

PEST RISK ASSESSMENT

Ferret/Polecat

Mustela furo and *M. putorius*



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About this Pest Risk Assessment

This pest risk assessment is developed in accordance with the *Policy and Procedures for the Import, Movement and Keeping of Vertebrate Wildlife in Tasmania* (DPIPWE 2011). The policy and procedures set out conditions and restrictions for the importation of controlled animals pursuant to s32 of the *Nature Conservation Act 2002*. This pest risk assessment is prepared by DPIPWE for the use within the Department.

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I. Summary

The origin of domesticated ferrets (*Mustela furo*) is uncertain. They are considered to have been domesticated from wild European polecats (*M. putorius*) around 1000BC, and were used by the Romans to catch rabbits. The native distribution of the European polecat is in Western Europe. Ferrets have established wild populations in New Zealand, the United Kingdom, Sardinia and Sicily. The ferret was introduced into New Zealand in 1867. During the 1880s and 1890s ferrets were bred and intentionally released to control rabbits. Thousands of ferrets were released, and the species is now established on the North and South Islands.

Ferrets have had a devastating effect on native birds and other wildlife in New Zealand. The rapid decline in kiwi populations has been attributed to predation by ferrets and other introduced vertebrates. Ferrets are also thought to contribute to the spread of bovine tuberculosis in New Zealand, and farmers conduct extensive campaigns to kill ferrets in order to remove the vector for this disease. Ferrets are a potential vector for human diseases and can cause painful bites.

The species is currently a controlled animal in Tasmania under the *Nature Conservation Act 2002*, and it is an offence to cause or allow ferrets to go at large in the State. Climate matching suggests that there is an extreme risk that ferrets could establish populations in Tasmania. In New Zealand ferrets feed on mammals, birds, invertebrates and reptiles. Ferrets could impact many native reptiles, insects, birds and mammals in Tasmania, including threatened species such as the New Holland Mouse, Eastern Barred Bandicoot, Tasmanian Devil, and the Forty Spotted Pardalote.

This risk assessment concludes that the likelihood that ferrets will establish wild populations in Tasmania is extreme and the potential consequences are also extreme. Ferrets have been categorised as an Extreme Threat to Tasmania. Based on this assessment it is recommended that ferrets are placed on the list of species that are not permitted to be imported into the State. Recommendations for managing domestic ferrets are also provided. Implementation of these recommendations will require stakeholder consultation.

2. Introduction

2.1 NAME AND TAXONOMY

Kingdom:	Animalia
Phylum:	Chordata
Class:	Mammalia
Order:	Carnivora
Family:	Mustelidae
Genus:	<i>Mustela</i>
Species:	<i>M. putorius</i> and <i>M. furo</i>



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Sub-species or variety: *Mustela putorius furo*

Common names: Ferret, domestic ferret, polecat, European polecat, forest polecat, fitch, New Zealand fitch, foul-marten

Close relatives: Several other similar mammals in the family Mustelidae also share the common name 'ferret', however all ferrets currently in Australia come from the domesticated form of *M. putorius*. The domesticated form is commonly classed as the subspecies *Mustela putorius furo*, and sometimes as a separate species (*M. furo*) (Davison *et al.* 1999). However, as they are genetically indistinguishable and readily able to interbreed with wild *M. putorius* (Davison *et al.* 1999; King 1990), this risk assessment subsequently refers to ferrets as *M. putorius*, but covers all those that may be classed as belonging to the species and subspecies listed above.

2.2 DESCRIPTION

The ferret (*Mustela putorius*) is a small carnivorous mammal with a long, narrow body 20-46cm in length and short legs. Ferrets have short, forward facing ears and a fully-furred tail of 7-14cm. They have large canines and five non-retractable claws on each foot. Juveniles appear similar to adults. Adult ferrets are sexually dimorphic with wild females weighing 205-915g and the heavier males 405-1710g, but otherwise sexes are alike (Blandford 1987).

Typically ferrets are dark brown to black in colour, with pale yellow underfur and dark-tipped guard hairs. Most ferrets have a grey/white face that has a distinct masked appearance and numerous tactile facial bristles. Less frequent colours include chocolate, white and red, with albinos not uncommon. Ferrets, particularly males, have a strong musky smell, released from anal scent glands, which is possibly used to mark territory (Blandford 1987).

Ferrets walk with their body low, sniffing the ground for scent trails, and they run with their back arched. Ferrets have poor eyesight, relying on smell and hearing as their main senses. They occasionally stand on their hind limbs to get a better view of their surroundings. Ferrets will occasionally swim, and can do so well, but are fairly poor climbers (Long, 2003).

2.3 CONSERVATION AND LEGAL STATUS

CONSERVATION STATUS

In its natural range, *M. putorius* is listed as of Least Concern under the International Union for Conservation of Nature (IUCN) Red List due to its wide distribution, large population, and the fact it is unlikely to be declining at a rate required to qualify for listing in a threatened category (Fernandes *et al.* 2008).

Ferrets belong to the genus *Mustela*, of which there are 14 species (15 if domestic ferrets are classified as *M. furo*). Of these 14, four species (including *M. furo*) are listed on the Global Invasive Species Database (GISD) and one (the stoat, *M. erminea*) is listed as one of the world's worst 100 invasive species.

LEGAL STATUS AUSTRALIA

M. putorius is not listed under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (the EPBCA). A draft risk assessment was prepared for the Commonwealth in 2005 concerning the import of ferrets into Australia (Olsen and Jenz 2005) and ferrets were subsequently rejected for inclusion on the list of species suitable for import into Australia.

On the basis of their pest potential ferrets are listed under the Extreme Threat category of the current List of Exotic Vertebrate Animals in Australia (VPC 2006), which recommends any animal listed as an Extreme Threat not be allowed to enter or be kept in any state or territory.

Ferrets are listed as a Class I Pest Animal in Queensland under the *Land Protection (Pest and Stock Route Management) Act 2002* and are subject to eradication from the state. It is prohibited to import, keep, introduce or supply a Class I pest in Queensland under the Act.

Ferrets are listed as a Restricted Animal in the Northern Territory under the *Territory Parks and Wildlife Conservation Act*. It is illegal to import or keep ferrets in the Territory under the Act.

Ferrets can only be kept under licence in Victoria and the ACT, however they may be kept as pets in Tasmania, Western Australia, New South Wales and South Australia.

There are currently no restrictions on keeping, breeding or selling ferrets within Tasmania, however deliberately releasing ferrets into the wild is prohibited under the *Tasmanian Nature Conservation Act 2002*.

3. Biology and Ecology

3.1 LIFE HISTORY

Most studies on reproduction in ferrets have been on captive domesticated animals. Female ferrets quickly reach sexual maturity at 8-12 months, while males don't seem to produce viable sperm until 2 years of age (Kristiansen *et al.* 2007). The reproductive season in captive animals is usually from March to September and this is consistent with the limited data from wild populations (Lindberg 2008), however there is a peak in mating activity in wild populations around August (Kristiansen *et al.* 2007). Females are considered seasonally polyoestrus, however individuals may exhibit a constant oestrus for the entire season if not mated (Lindberg 2008). Gestation typically lasts 41 days and captive animals give birth to between one and 18 young with an average of eight (Lindberg 2008). One study suggested that wild European ferrets in Denmark produced an average of 6 young per litter, with yearling females conceiving at the same rate and producing the same size litters as more mature individuals (Kristiansen *et al.* 2007).

Young are born around October or November in a den located under cover such as a hollow log or in the burrow of another animal. Ferrets are highly adaptable in their choice of a den site, with individuals known to have used farm buildings. The young are weaned after around 50 days and then supplied with meat by the female. They will disperse from the natal area after about 3 months, typically dispersing 5km (Byrom 2002). Survival of juveniles is dependent on population density and the presence of predators, but can be as high as 86% in the first year and there appears to be no sex bias in juvenile survival (Byrom 2002). In the wild ferrets will live for 2-5 years, however they have been known to live up to 14 years in captivity (Blandford 1987).

3.2 HABITAT REQUIREMENTS AND PREFERENCES

Ferrets are highly adaptable and use a wide variety of vegetation types and structures. They can be found in almost every habitat within their natural range, including sand dunes and sea cliffs, but show a preference for woodlands, hedgerows and watercourses (Blandford 1987; Zabala *et al.* 2005). They are known to inhabit altitudes from sea-level to at least 2,400m (Fernandes *et al.* 2008). In Britain they are recorded to occupy habitat from sea-level to 520m (Poole 1970 cited in Blandford, 1987) and up to 2000m in Greece (Köenig 1973 cited in Blandford, 1987). Ferrets in New Zealand utilise rough grassland, scrubland and fringes of forest (Long 2003).

Habitat use appears to be explained by seasonal variation in food resources, particularly the availability of preferred prey such as amphibians and rodents (Zabala *et al.* 2005). Areas of high structural diversity along ecotones or streams also seem to be favoured and ferrets will intensively exploit these areas (Lodé 1994; Zabala *et al.* 2005).

During the day ferrets rest in a sheltered den which can be located in any suitable hole such as a rabbit burrow, hollow log or natural rock crevice. Wood stacks or deserted buildings may be used in more urban areas, particularly during harsh winters, and ferrets will use multiple den sites within their home range (Blandford 1987; Brzezinski *et al.* 1992).

3.3 NATURAL GEOGRAPHIC RANGE

The natural range of ferrets extends across much of Eurasia and as far south as Morocco, although there is contention as to whether this Moroccan population was introduced (Figure 1). Ferrets occur in a wide variety of habitats from the western Palearctic to the Ural Mountains in the Russian Federation in the east (Fernandes *et al.* 2008). They are present in Britain but absent from Ireland (Long 2003). The ferret is common in the forests of European Russia, however it is considered scarce in Western Europe where it is naturally at very low densities. Populations appear to be declining in Morocco and central Europe in line with a decline in preferred prey, but appear to be increasing in the United Kingdom following major persecution in the 1800's, which has since ceased (Fernandes *et al.* 2008).



Figure 1: Natural global geographic distribution of the ferret, *Mustela putorius*. Source: Fernandes *et al.* 2008.

3.4 INTRODUCED GEOGRAPHIC RANGE

Ferrets have been introduced (both deliberately and unintentionally) into many countries. Populations have successfully established in New Zealand, the British Isles, some Mediterranean islands, and parts of Russia (Fernandes *et al.* 2008). Feral populations occurred in Japan and Jamaica for a period of time (DAF 2008). In New Zealand, ferrets are listed as Unwanted Organisms under the *Biosecurity Act 2003* and are subject to large-scale control programs in many regions (DOC, 2009).

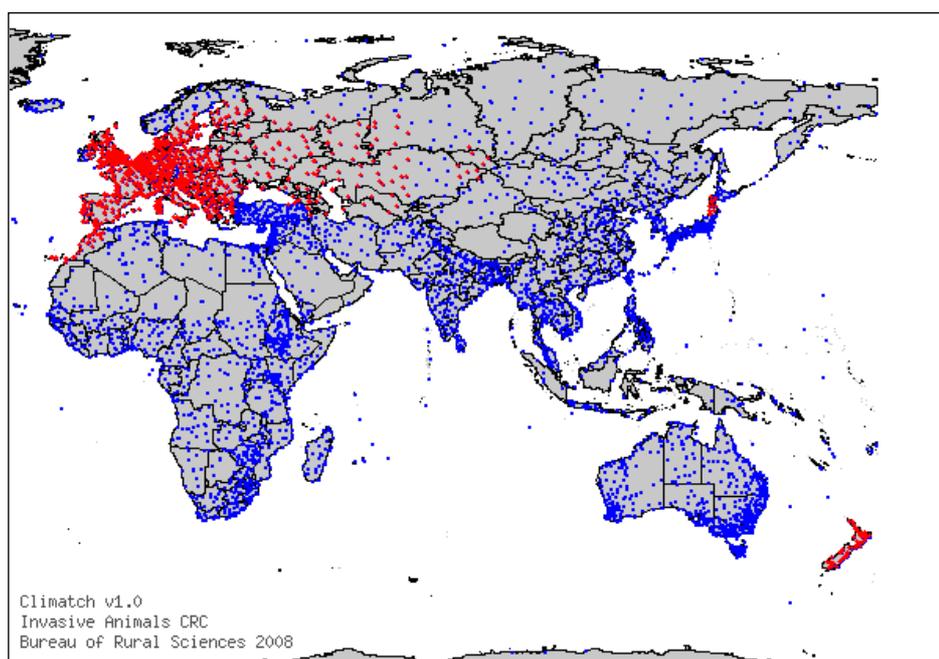


Figure 2: Global geographic distribution of the ferret, *Mustela putorius*, including native and introduced populations (DAF 2008; Fernandes *et al.* 2008).

Ferrets were introduced to Australia in the late 1880's to control rabbits and, although reports of wild ferrets occur occasionally, no permanent populations are known to have established. Reports of wild ferrets occur occasionally in Tasmania, however the majority are unconfirmed. There have been reports in Mole Creek, Ross, Oatlands, Great Lakes, Tinderbox, Waterhouse Conservation Area and South Arm (G. Atkinson DPIPW *pers. comm.* 4 February 2011 and C. Spry, DPIPW *pers. comm.* 9 February 2011). The Mole Creek population was present in the late 1980s and is thought to have been wiped-out after a bushfire. South Arm appears to be a hotspot for sightings. Following a report of ferrets in the area in 2000 trapping was conducted by local residents and six kits (ferrets under one year of age) were destroyed (G. Atkinson, DPIPW *pers. comm.* 4 February 2011). Adult and juvenile ferrets have also been observed periodically in the Waterhouse Conservation Area in northeast Tasmania for the last 10-15 years (C. Spry, DPIPW *pers. comm.* 9 February 2011). Ferrets were last seen in this area in 2009/2010. Currently there are no confirmed established ferret populations in Tasmania, although the observation of ferrets in the State suggests that there may be established populations in some areas. This information is based only on reported sightings, no systematic surveys have been undertaken to detect incursions in Tasmania.

3.5 POTENTIAL DISTRIBUTION IN TASMANIA

The ferret is highly adaptable and naturally occurs across a wide range of habitats and altitudes. In addition, ferrets have become established as pests across much of New Zealand in areas of very similar habitat type and climate to Tasmania. Climate modelling (DAFF, Bureau of Rural

Sciences), using climate data from the ferret's natural and established global distribution as a reference, suggests that the Tasmanian climate is highly suitable for establishment of this species (Figure 3).

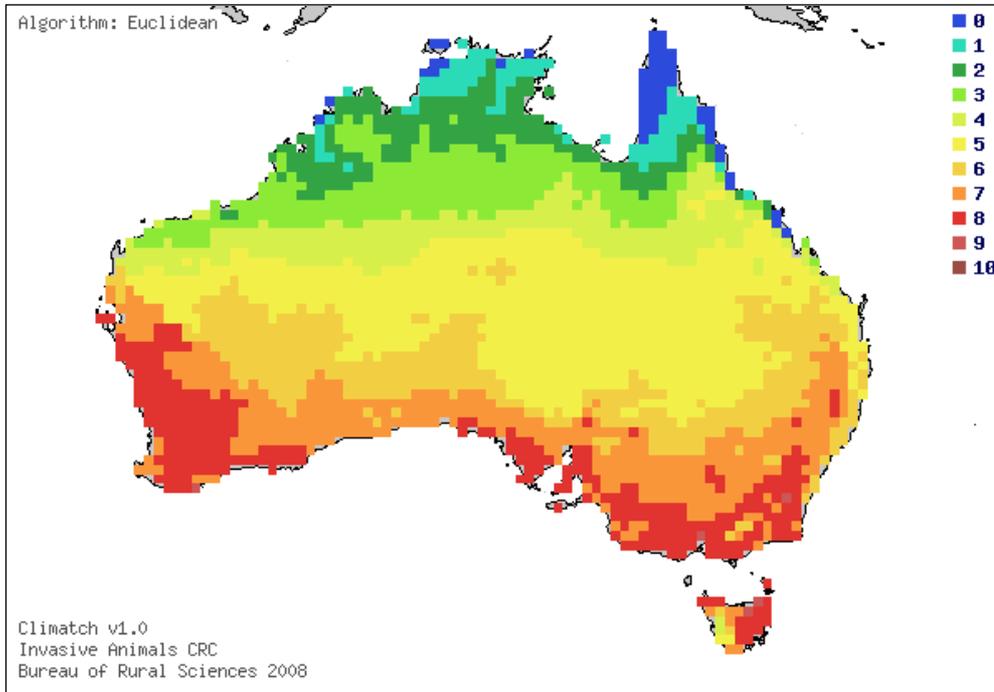


Figure 3: Climate match results showing the potential geographic distribution of the ferret, *Mustela putorius*, in Tasmania, where 10 is a 'perfect' climate match and 0 is a very dissimilar climate match.

3.6 DIET AND FEEDING BEHAVIOUR

The ferret is an obligate carnivore that naturally preys on a wide variety of taxa, with diet varying depending on local conditions and prey availability. Ferrets are typically nocturnal predators and will consume between 100-300g daily (Blandford 1987). Examination of stomach content and faecal material from ferrets using a range of habitat types indicates ferrets will prey on rodents, lagomorphs (rabbits and hares), other small mammals, birds, amphibians, invertebrates and even fish. Rodents, amphibians and lagomorphs generally



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make up the bulk of the diet (Lodé 1997). In one study in New Zealand birds, including Passeriformes, Anseriformes and Falconiformes constituted 13% of prey in ferrets, which suggests that they may predate the endangered forty-spotted Pardalote (*Pardalotus quadragintus*) if they were introduced into Tasmania (Smith *et al.* 1995).

Ferrets are extremely flexible and opportunistic in their feeding strategy, and eggs and carrion are readily consumed (Lodé 1997; DAF 2008). Ferrets inhabiting areas near human settlements have been known to prey on domestic poultry (Long 2003). They have even exhibited behavioural adaptations for the consumption of venomous or poisonous prey such as the common toad (Lodé 1994; Sidorovitch and Pikulik 1997). Faecal analysis in one study found evidence of ferrets consuming fruit, although they are generally regarded as obligate carnivores (Rosalino and Santos-Reis 2009).

The diet of introduced populations in New Zealand is similar, with ferrets preying on lagomorphs, rodents, ground- and tree-nesting birds, hedgehogs, reptiles and invertebrates where available (Smith *et al.* 1995; Ragg 1998b; Murphy *et al.* 2004). Ferrets in New Zealand also routinely prey on possums, penguins and seabirds. Predation by ferrets has been implicated in the decline of the regionally threatened yellow eyed penguin, and the endangered kakapo, kiwi, weka and royal albatross (Smith *et al.* 1995; Ragg 1998b; Ratz *et al.* 1999; Ratz 2000; DAF 2008; DOC, 2009).

3.7 SOCIAL BEHAVIOUR AND GROUPINGS

Ferrets are essentially solitary, with males occupying larger home ranges than females (Lodé 1996; Norbury *et al.* 1998; Fournier *et al.* 2008). Male home-ranges may be as large as 700 ha (Fournier *et al.* 2008). Female home-ranges tend to be exclusive, with males overlapping those of several females (Brzezinski *et al.* 1992). During the breeding season male home ranges expand and dominance relationships are determined (Long, 2003; Rondinini *et al.* 2006). Intra-specific interactions generally occur during the breeding period or when food is limited (Lodé 1996), however pairs will occasionally forage together or share dens (Ragg 1998a; DAF 2008).

3.8 NATURAL PREDATORS AND DISEASE

Adult ferrets have few natural predators, however juveniles may be taken by canids or raptors (Blandford, 1987). Dogs are known to kill ferrets in urban areas.

Ferret populations are known to be an important reservoir for bovine tuberculosis (*Mycobacterium bovis*) in New Zealand (de Lisle *et al.*, 2008), and avian tuberculosis (*M. avium*) in parts of Europe (Kopečna *et al.*, 2008).

Ferrets can also carry a number of other zoonotic diseases including rabies, fleas and mites, ringworm and salmonella (MUCVM 2002).

A potential predator of ferrets in Tasmania, the Tasmanian devil (*Sarcophilus harissi*), has undergone significant decline in recent years in much of its range (Hawkins *et al.* 2006). This decline is likely to reduce any influence that devil predation pressure may have in repressing a feral ferret population and therefore increase the chance of establishment in the State.

3.9 THREAT TO HUMAN SAFETY

The ferret can inflict painful bites on people, causing injury requiring medical treatment. Small children and infants are particularly at risk.

3.10 HISTORY AS A PEST

Ferrets have been introduced (both deliberately and unintentionally) into many countries and populations have successfully established in New Zealand, the British Isles, some Mediterranean islands, and parts of Russia (Fernandes *et al.* 2008). Feral populations occurred in Japan and Jamaica for a period of time (DAF 2008). In New Zealand, ferrets are listed as Unwanted Organisms under the *Biosecurity Act 2003*. They are considered a serious threat to native wildlife in New Zealand and are subject to large-scale control programs in many regions (DOC 2009). Ferrets in New Zealand are from domesticated stock (classed as *M. furo*) and therefore the same as those currently kept in Australia.

Ferrets were introduced to Australia in the late 1880's to control rabbits, however although reports of wild ferrets occur occasionally, no permanent populations are known to have established.

3.11 POTENTIAL IMPACT IN TASMANIA

In Tasmania there are many threatened species that the ferret could impact through predation and competition. For example, the New Holland Mouse, Eastern Barred Bandicoot, Tasmanian Devil, Spotted-tail Quoll, and Forty Spotted Pardalote could all be impacted by ferrets. The diet and denning requirements of ferrets are likely to overlap substantially with native carnivores such as eastern (*Dasyurus viverrinus*) and spotted-tailed (*D. maculatus*) quolls which are comparable in body size and ecology, resulting in competition for resources. Should ferrets become established in the state, it is possible that they would out-compete the smaller eastern quoll in areas where their distribution overlapped.

Ferrets sightings in the South Arm vicinity of Tasmania suggests potential for impacts on large short-tailed shearwater (*Puffinus tenuirostris*) and little penguin (*Eudyptula minor*) rookeries in the area. The ferret population on South Arm was located within the shearwater colony. These species could provide an ideal food source for ferrets. Ferret predation has been implicated in

the decline of sooty shearwater (*Puffinus griseus*) and yellow eyed penguin (*Megadyptes antipodes*) populations in New Zealand (Ratz 2000; Jones *et al.* 2003).

Primary production of chickens and privately owned poultry could also be impacted, although measures in place to prevent predation by quolls and devils may also be effective against ferrets, or only require minor upgrades before it was also ferret proof.

In addition, the Tasmanian devil (*Sarcophilus harissi*), a potential predator of ferrets particularly their young, has undergone significant decline in recent years in much of its range (Hawkins *et al.* 2006). This decline is likely to reduce any influence that devil predation pressure may have in repressing ferret populations and therefore increase the chance of ferret establishment and the scale of the potential impact in the State.

4. Risk Assessment

4.1 PREVIOUS RISK ASSESSMENTS

Ferrets have been included on the list of species rejected for inclusion on the list of specimens suitable for import into Australia by the Department of Sustainability, Environment, Water, Population and Communities. The Department of Agriculture and Food in Western Australia has conducted a risk assessment of ferrets, which concludes that they pose an Extreme Threat to Australia (DAF 2008). This assessment has been endorsed by the national Vertebrate Pests Committee. The Queensland Government has also conducted a pest risk assessment of ferrets, concluding that they also represent an Extreme Threat to Queensland (Markula *et al.* 2009). A relatively recent application to add ferrets to the List of Specimens taken to be Suitable for Live Import into Australia under the Environmental Protection and Biodiversity Conservation Act has been refused (F. Antram 2011, *pers. comm.*, 8 February 2011).

4.2 RISK ASSESSMENT

The following risk assessment estimates the level risk of ferrets to Tasmania using the Bomford model adapted for Tasmania (Bomford 2008). The assessment then assigns the species into a threat category. The category used to score each factor is shown in column three in italics and where necessary the rationale for each assessment is also provided.

Table I. Risk assessment scoring for *Mustela furo* and *M. putorius*.

Species:		Ferret (<i>Mustela furo</i> and <i>M. putorius</i>)
Date of Assessment:	February 2011	
Literature search type and date:	See references	
Factor	Score	
A1. Risk posed from individual escapees (0-2)	1	<i>The animal can make unprovoked attacks causing moderate injury (requiring medical attention) or severe discomfort but is highly unlikely (few if any records) to cause serious injury (requiring hospitalisation) if unprovoked.</i> Ferrets can make unprovoked attacks, however only moderate injuries are likely.
A2. Risk to public safety from individual captive animals (0-2)	0	<i>Nil or low risk (highly unlikely or not possible).</i> The risk to public safety from irresponsible use of products obtained from ferrets is negligible.
Stage A. Risk posed by individual animals (risk that a captive or escape animal would harm people)	Public Safety Risk Score = A1 + A2 = 1	Public Safety Risk Ranking Moderately Dangerous

B1. Climate match score (1-6)	5	Very high climate match in Tasmania. Sum of squares for match classes 10 to 6: 26 (very high).
B2. Exotic population established overseas score (0-4)	4	Exotic populations have been established on a large island (> 50 000 km ²) Feral populations have established in New Zealand, the United Kingdom and Europe.
B3. Overseas range size score (0-2)	1	Overseas range class of 1-70 million km ² , with range estimated at 1.8 million km ² (includes current and past 1000 years, natural and introduced range). Introduced and native population range is approximately 20 million square kilometres.
B4. Taxonomic class score (0-1)	1	Mammal
Stage B. Likelihood of establishment (risk that a particular species will establish a wild population in Tasmania)	Establishment Risk Score = B1 + B2 + B3 + B4 = 11	Establishment Risk Ranking Extreme
C1. Taxonomic group (0-4)	4	Mammal in one of the orders that have been demonstrated to have detrimental effects on prey abundance and/or habitat degradation and in one of the families that are particularly prone to causing agricultural damage Order: Carnivora. Family: Mustelidae
C2. Overseas range size (0-2)	1	Overseas geographic range between 10 and 30 million square kilometres. Introduced and native population range is approximately 20 million square kilometres.
C3. Diet and feeding (0-3)	3	Mammal that is a strict carnivore (eats only animal matter) and arboreal (climbs trees for any reason)
C4. Competition for native fauna for tree hollows (0-2)	0	Does not use tree hollows. Ferrets do not use hollow trees for nesting or shelter.
C5. Overseas environmental pest status (0-3)	3	Major environmental pest in any country or region Major environmental pest in New Zealand and parts of Europe.
C6. Climate match to areas with susceptible native species or communities (0-5)	5	75% of the geographic range of one or more susceptible native species or ecological communities that are listed as threatened under Tasmanian legislation lies within the mapped area of the six climate match classes (10, 9, 8, 7, 6, and 5) Potential range of ferrets in Tasmania overlaps populations of many threatened species that could be impacted through predation (New Holland Mouse, Eastern Barred Bandicoot, and Forty Spotted Pardalote) and competition (Tasmanian Devil, and

		Spotted-tail Quoll).
C7. Overseas primary production (0-3)	2	<i>Moderate pest of primary production in any country or region</i> Ferrets have been reported as a moderate pest of poultry production in New Zealand.
C8. Climate match to susceptible primary production (0-5)	1	<i>Total Damage Commodity Score is 15. (See Appendix A).</i> Potential for moderate impacts on poultry farms in the State
C9. Spread disease (1-2)	2	<i>All birds and mammals</i>
C10. Harm to property (0-3)	0	<i>Property damage is likely to be less than < \$100,000 per year</i> It is likely that any preventative measures that would be required for poultry, such as fencing, are already in place to exclude native species such as the Tasmanian devil and quoll, therefore only expect minor impacts.
C11. Harm to people (0-5)	2	<i>Injuries or harm or annoyance likely to be minor and few people exposed</i>
Stage C. Consequence of Establishment (risk that an established population would cause harm)	Consequence Risk Score = sum of C1 to C11 = 23	Consequence Risk Ranking Extreme
ASSIGNED THREAT CATEGORY:	EXTREME	
PROPOSED IMPORT CLASSIFICATION:	PROHIBITED	

5. Risk Management

Based on the outcomes of the risk assessment it is recommended that the species should be placed on the list of species that are prohibited imports because they represent an Extreme Threat to Tasmania.

Given that ferrets are currently in the State, measures to manage the population down should also be considered. This could include measures such as prohibiting the sale, possession, movement, and/or breeding of ferrets in Tasmania, which could be achieved by prescribing ferrets as restricted animals under the *Wildlife (General) Regulations 2010* and applying the appropriate conditions on possession. It is recommended that the restrictions on releasing ferrets into the wild in Tasmania should remain in place.

It is recommended that stakeholder consultation be conducted to assess the level of impact that these conditions would have on Tasmanian stakeholders, prior to applying any additional measures. Potential stakeholders include pet shop owners, ferret enthusiast clubs, commercial breeders, ferret rescuers, hunting organisations, environmental organisations, and the Latrobe Council, that holds ferret races at their annual regatta.

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7. Appendices

APPENDIX A: CALCULATING TOTAL COMMODITY DAMAGE SCORE

Column 1	Column 2	Column 3	Column 4	Column 5
Industry	Commodity Value Index (CVI)	Potential Commodity Impact Score (PCIS, 0-3)	Climate Match to Commodity Score (CMCS, 0-5)	Commodity Damage Score (CDS columns 2 x 3 x 4)
Cattle (includes dairy and beef)	11	N/A		
Timber (includes native and plantation forests)	10	N/A		
Aquaculture	6	N/A		
Sheep (includes wool and meat)	5	N/A		
Vegetables	5	N/A		
Fruit (includes wine grapes)	5	N/A		
Poultry (including eggs)	1.5	2	5	15
Cereal grain (includes wheat, barley, sorghum etc)	1	N/A		
Other crops and horticulture (includes nuts and flowers)	1	N/A		
Pigs	1	N/A		
Bees (includes honey, beeswax, and pollination)	0.5	N/A		
Oilseeds (includes canola, sunflower etc)	0.5	N/A		
Grain legumes (includes soybeans)	0.3	N/A		
Other livestock (includes goats and deer)	0.3	N/A		
Total Commodity Damage Score (TCDS)				15

APPENDIX B: ASSIGNING SPECIES TO THREAT CATEGORIES

A: Danger posed by individual animals (risk a captive or escaped individual would harm people)	B: Likelihood of establishment (risk that a particular species will establish a wild population in Tasmania)	C: Consequence of establishment (risk that an established population would cause harm)	Threat category	Implications for any proposed import into Tasmania
Highly, Moderately or Not Dangerous	Extreme	Extreme	Extreme	Prohibited
Highly, Moderately or Not Dangerous	Extreme	High		
Highly, Moderately or Not Dangerous	Extreme	Moderate		
Highly, Moderately or Not Dangerous	Extreme	Low		
Highly, Moderately or Not Dangerous	High	Extreme		
Highly, Moderately or Not Dangerous	High	High		
Highly, Moderately or Not Dangerous	Moderate	Extreme		
Highly, Moderately or Not Dangerous	High	Moderate	Serious	Import restricted to those license holders approved for keeping serious threat species
Highly, Moderately or Not Dangerous	High	Low		
Highly, Moderately or Not Dangerous	Moderate	High		
Highly Dangerous	Moderate	Moderate		
Highly Dangerous	Moderate	Low		
Highly, Moderately or Not Dangerous	Low	Extreme		
Highly, Moderately or Not Dangerous	Low	High		
Highly Dangerous	Low	Moderate		
Highly Dangerous	Low	Low		
Moderately or Not Dangerous	Moderate	Moderate	Moderate	Import restricted to those license holders approved for keeping Moderate Threat species
Moderately or Not Dangerous	Moderate	Low		
Moderately or Not Dangerous	Low	Moderate		
Moderately Dangerous	Low	Low		
Not Dangerous	Low	Low	Low	Import Permitted
Unknown	Any value	Any value	Extreme until proven otherwise	Prohibited
Any Value	Unknown	Any value		
Any Value	Any value	Unknown		
Unassessed	Unassessed	Unassessed		



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