

**ANNUAL QUOTA REPORT**  
for the  
**COMMERCIAL HARVEST OF**  
**BRUSHTAIL POSSUM**

*Trichosurus vulpecula*  
in  
**Tasmania**

**1 July 2019 to 30 June 2020**

**Game Services Tasmania**

**August 2019**

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## 1. Introduction

The commercial harvest and export of brushtail possum products in Tasmania is managed by a Commonwealth-approved trade management plan. This Quota Report sets the quota for the fifth and final year of the *Trade Management Plan for the Export of Brushtail Possum in Tasmania* (the plan) that covers the period 1 July 2015 to 30 June 2020.

Section 7.4.1 of the plan requires an annual quota to be determined for the maximum number of brushtail possums (*Trichosurus vulpecula*) that may be commercially harvested from each management region in Tasmania during the quota year. The quota year extends from 1 July of one year to 30 June of the following year.

The quota for each management region is based on the trigger point density indices specified in section 7.4.1 of the plan and determined by the results of annual population monitoring. The trigger points and corresponding commercial harvest quotas determined for the quota period are described in Section 2 of this document. Quotas and management responses provide a safeguard against over-harvesting of the population and are set at levels unlikely to lead to a long-term decline of the species that would threaten its survival in any region of Tasmania. Appropriate management controls will be implemented in response to any change in brushtail possum numbers identified by annual population monitoring.

The non-commercial take of brushtail possums, including that from 1080 poisoning, is not considered a management control under the plan. However, as the non-commercial take historically accounts for more than 80% of the total brushtail possum take in Tasmania, it is taken into account when determining commercial quotas.

Information critical to determining the annual quota for each region in Tasmania is provided in this report and includes the following:

- The results of population monitoring;
- The density estimates for the year; and
- The size of the allocated commercial quota for brushtail possums, set in accordance with section 7.4 of the plan.

## 2 Commercial Quotas: Trigger Points and Management Responses

Trigger point density indices for the brushtail possum in Tasmania have been determined in the plan. Trigger points for initiating management changes in each region are given in Tables 1(a)-1(d). The commercial quotas are based on the estimated minimum total take (crop protection and commercial) and mean 3-year exponentially weighted moving average density (see Section 7.4.1) from the last 10 years in each management region. In developing these trigger points, conservative quotas have been determined based on the average of the three lowest annual total harvests. This quota has been allocated to the commercial sector at the 10-year mean density level (to the nearest 5/km<sup>2</sup>) in each region and a sliding linear scale determined from this point.

### 2.1 Additional Management Responses

Management aims to maintain possum densities at between 10 and 20/km<sup>2</sup>. The plan provides for additional management responses to ensure the sustainability of the harvest.

At densities of 20/km<sup>2</sup> or below, commercial permits in that region may be restricted to properties holding crop-protection permits. Should the density level in a management region fall below 10 possums/km<sup>2</sup>, the WMB will conduct property inspections for all properties in that region on which commercial hunters wish to take brushtail possum. These inspections will determine whether that property has a legitimate crop protection need before a commercial permit to take possums on that property will be granted. The Commonwealth Department of the Environment will be notified should commercial hunting permits be issued within a region that has a possum density below 10/km<sup>2</sup>.

Where the density is above the level at which crop damage is unacceptable in a management region (>20/km<sup>2</sup>), the intention is to drive possum populations down<sup>1</sup>. Where the density is below that desired (<10/km<sup>2</sup>), the intention is to allow populations to recover. Where the density is at a sustainable long-term level (10-20/km<sup>2</sup>), the intention is to maintain populations in the prescribed range.

It should be noted that these trigger points assume that the annual crop protection take for specific possum population densities will be consistent with previous levels. Crop protection take is not managed under this plan and is based on the crop-protection needs of the landholder. There is therefore a possibility, however unlikely, that future crop protection take may exceed previous levels. This would not however influence the setting of a commercial quota unless density levels observed during annual spotlight surveys indicated an associated unacceptable level of decline in possum density.

The annual commercial quotas outlined in Tables 1(a)-(d) will be implemented when population density indices fall within the corresponding trigger point range.

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<sup>1</sup> The intention to drive possum populations down applies to situations where there is a need for crop protection from high possum densities. Where populations are at densities greater than 20/km<sup>2</sup> but are having no impact on primary production there is no intention and likely to be no need to decrease possum numbers.

**Tables 1a, b, c & d: Commercial quotas to be allocated to each management region based on specific possum densities<sup>#</sup>.**

Densities listed refer to the 3-year exponentially weighted moving average density. Shaded rows show the likely annual quotas for each region based on long-term average densities.

<b>a. Central Region</b> 10-year average density = 64.3/km <sup>2</sup> Average 3-yrs lowest take = 36,447	
Density (possums/km <sup>2</sup> )	Commercial quota
≥100	56,075
95	53,271
90	50,467
85	47,663
80	44,859
75	42,055
70	39,251
<b>65</b>	<b>36,447</b>
60	33,643
55	30,839
50	28,035
45	25,231
40	22,427
35	19,623
30	16,819
25	14,015
20*	11,211
15*	8,407
<10*	Up to 5,603
5	0
0	0

<b>b. South East Region</b> 10-year average density = 39.2/km <sup>2</sup> Average 3-yrs lowest take = 48,403	
Density (possums/km <sup>2</sup> )	Commercial quota
≥100	121,003
95	114,953
90	108,903
85	102,853
80	96,803
75	90,753
70	84,703
65	78,653
60	72,603
55	66,553
50	60,503
45	54,453
<b>40</b>	<b>48,403</b>
35	42,353
30	36,303
25	30,253
20*	24,203
15*	18,153
<10*	Up to 12,103
5	0
0	0

<b>d. North West Region</b> 10-year average density = 22.4/km <sup>2</sup> Average 3-yrs lowest take = 10,231	
Density (possums/km <sup>2</sup> )	Commercial quota
≥100	40,921
95	38,875
90	36,829
85	34,783
80	32,737
75	30,691
70	28,645
65	26,599
60	24,553
55	22,507
50	20,461
45	18,415
40	16,369
35	14,323
30	12,277
<b>25</b>	<b>10,231</b>
20*	8,185
15*	6,139
<10*	Up to 4,093
5	0
0	0

<b>c. North East Region</b> 10-year average density = 28.8/km <sup>2</sup> Average 3-yrs lowest take = 76,040	
Density (possums/km <sup>2</sup> )	Commercial quota
≥100	253,462
95	240,789
90	228,116
85	215,443
80	202,770
75	190,097
70	177,424
65	164,751
60	152,078
55	139,405
50	126,732
45	114,059
40	101,386
35	88,713
<b>30</b>	<b>76,040</b>
25	63,367
20*	50,694
15*	38,021
<10*	Up to 25,348
5	0
0	0

<sup>#</sup> Tabled quotas show a sliding density scale in 5/km<sup>2</sup> increments as a simple guide. Actual quotas are set using the exact density estimate.

\* Commercial take may be restricted to properties covered by existing crop protection permits.

### 3 Current Population Trends and Quotas

As required by the plan, regional brushtail possum population trends were monitored through the annual program of statewide spotlight surveys. Referred to as the 2018 surveys, the most recent set of surveys were undertaken during the period November 2018 to March 2019.

Monitoring of trends in regional brushtail possum populations is undertaken through a system of standardised spotlight survey counts performed annually on mainland Tasmania. The standardised surveys are carried out in accordance with the method set out in the Tasmanian Spotlight Survey Manual (Hocking & Driessen 1992) and analysed in accordance with the methods described in section 7.6 of the plan. The results of these surveys provide the basis for determining the regional commercial quotas set in the document. Normally quotas are set annually in June based on data from the previous surveys. Analysis of the current population trend for each region (with the exception of South West Region, due to the absence of commercial activity in this region) is provided below.

As stipulated in the plan, commercial quotas are to be determined annually for the maximum number of brushtail possums that may be commercially harvested in each region during the quota period. These quotas are based on the sliding scale provided for each management region (see Tables 1(a)-(d)). In this quota report the quota is being determined for the period 1 July 2019 to 30 June 2020.

The commercial quotas for the four management regions are based on the 3-year exponentially weighted moving average (EWMA) density for each region and the predetermined sliding scale of quotas for each region as stipulated in the plan (Tables 1(a)-(d)). The quotas determined by that process, for each region, are described below and summarised in Table 2.

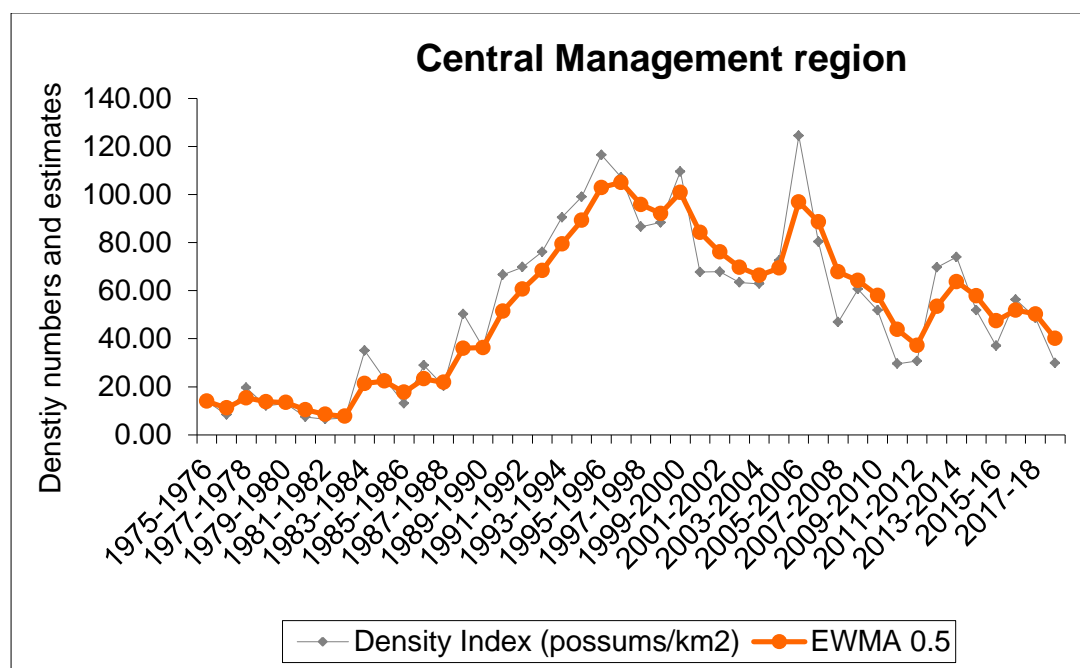
**Table 2. Regional commercial harvest quotas for brushtail possum for the period 1 July 2019 – 30 June 2020 based on mean 3-year EWMA density.**

Region	Quota for July 2018 – June '19	Quota for July 2019 – June '20
Central	28 203	22 483
South East	30 616	28 438
North East	60 579	67 169
North West	9 617	8 881
<b>Total</b>	<b>129 015</b>	<b>126 971</b>

### 3.1 Central Region

In the spotlight surveys undertaken in the Central Region in 2018-19, the observed density of brushtail possums decreased from 48.7/km<sup>2</sup> to 29.9/km<sup>2</sup>, while the three-year Exponentially Weighted Moving Average (EWMA) decreased from 50.3/km<sup>2</sup> to 40.1/km<sup>2</sup> (see Figure 1). The three-year EWMA remains considerably higher than the trigger point (density = 20/km<sup>2</sup> or below) that initiates consideration of additional management controls (section 2.1).

Reference to Table 1(a) indicates the appropriate quota for this region at this density is **22 483** possums for the quota year 2019-20.

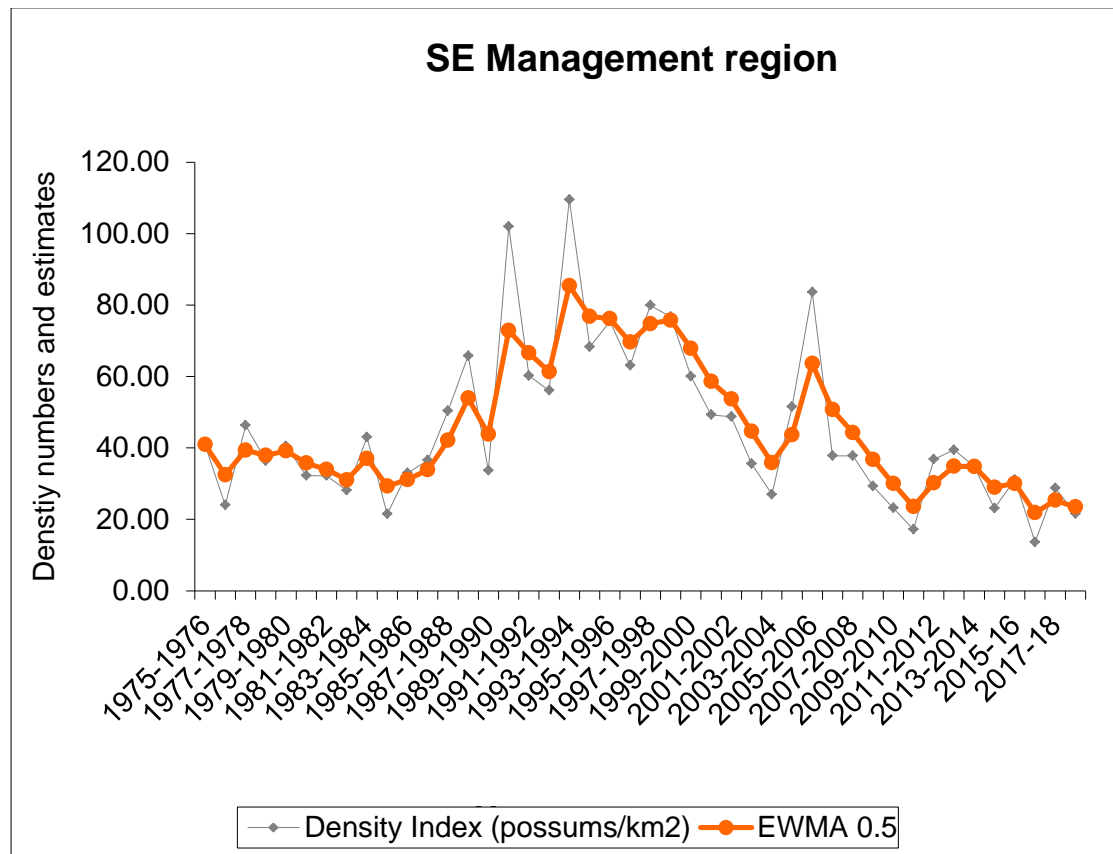


**Figure 1 Central Region historical and current Density Index and three-year density trend**

### 3.2 South East Region

In the South East Region the observed density of brushtail possums in 2018-19, decreased from 28.8/km<sup>2</sup> to 21.6/km<sup>2</sup>, and the three-year Exponentially Weighted Moving Average (EWMA) decreased from 25.3/km<sup>2</sup> to 23.5/km<sup>2</sup> (see Figure 2). The EWMA remains above the trigger point (density = 20/km<sup>2</sup> or below) that initiates consideration of additional management controls (section 2.1).

Reference to Table 1(b) indicates the appropriate quota for this region at this density is **28 438** possums for the quota year 2019-20.



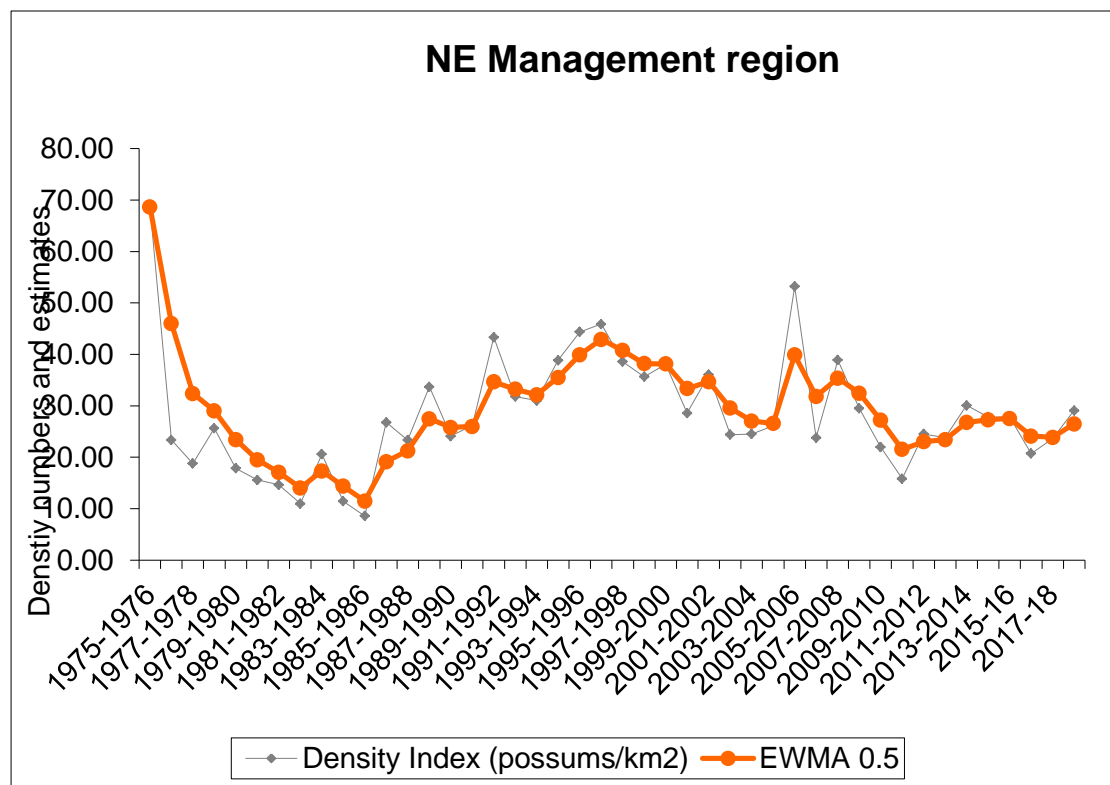
**Figure 2 South East Region historical and current Density Index and three-year density trend**



### 3.3 North East Region

In the North East Region the observed density of brushtail possums in 2018-19, has increased from 23.6/km<sup>2</sup> to 29.1/km<sup>2</sup>. The three-year Exponentially Weighted Moving Average (EWMA) increased from 23.9/km<sup>2</sup> to 26.5/km<sup>2</sup> (see Figure 3). The EWMA remains above the trigger point (density = 20/km<sup>2</sup> or below) that initiates consideration of additional management controls (section 2.1).

Reference to Table 1(c) indicates the appropriate quota for this region at this density is **67 169** possums for the quota year 2019-20.

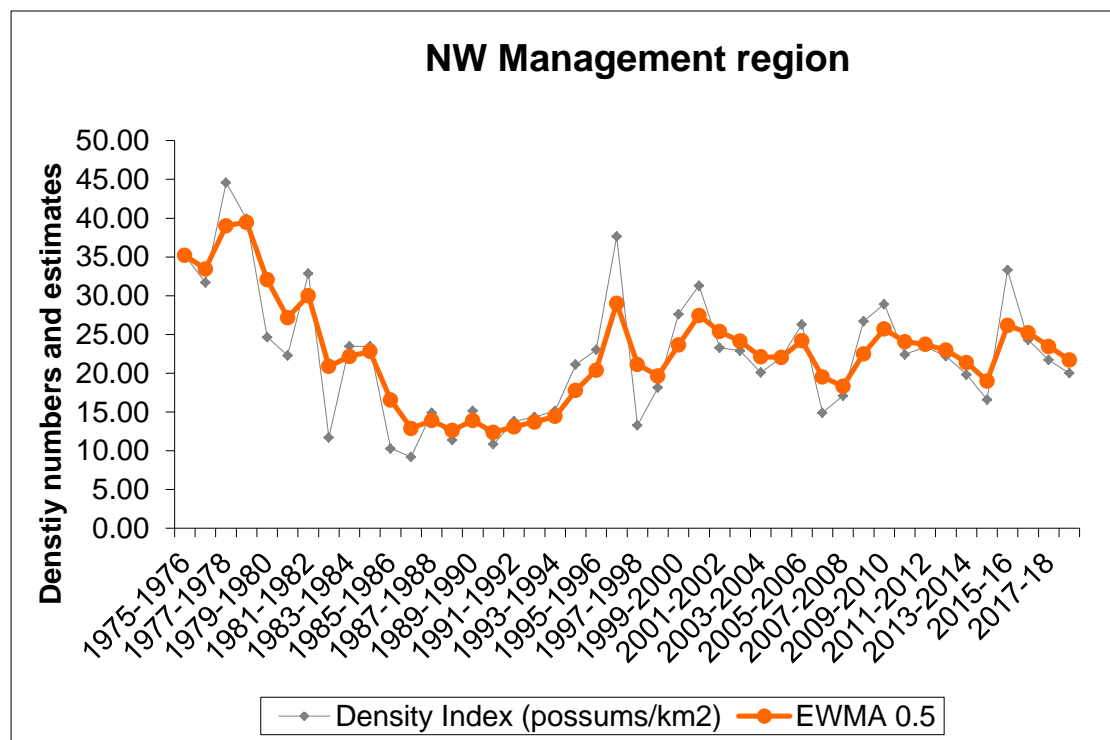


**Figure 3 North East Region historical and current Density Index and three-year density trend**

### 3.4 North West Region

In the North West Region the observed density of brushtail possums in 2018-19, decreased from 21.7/km<sup>2</sup> to 20/km<sup>2</sup>, and the three-year Exponentially Weighted Moving Average (EWMA) also decreased from 23.5/km<sup>2</sup> to 21.7/km<sup>2</sup> (see Figure 4). The EWMA remains above the trigger point (density = 20/km<sup>2</sup> or below) that initiates consideration of additional management controls (section 2.1).

Reference to Table I(d) indicates the appropriate quota for this region at this density is **8 881** possums for the quota year 2019-20.



**Figure 4 North West Region historical and current Density Index and three-year density trend**