Wildlife Trade Operation Application

Management Plan for the Commercial Harvest and Export of Brush Tail Possum from Tasmania

Two Gums Partnership.

1. Introduction

This Plan puts forward a mechanism to enable export of brush tail possum (possum) products from Tasmania. It aims to satisfy the requirements for a small-scale, *Approved Wildlife Trade Operation* (WTO) under Section 303FN of the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), thereby allowing possum product taken under this Plan to be exported to overseas markets. For the purpose of this Plan

1) 'possum' refers to *Trichosurus vulpecula*.
2) 'products' refers to meat, skins and fur (fibre removed from the skin).

Under the EPBC Act and its associated regulations, an operation is a small-scale operation if it has a low impact on the survival or conservation status of the species to which it relates. This operation can be considered small-scale because the number of specimens it allows to be exported represents only a small proportion of what could be considered a maximum sustainable yield from the Tasmanian possum population. Importantly it represents only a small proportion of the total take under Property Protection Permits.

This WTO allows for the export of product from 100,000 possum annually. This is less than half the long term average possum cull for crop protection purposes in Tasmania.

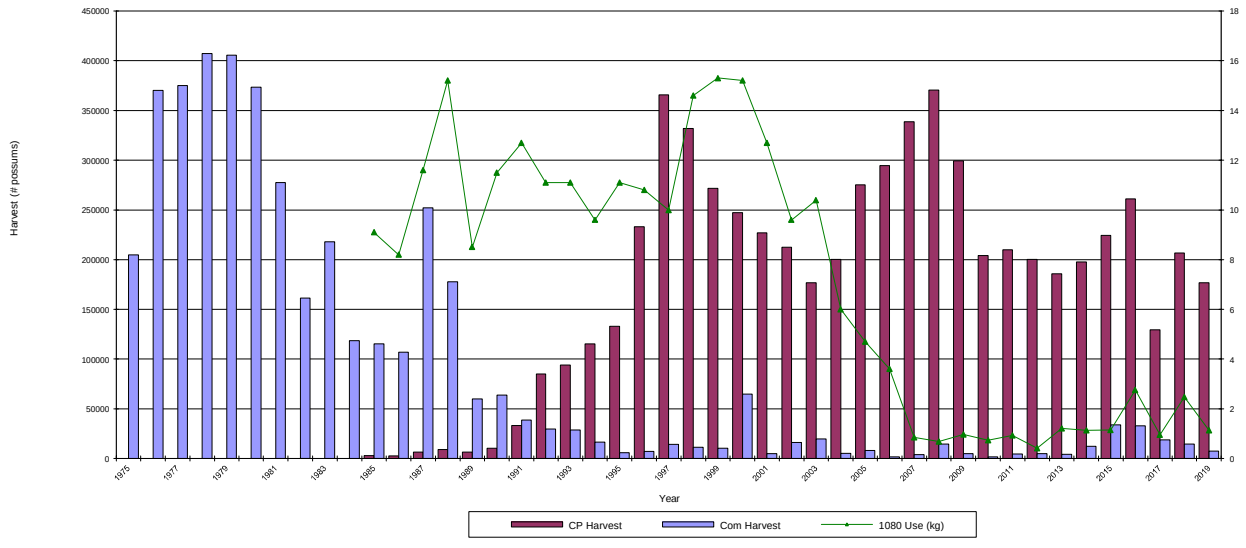


Figure 1: Trends in estimates of commercial and non-commercial (crop protection) take of brushtail possums and 1080 usage in Tasmania since 1975. Crop protection (CP) take is shown as total *estimated* take based on average take from returned permits from 1996-97 onwards.

Year	Number of Property Protection Permits Current	Reported take
2014	1222	189 154
2015	1246	206 785
2016	1635	294 018
2017	1967	218 114
2018	2432	226 795
2019	2780	236 486
2020	3075	222 737
2021	2953	243 694
2022	2754	167 526*

Table 1: Brushtail possum take under Property Protection Permit in Tasmania (2014 to 2022)

This level of take has had no impact on possum populations (Figure 2), which show 40 year stable levels, and has been shown to be sustainable in all management regions at this level. The proposed commercial utilisation simply seeks to divert a percentage of the existing annual cull to commercial use and thus it can be considered small scale. It must be noted that the expectation is not that the over-all State kill of possum will increase as a result of this WTO. Rather it is expected take will be diverted from crop protections culls to commercial harvest.

The WTO will apply for three years from approval or until approval of a state-wide possum management plan, whichever is sooner.

The WTO's intent is not to increase the overall take of possum and indeed it has in place mechanisms to prevent this. Possum are currently culled in very large numbers as agricultural damage mitigation. This Plan simply seeks to turn an existing waste of a raw material, which are often currently left to rot, into a valuable export and sustainable resource.

Possum are harvested and processed in Tasmania for human consumption and pet food under the control of the *Primary Produce Safety Act 2011* and the *Nature Conservation Act 2002*. Meat processing premises and harvesters are registered and licensed by the Food Safety Branch (FSB) and Game Services Tasmania (GST) respectively of the Department of Natural Resources and Environment (NRE).

Possum are listed as Partly Protected wildlife under Schedule 8 of the *Nature Conservation (Wildlife) Regulations 2021* of the *Nature Conservation Act 2002*. As such, they can only be taken by licensed hunters and only taken from farms which have been issued Property Protection Permits for possum by NRE. Such permits are only issued when evidence is supplied by the land owners of economic loss due to excessive possum numbers.

In supporting the development of this WTO, the NRE acknowledges its on-going responsibility in monitoring Tasmania's possum population through the undertaking of annual spotlight surveys (Section 6), the results of which are available to Two Gums Partnership (TGP) for reporting to the Commonwealth as required under Section 11. The NRE also acknowledges its responsibilities for ensuring activities undertaken under this WTO comply with the *Nature Conservation (Wildlife) Regulations 2021 of* the *Nature Conservation Act 2002* (Section 8) and the *Animal Welfare Act 1993* (Section 9). All other requirements outlined under this WTO remain the responsibility of TGP.

Two Gums Partnership is a private partnership owned by the Principals of Lenah Game Meats (LGM), the major Tasmanian possum processor. LGM has been involved in possum

management, harvesting and commercial processing for 30 years. It has exported possum throughout this period under State run Management Plans and managed in its own right several WTO's for wallaby in Tasmania. If approved, TGP will export possum product produced by LGM as well as product sourced from other holders of permits as outlined at 6.2.

2. Aim of management plan

This WTO lays out a mechanism by which an auditable process can ensure that possum product from animals processed in Tasmania can be exported in a manner which satisfies the public and Government requirements that they be taken humanely and sustainably.

3. Background biology

The contents of section 3 are taken from 'Management Plan for the Commercial Harvest and Export of Brushtail Possums in Tasmania 2015-*2020'. Department of Primary Industries, Parks, Water and Environment.*

Distribution and Habitat The common brushtail possum (*Trichosurus vulpecula*, Kerr), is the most familiar and abundant of the Australian possums. The species is highly adaptable to a wide range of natural and human environments, and has the widest distribution of any Australian marsupial (How, 1983; Kerle, 1984). A number of sub-species of common brushtail possum (subsequently referred to as the brushtail possum or possum) are currently recognised, one of which, *Trichosurus vulpecula fuliginosus*, is confined to Tasmania (How, 1983). With slight male-biased sexual dimorphism, the Tasmanian subspecies is the largest (Kerle et al., 1991); individual males can attain body weights in excess of 4.3 kg (Erin Flynn Uni. of Tas., unpublished data.). Several distinct colour morphs are known (Kerle et al., 1991). The preferred habitat of brushtail possums is eucalypt forest or woodland. This habitat provides the species with hollows in trees and/or fallen limbs and trunks for nest sites and day-time refugia. It also supplies them with the eucalypt and acacia leaves, grasses and forbs upon which their diet is mainly based (Statham, 1984).

Possums are most abundant where a mosaic of pasture and eucalypt forest or woodland occurs (Johnson, 1977) and are often considered a pest in regenerating forest where they can occur at higher densities than in more mature forest (Hocking 1981). The species is largely absent from the extensive buttongrass plains in Southwest Tasmania and occurs at low density in temperate rainforest (Hocking and Guiler, 1983; How, 1983; Hocking 1990; Rounsevell et al., 1991; Munks et al., 2004).

As an arboreal marsupial the brushtail possum occurs in most areas where there are trees. Rainforested areas are unsuitable as brushtail possum habitat however and, excluding these areas, it is estimated that there is approximately 4,221,000 hectares of high rainfall and low rainfall eucalypt forest and woodland that are suitable for brushtail possums. This amounts to approximately 66% of the total land area of Tasmania. There is some evidence to suggest that density of brushtail possums may increase in areas disturbed by fire or logging (Hocking, 1981; Driessen et al., 1990).

Habits and Diet: The brushtail possum is predominantly a generalist herbivore (How, 1983; Fitzgerald, 1984; Statham, 1984; Cowan and Moeed, 1987) and a night's feeding bout will involve a mix of diets to maximise intake but minimise consumption of any one plant toxin (Wiggins et al., 2003). The diet of the brushtail possum consists of a variety of leaves, particularly of Eucalyptus sp, supplemented by fruits, buds, bark, and clover or other pasture plants (How, 1983; Kerle, 1984). Studies in Tasmanian forests have revealed that *T. v. fuliginosis* is primarily a ground feeder and the diet may differ according to habitat type and season (Fitzgerald, 1984; Statham, 1984). In wet forests, leaves of myrtle beech (*Nothofagus cunninghamii*) ferns and grasses are eaten, with the myrtle beech leaves forming the greater percentage of the diet. This remains relatively constant throughout the year. In dry sclerophyll forests, where grasses, herbs, and eucalypt and acacia leaves are eaten, the major food consumed differs seasonally. In spring and summer grasses and herbs are the predominant foods, while in autumn the proportion of eucalypt and acacia leaves consumed increases, with these foods generally comprising the greater portion of the diet in late autumn and winter (Fitzgerald, 1984; Statham, 1984, 1992).

Brushtail possums are primarily nocturnal. Marked peaks in feeding activity occur at sunset, late at night and in the early morning (Johnson, 1977). Individuals emerge to feed in the evening. During the day possums will preferentially rest in dens in tree hollows and hollow logs when available (Cawthen, 2007; Koch, 2007), however individuals have also been observed sheltering in rock crevices, rabbit warrens, dense undergrowth or crevices in buildings (Statham, 1987; Munks et al., 2004). The species is more numerous where grassy clearings adjoin shelter vegetation (Statham, 1983).

Adult possums are largely solitary, sleeping in separate dens and living in territories in which adult animals generally avoid direct contact with each other by way of scent-marking branches and other objects within their territory (Winter, 1976). In Tasmania, multiple possums have been found to share dens where they are in short supply (Statham, 1992). Depending on habitat type and resource availability, adult possums occupy relatively stable home-ranges of 0.35 to 12.9 ha, with males occupying larger home-ranges that overlap those of several females (Statham and Statham, 1997: Ball et al., 2005; Harper, 2005). Specific territories within these home-ranges are not actively defended by individuals (Winter 1976; Green, 1984).

Reproductive Biology: Brushtail possums have a polygynous mating system, with males being promiscuous (Sarre et al., 2000; Taylor et al., 2000; Ji et al., 2001). A female may mate with multiple males during oestrus (Winter, 1976). Births have been recorded in all months of the year, however most populations of the brushtail possum have a major autumn and minor spring breeding season (Pilton and Sharman, 1962; Meredith et al., 1969; How, 1983). In Tasmania, most births occur between the beginning of April and the end of June, with 65% of all births taking place in May (Hocking, 1981). Hocking (1981) also found that the mean birth date varied between areas; possums in those areas most recently burnt exhibit an earlier mean birth-date than those where fire had not occurred for over 8-16 years. Over 80% of females breed annually and in some populations 50% may produce young in both seasons (How, 1983; Ramsey et al., 2002). This has predominately been observed in newly colonised habitat or where the number of animals has been artificially reduced by hunting or eradication programs (Tyndale-Biscoe, 1955; Kean, 1967; Hocking, 1981; Cowan, 1992, 1993).

Females can begin to reproduce when about one year old (How, 1983). This is true for newly colonised habitat (or where possum numbers have been artificially reduced) and in bushland regenerating following fire (Hocking, 1981; Cowan, 1993). In forests of later successional stage, and those where possum numbers are limited by food resources, Tyndale-Biscoe (1955), Gilmore (1969) and Hocking (1981), found that females begin reproducing at two to three years of age. Possum populations in New Zealand responded to human-induced reductions in density with a higher proportion of females breeding, higher survival rate of young, and less seasonal fluctuation in body condition (Ji et al., 2004).

Female possums are polyoestrus and produce a single offspring following a gestation of 17-18 days. The altricial young attaches to one of two teats in the well developed pouch, and develops rapidly during the four to five months spent in the pouch. A further one to two months are spent suckling and riding on the mothers back before weaning is completed (Pilton and Sharman, 1962; Jolly, 1981; How, 1983; Watts, 1993). The sex-ratio of pouch young was biased towards males in wet forest habitats studied by Hocking (1981) in Tasmania, although this situation is reversed in the adult population. Brushtail possums can also exhibit adaptive biases in offspring sex-ratio in response to local conditions (Johnson and Ritchie, 2002) Brushtail possums generally exhibit high philopatry and male biased dispersal (Efford, 1998; Ji et al., 2001; Stow et al., 2006).

Mortality Factors: Survival of dependent young is high in brushtail possums (Dunnet, 1964; How, 1972a, 1972b; Hocking, 1981), but a sharp increase in mortality occurs when juveniles of both sexes disperse from the natal area (How, 1972b, 1983; Hocking, 1981). Dispersing males range further than females and have a higher mortality rate generally resulting in a female bias in the adult population (Hocking, 1981; How, 1983; Green, 1984; James, 1984; Efford, 1998). Juvenile mortality is higher in high-density populations, possibly due to an inability of individuals to establish in already fully utilised habitat (How, 1972a; Hocking, 1981). Hocking (1981) also found that recruitment to possum populations favoured males in early successional habitat and females in older habitat. This may indicate that brushtail possum populations are regulated by density-dependant factors (Cowan, 1993).

Brushtail possums are prey for a number of species in Tasmania, most notably Tasmanian devils (Sarcophilus harrisii) and spotted-tailed quolls (Dasyurus maculatus), for which brushtail possums can make up to 14.6% of the biomass of an adult quoll’s diet (Jones and Barmuta, 2000). Nevertheless, the proportion of possums consumed as a result of active predation, as opposed to scavenging, is unknown, and the major cause of death of adult possums in Tasmania appears to be starvation in the form of winter food shortage (Hocking, 1981). Large numbers are also killed each year by collisions with vehicles (Mooney and Johnson, 1979). Human predation through harvesting and crop protection culling undoubtedly influences the dynamics of possum populations, but under a sustainable management strategy this practice should only remove that portion of the population that is replaced by increased survival of young animals (Caughley, 1977).

Although introduced brushtail possums in New Zealand are known to be infected with the microbial agents of leptospirosis and tuberculosis, which can also infect grazing livestock and humans, their Australian counterparts are not considered to be an important host or reservoir for these infectious diseases (Presidente, 1984; O'Callaghan and Moore, 1986).

Exudative dermatitis is a common condition observed in brushtail possums in the tropics, but is seen only rarely in Tasmania. In severe cases the condition can be fatal. It is evident that stress plays a big part in the epidemiology of this disease; however the main stressor appears to be high population density and the associated increase in territorial and competitive disputes, particularly between sub-adult males (Vogelnest and Woods, 2008). As such, any form of population control that reduces population density is unlikely to exacerbate any problem.

It is probable that a proportion of Tasmanian brushtail possums are intermediate hosts for Toxoplasma gondii, the causative agent of the disease toxoplasmosis, particularly in those areas where possums cohabitate with people and their pets (felids are the definitive host), increasing the possibility of transmission. Infection can prove fatal in captive and free-ranging populations (Eymann et al., 2006).

The pathogenic significance of many brushtail possum endoparasites is unknown although some heavy nematode infections can be pathogenic (Presidente, 1984). Ectoparasites including ticks, mites, and fleas have been noted from Tasmanian possums, but without any apparent association between parasite load and condition, they are not regarded as significant agents of mortality (Hocking, 1981; O'Callaghan and Moore, 1986).

4. Harvest details

4.1 Region of Harvest.

Possum are wholly protected on land reserved as State Reserve, National Park or other conservation reserve under the *National Parks and Reserves Management Act 2002*. Approximately 50.4% of the land-area of Tasmania is contained in State Reserves, National Parks or other conservation reserves and much of this area is suitable possum habitat. The distribution of reserves covers all regions of Tasmania, and consequently a broad range of habitat types. In addition, much of the population outside of formal reserves is indirectly protected from culling as a consequence of land use restrictions, proximity to residential property and urban/suburban areas, difficult terrain, dense bush or lack of access for hunters.

Under this management plan, the taking of possum that can be utilized commercially may be undertaken only on or adjacent to land used for primary production, namely land used for the production of crops (including plantation timber) and/or pasture.

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4.2 Source of product.

All meat product for export will be sourced only from animals processed commercially for their meat in premises licensed by FSB or Dept Agriculture and Water Resources. A mechanism to ensure the export will not threaten the abundance of the species across its existing range is laid out at Section 7.

4.3 Method of Harvest.

Animals will be taken only by harvesters holding a current Commercial Purposes Licence endorsed for possum. FSB requires that animals entering the commercial meat trade must be taken by accredited Game Meat Harvesters according to the *Code of Practice for the filed*

*Shooting of Brush Tail Possum in Tasmania (*The Code). (https://nre.tas.gov.au/Documents/Possum-Code-of-Practice-Aug-2012.pdf) with the restrictions that only rifles be used and that all animals must be brain-shot. This is regulated by FSB through regular audits of processing premises (quarterly) and harvesters (at least annually, often more regularly).

4.4 Harvest season.

The harvest will be undertaken throughout the year.

4.5 Size of the Harvest.

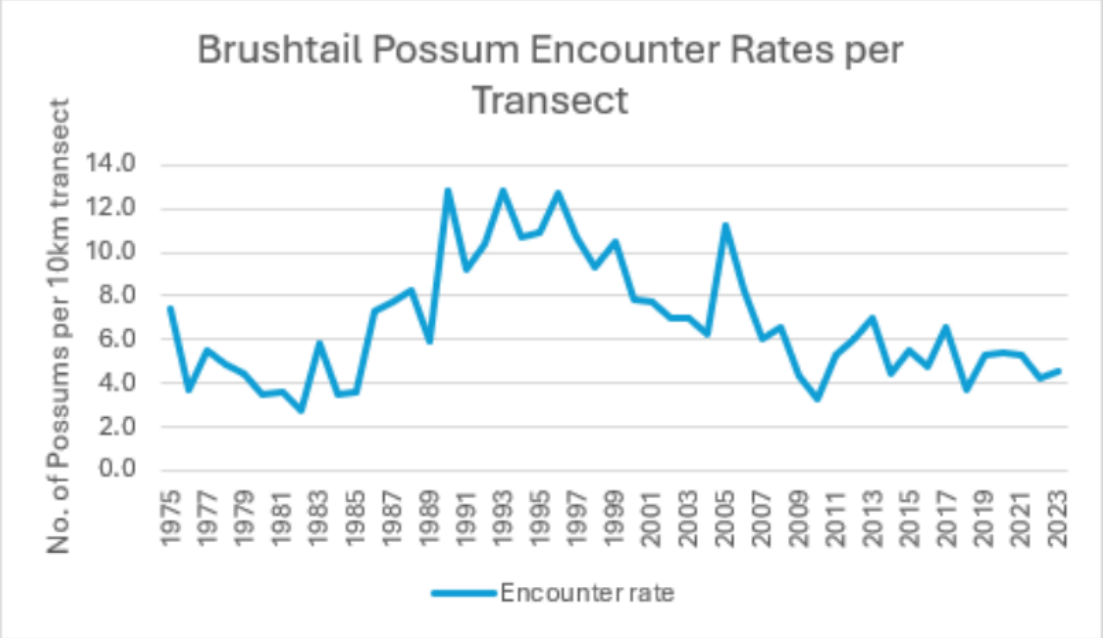
The total export of possum from Tasmania will be set at a maximum of 100,000 animals annually. The current cull under permit is in excess of 200,000 possums and this is unlikely to increase. Instead, the products of a proportion of these possums may be used commercially. It is not expected this take will be in addition to the existing cull, rather a diversion from the existing cull to a commercial harvest.

5. Impact on the harvested species

Possum have been commercially harvested and culled under damage mitigation permits for domestic purposes on mainland Tasmania at rates of over 200,000 per year over the past twenty years. These rates of harvest clearly have had no adverse impact on the viability of the Tasmanian possum population which has undergone no long-term decline over this period and particularly so over the past decade as demonstrated in Figure 2.

The WTO has in place mechanisms to ensure that if possum densities fall below a very conservatively set trigger point, exports will cease. The trigger point mechanism is laid out in Section 7. The trigger point mechanism is designed to ensure the trade facilitated by export does not contribute to a trade that will be detrimental to possum populations.

Figure 2: Brushtail possum population trends as reflected in the average number of possums counted each year per 10km spotlight survey transect from 1975 to 2023.



6. Monitoring and assessment

6.1 Monitoring of Possum Populations.

Monitoring of trends in populations of possum in Tasmania is undertaken through a system of standardised spotlight survey counts performed annually by NRE. The standardised surveys are carried out in accordance with the method set out in the *Tasmanian Spotlight Survey Manual* (https://www.dcceew.gov.au/sites/default/files/documents/tas-brushtail-possums-management-plan-2015-2020-appendix-9.pdf) and have been undertaken annually since 1975. The survey methodology was modified in 2002 to include line transect sampling in an effort to improve survey precision and assist in minimising observer variation and seasonal differences.

Line transect sampling involves an observer moving along a transect line; in this case the survey route, recording perpendicular distances to detected objects. Objects away from the line may often go undetected, but those on or near the line are assumed to be seen with certainty. The sample of detection distances allows a detection function to be modelled and the proportion of objects detected in a strip transect (= detection probability) to be estimated. An estimate of possum density in the vicinity of transect lines can then be calculated.

There are currently 172 standard 10 km spotlight survey routes in mainland Tasmania. In order to allow for long term trends to be examined without bias from the introduction of new survey routes, only those 132 routes surveyed since 1985 are used in examining historical trends prior to 2002 (42 prior to 1985). Given the smaller sample size, results from estimates of historical data may not be directly comparable to the 2002 data onwards, however it does give a very good indication of trends in possum populations over time.

Data is collected and reported on a regional basis. Tasmania is divided into 6 regions, one of which is the far South West of the state in which no commercial harvesting currently takes place. The standard spotlight survey routes are surveyed in November-January each year. The survey year is determined by the timing of the first survey (e.g. for surveys undertaken in November 2007 and January 2008, the survey year would be 2007).

The results obtained by this method should be regarded as a repeatable *index* of population density rather than an estimate of total population size. Reviews of survey method, such as frequency of monitoring and monitoring protocols, may be conducted in the future.

Prior to the change in methodology, survey results were recorded as the average number of animals seen per 10 km transect. NRE is aiming to shortly develop conversion factors that will allow density figures to be estimated for earlier years. NRE has not converted the 1985 – 2001 survey data to a density index and all data in Figure 2 are recorded as the average number of animals seen per 10 km transect in order to enable comparison between years.

The results of the spotlight surveys will be used to assess changes in density of possum species and will be presented in the Annual Report to the Commonwealth (see section 11).

As with all scientific data, these density figures contain an element of uncertainty. For this reason, these densities cannot be easily extrapolated into estimates of absolute population size. However, such estimates of absolute population size are not essential for the management of the commercial harvest under this WTO, as the total quota has been set at a figure well below what would normally be considered a sustainable take.

The long term trends in the data collected in these surveys as shown in Figures 1&2 and table 2 indicate a long term stable, super-abundant population, even in the face of the existing commercial harvest, recreational kill, damage mitigation cull and roadkill. This population stability is particularly apparent over the past decade and even prior to that any variation could not be considered more than would occur due to normal population fluctuation in response to seasonal changes.

6.2 Monitoring the take.
6.2.1 Existing Controls.

The use of brushtail possum products in Tasmania for commercial purposes is an ongoing industry. Brushtail possums can only be taken under a Primary Production Protection (PPP) Permit for crop protection purposes. However, permits are available to take for other purposes, including scientific and special purposes. Products of possums taken under a PPP Permit can be used for commercial purposes but only by the holder of a Commercial Purposes Licence endorsed for brushtail possum. Brushtail possum can be taken either by spotlight shooting, or trapping and destroying on site. Trapping and transport of live animals for slaughter elsewhere is not permitted and the use of snares or steel-jawed traps is specifically prohibited under the *Animal Welfare Act 1993.*

A commercial purpose licence allows the holder to possess and sell products of brushtail possums (skins, fur or meat) taken under a PP permit to licensed skin dealers and licensed game meat premises respectively who have a Commercial Wildlife Traders Licence.

Game meats processors are required to provide quarterly returns to NRE of the number or quantity of brushtail possum product purchased and sold (Appendix 1).

Officers authorised under the *Nature Conservation Act 2002* undertake periodic patrols of properties on which hunting takes place to ensure that all brushtail possum hunting is occurring in accordance with the *Wildlife (General) Regulations 2010* and *the Nature Conservation (Wildlife) Regulations 2021* . These patrols include all areas where brushtail possum hunting may potentially occur and involve requiring hunters to provide evidence that they are appropriately authorised to hunt brushtail possums and that they are adhering to all relevant conditions.
All skin and meat exports must be accompanied by permits issued by the Australian Government Department of Climate Change, Energy, the Environment and Water (DCCEEW).

6.2.2 Verification.
Table 1 charts the extensive licensing, reporting and verification controls in the supply chain.

Supply Verification Chart			
Supply Link	**Permits Required**	**Reporting Required**	**Verification available**
Private property	Property Protection Permit (PPP)	Annual take returns by landholder Quarterly returns by licensed harvesters	
Licensed harvesters	Commercial Purpose licence	Quarterly return	
	FSB accreditation		annual reassessment against Welfare Code
			collate to ensure all

Lenah Game Meats	Commercial Wildlife Traders License.	quarterly returns quarterly royalty payments to NRE annual report (monitoring results) due by end of Sept	data matches
Export	DCCEEW permit	DCCEEW export permit acquittals	

Table 1: Supply chain controls for the export of possum from Tasmania

*6.2.2.1***:** *Verification of source of product.*
Holders of Commercial Purpose Licences are required by NRE to report quarterly numbers of each species taken under PPP and sold. An example of the reporting form is at Appendix 1.

FSB audits licensed premises to ensure all possum supplied are sourced only from accredited harvesters.

*6.2.2.2***:** *Verification of numbers exported.*
All exports are accompanied by permits issued by DCCEEW detailing the product in each consignment. Total exports can be cross checked against numbers reported to GST as purchased by TGP and retained for trading.

7. Management Strategies

Mechanisms for the trigger point to regulate exports will be in place to ensure this is a sustainable trade. This will ensure that any export activity will not of itself impose a threat to possum populations.

TGP will monitor the total of possum product exported. If this number reaches the product from 100,000 possum, TGP will immediately notify DCCEEW and no further animals will be harvested for export, for the balance of that year. This can be cross checked by NRE from the monthly reports of possum processed submitted by TGP. Commercial Wildlife Traders Licence holders are required to lodge quarterly reports of possums processed.

8. Compliance

Possum management in Tasmania is administered by the NRE, under the *Nature Conservation Act 2002* and the *Nature Conservation (Wildlife) Regulations 2021*. Under Schedule 8 of the *Nature Conservation (Wildlife) Regulations 2021*, possum are classified as Partly Protected Wildlife throughout Tasmania. As such, they may be taken under the authority of a Property Protection Permit issued under Regulation 34 of the *Nature Conservation (Wildlife) Regulations 2021* on properties where they are causing crop damage. Permits may specify conditions with which the holder of the permit must comply including the property on which the possums may be taken, the period during which they may be taken and the methods to be used in the taking of the possums.

In order for commercial use possum taken for crop protection purposes, the commercial shooter must hold a Commercial Purposes Licence, which allows the sale of possum taken under the authority of a Property Protection Permit on lands used for primary production.

Commercial hunters are permitted to sell possum carcasses only to the holder of a Commercial Purposes Licence endorsed to process possum.

Permits are required from DCCEEW to export any possum product. These permits are issued only when the NRE is satisfied that the possum products were legally taken, processed and royalties paid.

NRE Tas has a team of full-time compliance officers whose responsibilities include the enforcement of the *Nature Conservation Act 2002* and regulations as well as associated legislation such as the *Animal Welfare Act 1993.*

9. Animal Welfare

The prevention of cruelty to animals, including possum, and the promotion of animal welfare are provided for by the *Animal Welfare Act 1993*. Section 8 of this Act makes it an offence to inflict unreasonable or unjustifiable pain or suffering to an animal. Adherence to the *Code of Practice for the Field Shooting of Brushtail Possums in Tasmania* is an obligation of the Commercial Purposes Licence held by commercial harvesters and is a requirement of processor's approved Food Safety Program and is enforceable under the *Primary Produce Safety Act 2011*.

It is a condition of a Commercial Purposes licence issued by NRE that possum are taken in accordance with the requirements of the *Code of Practice for the Filed Shooting of Brush tail possum in Tasmania.* TGP will only purchase possum and possum product which have been field shot in compliance with this Code. No live trapping of possum will be employed. In particular, all harvesters will need to comply with section 6 of the Code in relation to dealing with dependent young.

Persons harvesting for meat must be accredited in accordance with the provisions of the *Primary Produce Safety Act 2011* and the Australian Standard for the Hygienic Production of Game Meat for Human Consumption. All accreditation includes a field-based assessment of competence in shooting. Shooting assessments are done in the field by a Certified Auditor. Accredited shooters within the game meat industry are reassessed at yearly intervals by the FSB as part of the auditing of Licensed Game Meat Premises. This reassessment includes their ability to adhere to animal welfare standards.

All meat processing premises are audited on a regular basis (usually quarterly) by FSB. Part of this audit procedure is to ensure compliance with the animal welfare standards.

Any meat processor or harvester found to be in breach of these controls will suffer disciplinary action, including potential loss of licence as regulated by NRE, thus eliminating them as a potential skin supplier under this WTO. A conviction for an offence under the *Animal Welfare Act 1993*, or *Nature Conservation Act 2002* and regulations makes the person ineligible for a licence or permit under the Nature Conservation (Wildlife) Regulations 2021 for a period of five years.

Key controls:

All harvesters supplying animals for meat processing are re-assessed under actual field operating conditions every year to ensure compliance with the Code.

All meat processors are audited regularly and assessment of compliance with the Animal Welfare Standard is part of the audit procedure.

10. Over-ride Provision:

This WTO shall be invalidated in the case of DCCEEW approving a Wildlife Trade Management Plan under section 303FO of the EPBC Act submitted by NRE covering possum in Tasmania.

11. Reports

Following the collation and analysis of survey data by NRE by the end of June, TGP will submit to DCCEEW by 30 Sept, an annual report on the following:

- The possum density index reported by NRE for the previous year with its position against TP1; and
- Total number of possum exported for the previous calendar year

This report will detail if, given assessments against the trigger point, possum harvested in the current year will be eligible for export.

12. Summary

This WTO:

- Acknowledges that over 200,000 possum are currently culled for crop protection purposes in Tasmania every year and much of the product is wasted.
- Acknowledges that this level of harvest has occurred for an extended time and appears to have no effect on the sustainability of possum populations.
- Proposes that the product from up to 100,000 possum per fiscal year be exportable.
- Puts in place mechanisms to stop exports if possum densities decline below conservative levels or if possum processed and exported by TGP reach 100,000 possum per calendar year.
- Documents the extensive licensing, reporting and monitoring controls in place to ensure compliance and establish an auditable supply chain.

This WTO is non-detrimental to the Tasmanian possum population since it simply puts in place a mechanism to enable a small percentage of an existing sustainable cull to be exported rather than wasted.

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Appendix 1: Quarterly return form

Game Services Tasmania
Ph: (03) 1300 292 292
Email: GameServicesTas@nre.tas.gov.au

Licence no: 2300226/1 [redacted]

Commercial Wildlife Traders Licence Return Form

The licence holder is required to complete a summary of all transaction records held for products of wildlife sold or otherwise disposed of during each specified three month period, on the forms provided, and return to the Department within 14 days of the end of each period.

Return Period January - March 01/01/2024 to 31/03/2024 Return due no later than: 14/04/2024

Purchases

Number of each species purchased				Product Description (E.g. whole carcass, skin only, fur only)
*RW	*BTP	*FK	*BW	

*RW - Tasmanian Pademelon (or Rufous Wallaby), *BTP - Brushtail Possum, *FK - Forester Kangaroo, *BW - Bennett's (or Red-necked) Wallaby

Sales

Number of each species processed and sold				Product Description (E.g. whole carcass, skin only, fur only)
*RW	*BTP	*FK	*BW	

*RW - Tasmanian Pademelon (or Rufous Wallaby), *BTP - Brushtail Possum, *FK - Forester Kangaroo, *BW - Bennett's (or Red-necked) Wallaby

I, the Holder, declare that:

- The information provided in this form is true and correct; and
- I consent to the collection and use of my personal information in accordance with the Department's Personal Information Protection Policy.

Signed: _____ Date: _____

This form must be completed and returned to the Game Services Tasmania, Department of Natural Resources and Environment Tasmania, PO Box 46, KINGS MEADOWS TAS 7249, no later than the specified return due date for this form.

Department of Natural Resources and Environment Tasmania
PO Box 46, KINGS MEADOWS TAS 7249
Ph: (03) 1300 292 292
Email: GameServicesTas@nre.tas.gov.au
Web: https://nre.tas.gov.au/agriculture/game-services-tasmania

Tasmanian Government

Commercial Wildlife Traders Licence

This licence is granted under the authority of Regulation 48 of the *Nature Conservation (Wildlife) Regulations 2021* and pursuant to Regulation 31

[redacted]
Lenah Game Meats
[redacted]

Licence no: 2402472

This licence authorises the above licence holder to possess and sell or otherwise dispose of the products of the following wildlife:

Bennett's (or Red-necked) Wallaby (*Notamacropus rufogriseus rufogriseus*) & Tasmanian Pademelon (or Rufous Wallaby) (*Thylogale billardierii*) & Brushtail Possum (*Trichosurus vulpecula*) & Forester Kangaroo (*Macropus giganteus*) & Cape Barren Goose (*Cereopsis novaehollandiae*) & Fallow Deer (*Dama dama*)

Subject to the following conditions specified in Annex A

This licence is effective from 05/07/2024 and will expire at midnight on 30/06/2025.

Granted by: [redacted]
Principal Wildlife Management Officer
Delegate of the Secretary for Natural Resources and Environment Tasmania

Granted Date: 05/07/2024

Appendix 3:

Review of animal welfare code

Whilst no direct studies have been done on welfare outcomes in field shot possums taken under the *Code of Practice for the filed shooting of Brushtail Possum in Tasmania (the Code),* extensive comparative studies have been done on kangaroo and wallaby taken under similar practices.

The Code prescribes for possum to be field shot under the same practices as prescribed in the *National Code of Practice for the Humane Shooting of Kangaroos and Wallabies for Commercial Purposes*. The outcomes for animals taken under the kangaroo and wallaby Code have been extensively studied and are summarised below.

Study 1) Post mortem Inspections by Commonwealth Government Vets in 2014:

Number of kangaroos inspected	1,026,960
Number non-compliant with Code	25
Percentage compliance	99.998

Study 2) RSPCA audit of commercial kangaroo harvest welfare outcome 1985:" If *achieved correctly, kangaroo culling is considered one of the most humane forms of animal slaughter. An animal killed instantly within its own environment is under less stress than domestic stock that have been herded, penned, transported etc." (RSPCA 1985)*

Study 3) RSPCA audit of commercial kangaroo harvest welfare outcomes 2000: The report documents that in the modern kangaroo harvest **99.8%** of kangaroos taken by licensed kangaroo shooters are dispatched instantaneously by a high-powered bullet either in the head or at the junction of the skull and neck exactly where the shooter aims (RSPCA 2002). The kangaroo welfare Code was subsequently amended to change the required point of aim.

Study 4) Audit of commercial kangaroo welfare outcomes by NSW Dept Agriculture. Found that under actual operating conditions Kangaroo Harvesters head shoot 99.6% of all kangaroos targeted, delivering instantaneous death (McLeod and Sharp 2014).

Study 5) Long term audit of practices by commercial wallaby harvesters in Tasmania by Tas DPIPWE. In field audits under actual operating conditions of harvesters, 98.9% of wallaby were killed in compliance with the Code (DPIPWE 2020).

These studies consistently indicate kangaroo and wallaby harvesters deliver 99% or above humane kills in compliance with the Code. In comparison, the most commonly used method of dispatch for animals in abattoirs, captive bolts, consistently achieve much poorer results as demonstrated in the data below showing the levels of incidents in when a second shot with captive bolts were required to rendered animals unconscious.

Source	rate of second shot required
Oliveira et al (2018)	12-29%
S Atkinson, et al (2023)	10.4%

In relation to dispatch of pouch young

Several studies have looked at the welfare outcomes for wallaby or kangaroo pouch young using the recommended dispatch techniques.

Study 1) "*The dispatch of pouch young by professional shooters is by a sharp blow to the head or by decapitation. There is no reason to consider this as a cruel act." RSPCA 1985*

Study 2) Diesch et al. 2010. "Joeys without fur and with permanently closed eyelids are likely to be incapable of consciously experiencing pain due to their neurological immaturity. Therefore, decapitation (with or without cervical dislocation) and blunt trauma to the head are unlikely to cause suffering when used on unfurred pouch young."

Study 3) McLeod & Sharpe 2014. "We conclude that the currently used euthanasia methods for pouch young, when applied correctly, can be effective and humane."

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