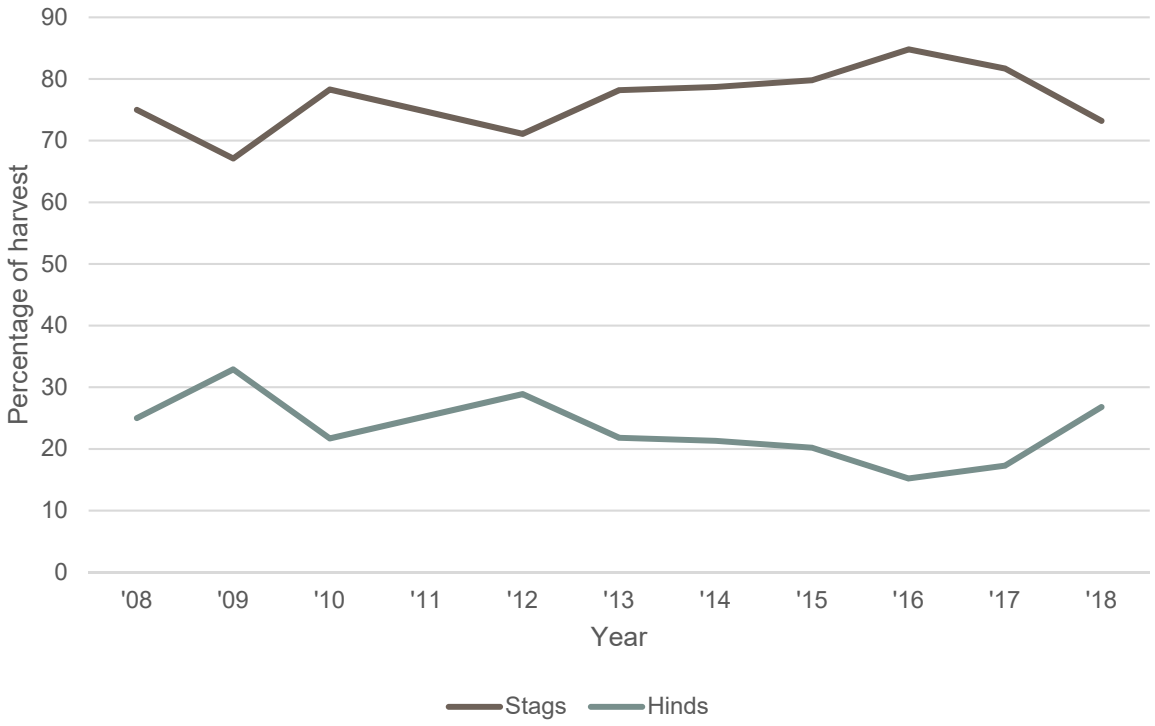

Figure 2. Percentage of harvested stags to hinds 2008-2018.

5. Hog Deer Age Classes

All Hog Deer presented at Checking Stations have been aged by assessing molar eruption and the wear patterns of the lower jaw teeth.

The age classes of Hog Deer hinds harvested during 2018 season compared with 2008-2018 average is shown in Figure 3.

In 2018, the harvest of hinds was spread across all age classes except for the 0.5 years age class. In this age class, the long-term average is 1.91 hinds. Available data is insufficient to determine if the recruitment in the population was disrupted or the hunters avoided taking very small animals.

Eighty-one percent (25) of hinds harvested were from the 1.5 to 3.5 age class. Numbers harvested in the 2.5 to 3.5 age class were significantly higher than the long-term average. Numbers of hinds taken in the 4.5 and 6.5+ age class decreased below the long-term average, while those in the 5.5 age class were above the long-term average, however the numbers harvested were low.

Figure 4 shows the age classes of stags harvested during 2018 compared with the long-term average (2008 - 2018).

In 2018, the stag harvest was spread across all age classes. Sixty-three percent (51) of the harvested stags were in the 2.5 to 3.5 age class and 25% (20) were in the 4.5 age class and older. Like the hind age class distribution, the stag numbers harvested in the 2.5-3.5 age class were significantly higher than the long-term average. Numbers of stags taken in the 4.5 age class and above decreased below the long-term average.

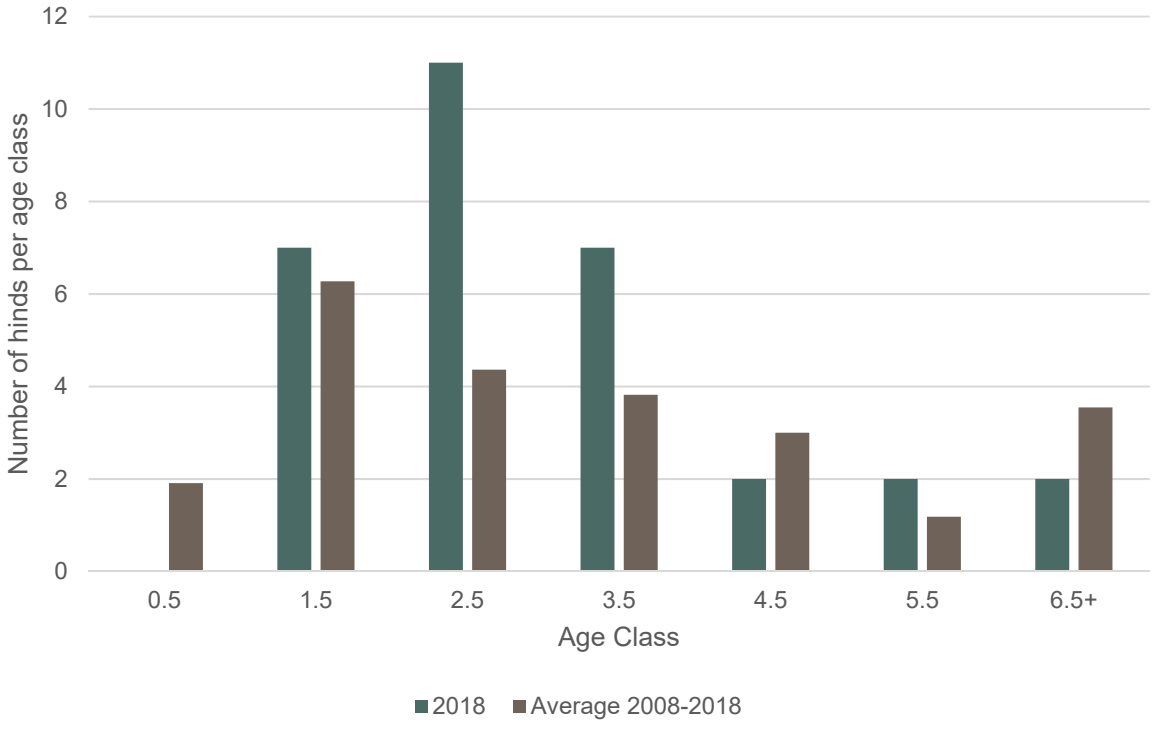

Figure 3. Age classes of hinds harvested during 2018 compared with 2008-2018 average.

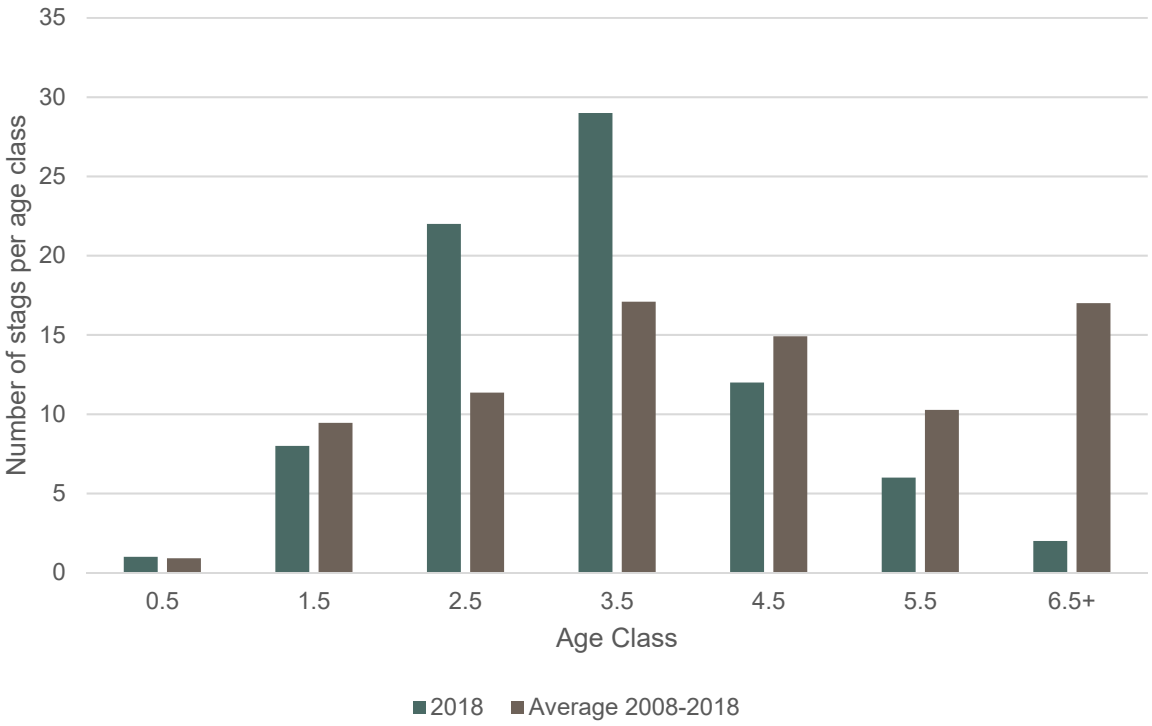

Figure 4. Age classes of stags harvested during 2018 compared with 2008-2018 average.

6. Carcass Weight

The weight of harvested Hog Deer can be a good indicator of the health of the population. The impact of environmental conditions on Hog Deer populations can be understood by analysing the long-term carcass weight per age class. The average weight per age class of Hog Deer harvested during 2018 compared with the long-term average is shown in Figures 5 and 6.

In 2018, the average weight of harvested hinds was in general lower than the long-term average. An exception was the 5.5 age group that shows an average weigh above the long-term average.

In 2018, the average weight of stags per age class does not show a consistent trend when compared with the long-term average. The average weight in some age classes (0.5, 1.5 and 5.5) was lower than the long-term average, while others (2.5 and 4.5) recorded a higher average weight. The average weight of stags in the 3.5 and 6.5 age class is consistent with the long-term average weight for those age classes.

Some areas of the Hog Deer range have experienced low average rainfall over the previous 18 months (BOM, 26/09/2018), impacting food resources available to Hog Deer. The impact of environmental conditions does not appear to have affected the entire Hog Deer population in a consistent manner.

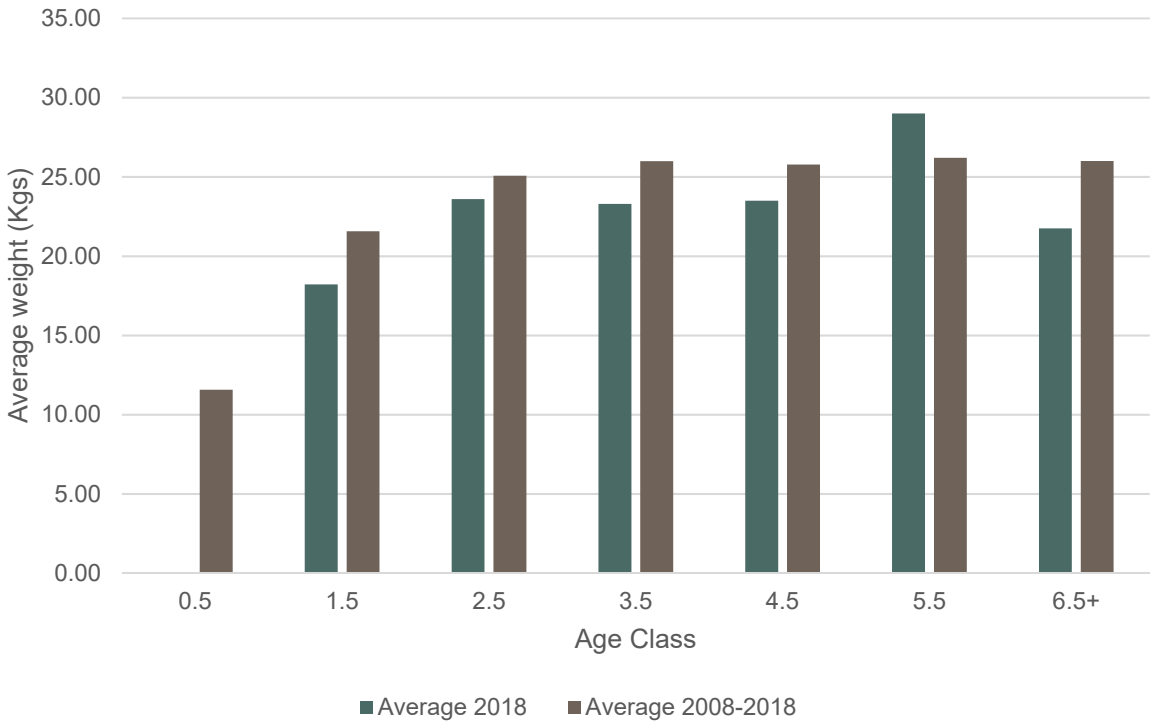

Figure 5. Average 2018 hind dressed carcass weight (kg), per age class, compared with 2008-2018 average.

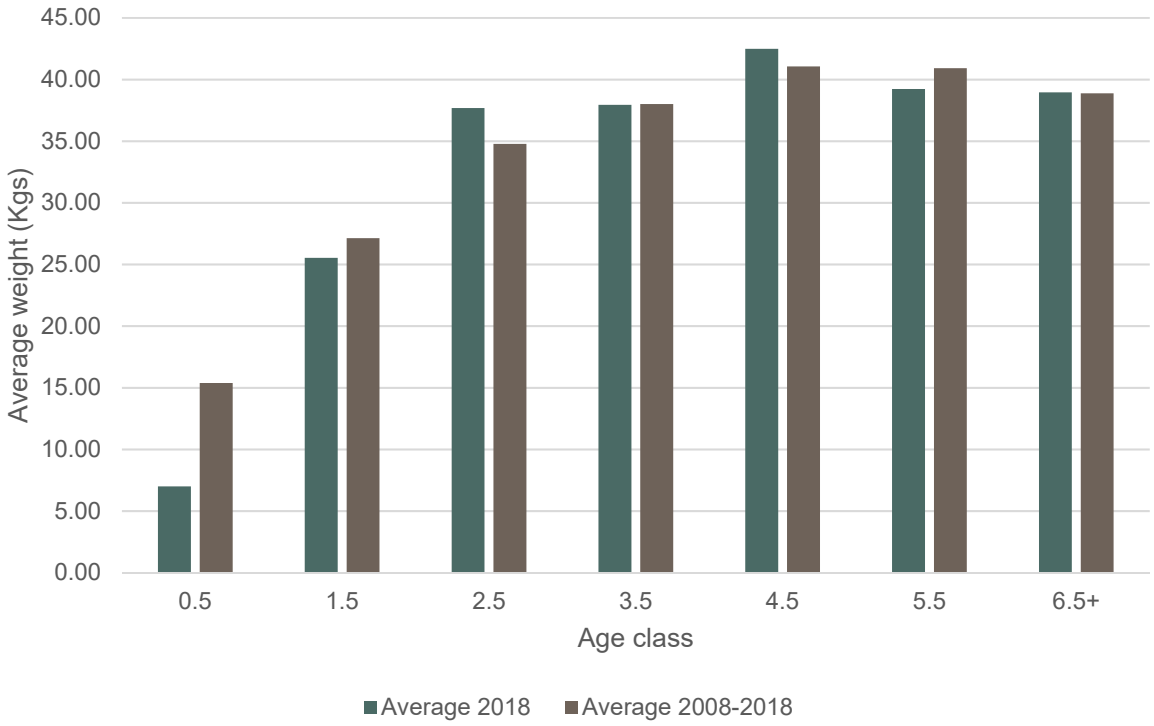

Figure 6. Average 2018 stags dressed carcass weight (kg) per age class, compared with 2008-2018 average.

7. Reproductive condition

All hinds presented at the Checking Station were assessed to determine their reproductive condition. Lactation status was recorded, signs of nursing and the presence or absence of a foetus documented.

Figure 7 shows the reproductive condition of harvested Hog Deer hinds presented to the Checking Stations from 2008 to 2018.

If Hog Deer hinds were presented field dressed, hunters were asked if they observed a foetus when they removed the organs. Only one foetus was recorded during the 2018 season.

In 2018, 45% (14 out of 31) of all Hog Deer hinds capable of breeding (i.e. hinds approximately 12 months of age and older) were in reproductive condition at the time of harvest. This represents an increase of 31% from the previous year. The percentage (45%) of hinds above 12 months in reproductive condition in 2018 was consistent with the long-term (2008-2018) average of 47%.

Reproductive condition assessment relies on the skill of the Checking Station operators and on the capacity and willingness of hunters to asses and record reproductive condition during field dressing.

Hunter's willingness and their capacity to detect the foetus during field dressing was not verified and therefore the quality of data as it relates to reproductive condition is not tested and may be unreliable.

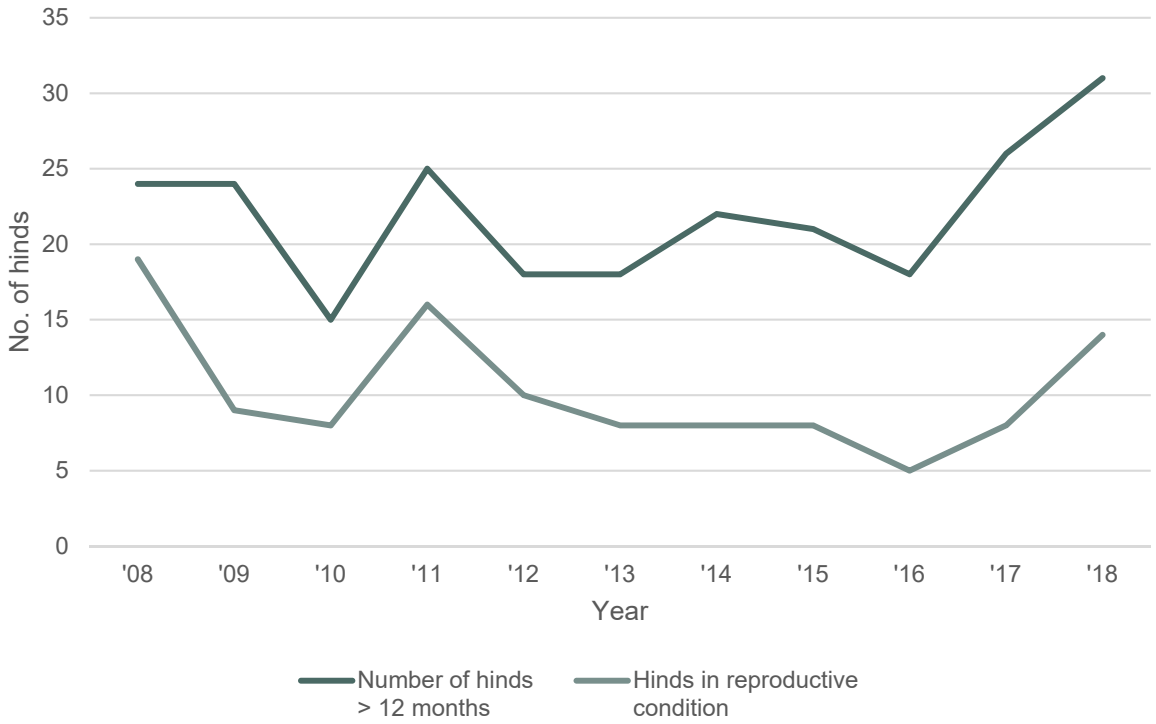

Figure 7. Reproductive condition of Hog Deer hinds above 12 months of age (2008-2018).

8. Antler length

All antlered stags presented to the Checking Stations had the antlers measured for length, spread (tip to tip) and coronet circumference. The average antler length (combined average of left and right antlers) per age class compared with the long-term average (2008-2018) is shown in figure 8.

There is a strong correlation between stag age and antler length. The stags with the longest average antler length of 35.98cm were in the 6.5 years and over age class. This age class consistently produces the longest average antlers with the long-term average of 33.84cm.

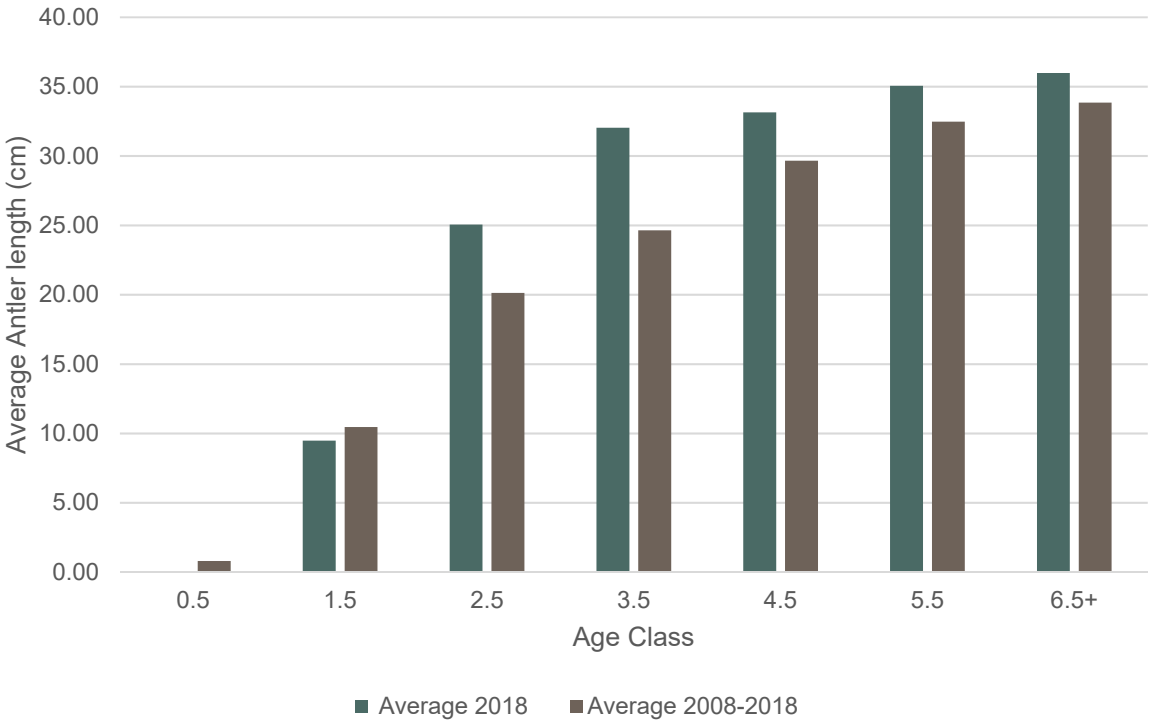

Figure 8. Average 2018 antler length per age class, compared with 2008-2018 average.

9. Conclusion

The positive trend in hunter uptake of Tags Packs continued. For the second time since the tag system was introduced, more than one thousand Tags Packs (1,043 in 2017 and 1,078 in 2018) were issued to hunters.

The 2018 Hog Deer harvest declined 25% from the 2017 harvest. This decline halted the upward trend in the Hog Deer harvest recorded from 2012 to 2017. However, the 2018 Hog Deer harvest was 7.8% above the 2008-2018 average harvest, and the fourth highest harvest recorded in the last ten years.

Anecdotal observations suggest that Boole Poole and Blond Bay Hog Deer populations are under pressure. Qualitative and quantitative changes to the habitat and increased competition from macropods and other deer species may be negatively impacting the Hog Deer populations at these locations. As a precaution, in the 2018 ballot, only one Hog Deer (stag or hind) was permitted to be harvested per balloted hunter. This could have been the main factor that contributed to a 50% harvest decrease from the 2017 level.

Hunting success continued to be higher on private land. Lower hunter densities, reduced disturbance, higher quality and more reliable nutrition and fresh water sources are just some of the factors that could positively impact hunting success on private land.

Over the last 18 months large areas of the Hog Deer range have been significantly affected by low rainfall (BOM).

The effect of low rainfall on resource availability to the Hog Deer population is not yet clear. Average hind weight was in general lower than 2008-2018 average, however the difference was not substantial. The hind reproductive condition was consistent with the long-term average.

Average stag body weight that was consistent with the long-term average, and an increase in average antler length, suggests that drier conditions did not negatively impact food resources available to stags.

Lower nutritional intake between the end of the rut and antler casting was shown to negatively affect the size of the antlers in mature stags (Dryden 2016). The average antler length recorded at Checking Stations suggests that the nutritional intake of Hog Deer stags between end of the rut and antler casting was adequate.

The harvest statistics, morphological data and the spread of animals per age classes suggests that the Hog Deer metapopulation in Gippsland is healthy. There is no evidence to suggest that the current level of take is unsustainable or that the Hog Deer population is in decline.

Source BOM accessed 26/09/2018

http://www.bom.gov.au/jsp/awap/rain/index.jsp?colour=colour&time=latest&step=0&map=drought&period=12month&area=vc

Dryden G. McL. (2016) Nutrition of antler growth in deer. *Animal Production Science* **56**, 962-970.

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Appendix 1

2018 Snake Island Hunting Ballot Trial harvest data

Tag No.	Sex	Antler Length (cm)		Weight (Kgs)	Age	Reproduction status
		Left	Right			
M40504	Stag	23	23	27.5	3.5	N/A
M40505	Stag	27	27	26.2	3.5	N/A
M40502	Stag	9	9	18.8	1.5	N/A
M40506	Stag	38	36.5	31.5	3.5	N/A
M40508	Stag	25.5	25.5	27.3	3.5	N/A
M40507	Stag	31	32	29.9	5.5	N/A
M40503	Stag	23	23	26.1	2.5	N/A
M40501	Stag	N/A	N/A	15.5	1.5	N/A
M40516	Stag	34	34	27	3.5	N/A
M40515	Stag	34.5	36.5	26.6	4.5	N/A
M40510	Stag	31	30.5	29.2	3.5	N/A
M40512	Stag	33.5	35	27.9	3.5	N/A
M40517	Stag	27	30	25.6	4.5	N/A
M40519	Stag	34.5	34.5	31.5	3.5	N/A
M40521	Stag	24.5	26.05	29.8	3.5	N/A
M40523	Stag	28	29.5	30.8	4.5	N/A
M40518	Stag	26.5	28.5	27.5	4.5	N/A
M40528	Stag	33.5	33	26.3	3.5	N/A
M40530	Stag	20	19	26.8	3.5	N/A
M40526	Stag	26.5	26.5	25	2.5	N/A
M40531	Stag	N/A	N/A	15.3	1.5	N/A
M40529	Stag	38	37	30.3	5.5	N/A
M40538	Stag	32.5	30.5	22.4	3.5	N/A
M40536	Stag	32.5	33.5	28	5.5	N/A
M40534	Stag	23.5	24	24.4	3.5	N/A
M40539	Stag	21.5	23	28	2.5	N/A
M40545	Stag	16	16	18.3	2.5	N/A
M40542	Stag	32.5	33	24.4	4.5	N/A
M40551	Stag	25	31	31.8	3.5	N/A
M40552	Stag	32	31.5	24.4	5.5	N/A
F41504	Hind	N/A	N/A	11	1.5	N
F41516	Hind	N/A	N/A	21	N/A	N
F41538	Hind	N/A	N/A	17	2.5	Y
F41545	Hind	N/A	N/A	20.3	N/A	N
F41541	Hind	N/A	N/A	16	2.5	Y
F41542	Hind	N/A	N/A	17.6	5.5	Y
F41549	Hind	N/A	N/A	21.2	3.5	Y

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