

THREATENED SPECIES SCIENTIFIC COMMITTEE

Established under the *Environment Protection and Biodiversity Conservation Act 1999*

The Minister approved this conservation advice and in transferred this species from the Endangered to Critically Endangered category, effective from 15/02/2018

Conservation Advice

Lasiorhinus krefftii

northern hairy-nosed wombat

Taxonomy

Conventionally accepted as *Lasiorhinus krefftii* (Owen 1872).

The taxonomic classification is not fully resolved (Jackson & Groves 2015). *Lasiorhinus krefftii* was originally described in 1872 as a fossil from deposits at Wellington Caves, as *Phascolomys krefftii*. A skin from Moonie Rover, south-eastern Queensland was described by De Vis as *P. gillespiei* in 1900, and the Epping Forest population was described as *L. latifrons barnardi* by Longman in 1939. Some subsequent treatments have treated *barnardi* and *gillespiei* as synonyms of *krefftii*; however Groves (2005) considered that they should be treated as subspecies or distinct species.

Taylor et al. (1994) compared the genetic composition of samples from *L. krefftii* from Epping Forest to museum specimens from Deniliquin, and to southern hairy-nosed wombats *L. latifrons*, and confirmed that the extinct Deniliquin population was closest genetically to that from Epping Forest.

Woinarski et al. (2014) recognises the relatively conservative option of treating *barnardi* and *gillespiei* as subspecies of *krefftii*, and considers *L. k. gillespiei* to be Extinct and *L. k. barnardi* to be Critically Endangered.

Summary of assessment

Conservation status

Critically Endangered: Criterion 2 B1(a),(b)(iii)

The highest category for which *Lasiorhinus krefftii* is eligible to be listed is Critically Endangered.

Lasiorhinus krefftii has been found to be eligible for listing under the following categories:

Criterion 2: Criterion 2 B1(a),(b)(iii): Critically Endangered

Criterion 4: Endangered

Species can be listed as threatened under state and territory legislation. For information on the listing status of this species under relevant state or territory legislation, see

<http://www.environment.gov.au/cgi-bin/sprat/public/sprat.pl>

Reason for conservation assessment by the Threatened Species Scientific Committee

This advice follows assessment of new information provided to the Committee to change the listing status of *Lasiorhinus krefftii*.

The information contained in this Conservation Advice was primarily sourced from 'The Action Plan for Australian Mammals 2012' (Woinarski et al., 2014), the 'Recovery plan for the Northern Hairy-nosed Wombat *Lasiorhinus krefftii* 2004-2008' (Horsup 2004) and the Department of Environment and Heritage Protection (DEHP 2016, pers. comm. 2017).

Public consultation

Notice of the proposed amendment and a consultation document was made available for public comment for 32 business days between 30 January 2017 and 15 March 2017. Any comments received that were relevant to the survival of the species were considered by the Committee as part of the assessment process.

Species/subspecies information

Description

The northern hairy-nosed wombat is a ground-dwelling herbivorous marsupial. It has a broad nose, pointy ears and greyish fur. It is heavily built with a broad head, short legs, and strong claws for digging (DEHP 2016). It is the largest of the three extant wombat species, including *Vombatus ursinus* (the common, or bare-nosed wombat) and *Lasiorhinus latifrons* (the southern hairy-nosed wombat). The average adult weight is 32 kg, with adult females slightly heavier than males (Horsup 2004), and can grow to more than one metre in length (DEHP 2016).

Compared with the common wombat, the northern hairy-nosed wombat has softer fur, longer and more pointed ears, and a broader muzzle fringed with fine whiskers. The southern hairy-nosed wombat is similar in appearance to the northern species, but often has a white patch on the nose and chest (DEHP 2016).

Distribution

Fossil records show that the northern hairy-nosed wombat was once widespread across Victoria, New South Wales (NSW) and Queensland (Qld). However, at the time of European settlement it was not common and had a fragmented distribution restricted to three locations: south-central NSW (Deniliquin), south-eastern Qld (St George to Moonie River) and central Qld. By 1908 the species was only found in the Epping Forest area of central Qld, where it was restricted to a 600 hectare area (Johnson 1991; Woinarski et al., 2014). The Epping Forest area was settled in 1860, and high numbers of cattle (*Bos taurus*) were recorded there during the early 1900s (Horsup 2004).

At the time of writing this Conservation Advice, the northern hairy-nosed wombat occurs at only two locations: Epping Forest National Park (EFNP) in central Qld; and a translocation-reintroduction site, the Richard Underwood Nature Refuge (RUNR), at Yarran Downs near St George in south-eastern Qld. This reintroduction site is within the species' historic range.

The EFNP comprises approximately 32 km² of *Acacia harpophylla* (brigalow) and *Acacia cambagei* (gidgee) scrubs on heavy non-cracking clay soils. A gully runs north-south through the EFNP on deep alluvial sands that support trees (*Lysiphyllum hookeri* (bauhina), *Corymbia clarksoniana* (Clarkson's bloodwood) and *Corymbia tessellaris* (Moreton Bay ash)) (Horsup 2004). The area is surrounded by a fence that excludes dogs and foxes; it covers 18 km², of which 7–9 km² is suitable burrow habitat (DEHP pers. comm., 2017). The wombat's range has expanded so that, at 2016, the species occupies a large portion of the suitable burrow habitat, and utilises a significant portion of the remaining fenced area as grazing habitat (DEHP pers. comm., 2017).

The RUNR colony was established in 2009, with 15 northern hairy-nosed wombats translocated from the EFNP between 2009 and 2013. The RUNR comprises about 1.3 km² of eucalypt woodland on old river levees, and the northern hairy-nosed wombat habitat is enclosed by a fence that excludes dogs, foxes and cats (DEHP 2016). The entire fenced area, approximately 0.7 km² of suitable burrowing habitat and 0.6 km² of grazing habitat, is utilised by the species (DEHP pers. comm., 2017).

Only the population at ENFP is included in the listing assessment, as the population at RUNR does not meet the requirements under section 2.1.4 of the IUCN Red List Guidelines (IUCN Standards and Petitions Subcommittee 2017) to be considered a wild population. As at 2017 the size of the RUNR population is estimated to be 11 individuals, including mature and immature,

and increasing (DEHP pers. comm., 2017). The viability of the population in the short- to medium-term may depend upon an ongoing exchange of individuals with the source population at ENFP (Woinarski et al., 2014).

Cultural significance

The species was known to the Aboriginal people of the St George area of southwest Queensland as Yaminon (Horsup & Johnson 2008).

Relevant Biology/Ecology

The northern hairy-nosed wombat shelters during the day in burrows within extensive warren systems, and forages at night (DEHP 2016). At the EFNP, they inhabit open eucalypt woodland and dig burrows in deep, sandy soils on levee banks deposited by a creek that no longer flows through the area. They will forage in areas of heavy clay soils adjacent to the sandy soils, but do not dig burrows in these areas, which become water-logged in the wet seasons (DEHP 2016).

The wombat burrows are often located close to *Lysiphyllum hookeri* (native bauhinia), the roots of which probably provides stability for the extensive burrows. The burrows have several entrances and may be used by more than one individual (probably female-female and not female-male associations), but 70 percent of the time are used by a solitary individual (Horsup 2004). The burrows provide effective shelter from the hot and cold temperatures experienced in central Queensland, and probably assist the northern hairy-nosed wombat to minimise water loss during hot and dry environmental conditions (Horsup 2004).

The diet of northern hairy-nosed wombats mostly comprises native grasses (e.g. *Aristida* spp. (three-awned grasses) and *Enneapogon* spp. (bottle-washer grasses)). However, dietary studies indicate that individuals are increasingly consuming the introduced buffel grass (*Cenchrus ciliaris*) which has increased in abundance from two to 27 percent between 1982–83 and 1993–96 (Horsup 2004). The heavy clay soils support the year-round supply of grass that the northern hairy-nosed wombat requires. The estimated size of the area that adult northern hairy-nosed wombats graze, and the number of hours at night that they are active, differs between seasons: six hectares grazed over six hours in winter (dry season), compared to three hectares grazed over two hours in summer (wet season) (Johnson 1991).

Breeding is closely linked to summer rainfall and the increased availability of grass at that time. Females give birth to a single young, and capture data indicate that most young are born between November and April. The young leave the pouch after eight to nine months, and are weaned the following summer when they are around 12 months old. Before weaning, the young remain inside the burrows while their mothers forage at night (Horsup 2004).

The proportion of females breeding in the population has been correlated to summer rainfall. In periods of good rainfall, females can breed once every two years; single young are born during spring-summer and spend 9–10 months in the pouch (Woinarski et al., 2014). Reproductive output is considerably reduced in drought years: only 20 percent of the females in the population were recorded as breeding during a drought in 1996–97, compared to 50–75 percent during 1985–93 (Crossman et al., 1994). Similarly, the proportion of independent young (weighing less than 22 kg) in the population declined from 71 percent in 1985–87 to 27 percent during the 1996–1997 drought (Horsup 2004).

The species is relatively long-lived, with records of captive and tagged wild individuals living up to 25–30 years (Horsup 2004; DEHP 2016). Females are estimated to reach sexual maturity at two and a half years and males at three years (DEHP 2016). Generation length is estimated at 14 years (Woinarski et al., 2014).

A low adult mortality rate has been recorded for the species, even during drought conditions (Horsup 2004; DEHP 2016). Burrows, and the stable environment that they provide, are considered to assist individuals to conserve energy and minimise water loss (DEHP 2016). Supplementary food and water are provided at EFNP and RUNR, to mitigate the effects of drought and wildfire and potentially increase fecundity and survivorship rates (Treby et al.,

2007). While studies have shown that northern hairy-nosed wombats readily take supplementary feed and water, particularly during dry conditions (Treby et al., 2007), not all the wombats accept dietary supplements (DEHP 2016).

Threats

The species' decline since European settlement is mainly attributed to the impacts of pastoralism (habitat clearing and livestock grazing), exacerbated during periods of drought (Dinwoodie 2012). Other factors that have contributed to the population decline include predation by dingoes and wild dogs on small and precarious populations, and habitat degradation associated with the spread of the prolific buffel grass (Horsup 2004; Dinwoodie 2012).

In the 1980s the total population had declined to an estimated 35 individuals, creating a genetic bottleneck. Genetic analysis has confirmed that the species has less genetic variability than the closely related southern hairy-nosed wombat (Taylor et al., 1994), and is therefore susceptible to further loss of genetic variation, inbreeding and reduced resilience to disease. However, existing genetic diversity is being preserved by minimising mortality rates through strategies to exclude predators, reduce competition, and reduce the impacts of drought and disease (DEHP pers. comm., 2017).

Table 1 – Threats impacting the northern hairy-nosed wombat in approximate order of severity of risk, based on available evidence

Threat factor	Threat type	Threat status	Evidence base
Invasive species and competition from native species (including threats from grazing and predation)			
Predation by dingos (<i>Canis familiaris</i>) and wild dogs (<i>Canis lupus familiaris</i>)	known	past	<p>Episodes of predation by dingos and wild dogs have been a major cause of mortality for the managed population (Banks et al., 2003b; Horsup 2004). A 20 km long dog exclusion fence was constructed to enclose northern hairy-nosed wombat habitat at EPNP in 2002, following episodes of dingo and wild dog predation during 2000–01 that killed ten northern hairy-nosed wombats (Horsup 2004).</p> <p>The exclusion fence at EPNP also excludes foxes (<i>Vulpes vulpes</i>), but not cats (<i>Felis catus</i>). Horsup (2004) notes that while foxes and cats are not known to prey on the northern hairy-nosed wombat, they may pose a potential threat to juveniles and they carry diseases that affect the other species of wombats (e.g. toxoplasmosis and sarcoptic mange). The predator-proof fence at RUNR excludes all predators, including cats.</p>

Buffel grass – habitat degradation	potential	current	Buffel grass (<i>Cenchrus ciliaris</i>) outcompetes native grasses and probably leads to a reduction in the diversity of preferred grasses for feeding (Horsup 2004). This grass is increasing in abundance in northern hairy-nosed wombat habitat, and is increasingly being used as a food source. A decrease in the quality of food may potentially affect the health of the species (Horsup 2004). However, this has not been demonstrated and the impacts of buffel grass on wombat health are unknown (DEHP pers. comm., 2017).
Competition for food from native and introduced herbivores	potential	current	Given the fenced nature of the existing colonies and the lack of suitable and connected habitat beyond, the current populations of northern hairy-nosed wombats rely upon a supplemented diet during times when food resources are low. <i>Macropus giganteus</i> (eastern grey kangaroos) and <i>Wallabia bicolor</i> (swamp wallabies) compete with wombats for access to supplementary water provided at water stations. Eastern grey kangaroos compete with wombats for grass, especially during extended dry periods. Swamp wallabies usually consume all the supplementary feed at feed stations before wombats can access it (Horsup 2013). Wombats also compete for resources with rabbits (<i>Oryctolagus cuniculus</i>) which occur within the fence-enclosed sites at EFNP and RUNR (Horsup 2004). The potential for competition may increase during drought (Dinwoodie 2012).
Habitat modification and disturbance (including from fire)			
Habitat loss and fragmentation	known	past and current	Habitat at the two known localities is not under threat of being cleared or grazed by livestock. However, ongoing loss of habitat through tree clearing and habitat alteration across the species' former range reduces the quality and quantity of potential sites, and limits the number of places, at which to establish new populations of northern hairy-nosed wombats in the future (Horsup 2004; DEHP 2016).
Competition for food with domestic stock	known	past and potential	The decline in the species' distribution and abundance since European settlement has been attributed to the effects of grazing by domestic livestock, particularly cattle. The threat of competition with domestic livestock is now controlled at the two known localities, with fencing erected to preclude cattle from the EFNP site in 1981 and the RUNR site in 2009 (Horsup 2004). However, the presence of introduced grazing animals across the species' former range threatens potential wombat habitat, and future reintroduction sites will need to be destocked if livestock are present.

Limited availability of resources within a restricted distribution	known	current	The species' range is small (AOO is less than 10 km ²) and restricted to two fence-enclosed locations (EFNP and RUNR), meaning individuals cannot emigrate to find new resources or refuges. As such, the species' resilience is reduced against factors that may deleteriously impact the health of individuals, including environmental conditions that reduce the availability of food for prolonged periods (e.g. fire, floods, drought or climate change) (DEHP 2016).
Wildfire	potential	potential	Wombats are well protected from fire in their burrows, but fire threatens their food supply (DEHP 2016). Buffel grass forms dense stands which create large and continuous fuel loads; in dry times this significantly increases the risk of major wildfires, which could wipe out the species' food supply (DEHP pers. comm., 2017).
Climate change			
Higher temperatures and extreme weather events	potential	potential	Higher temperatures are expected throughout the species' range by the end of this century, potentially reducing the area of suitable habitat and reducing the extent of grasslands available for foraging (DEHP pers. comm., 2017). Climate change is likely to increase the frequency of severe drought and floods. More extreme droughts may increase mortality, as drought slows reproductive output, and reduces body condition and survival rates of the species (DEHP 2016). More extreme rainfall events may also increase the risk of flooding in wombat habitat, which typically occurs along alluvial river systems, which may drive wombats out of burrows or reduce food resources (DEHP pers. comm., 2017). The species' small population size means that even a small number of individual deaths may significantly impact the species (DEHP 2016).
Disease			
Disease within a restricted distribution	potential	potential	No life-threatening diseases have been detected in the northern hairy-nosed wombat (Horsup 2004). Diseases, such as toxoplasmosis (<i>Toxoplasma gondii</i>) (found in cat faeces) and sarcoptic mange (<i>Sarcoptes scabiei</i>), may pose a potential threat, but at the time this Conservation Advice was written they were not known to affect the northern hairy-nosed wombat. However, the species' small range and population size, along with its lowered genetic variability, means that its resilience against disease is low and any impacts from disease may be significant.

How judged by the Committee in relation to the EPBC Act criteria and regulations

Criterion 1. Population size reduction (reduction in total numbers)			
Population reduction (measured over the longer of 10 years or 3 generations) based on any of A1 to A4			
	Critically Endangered Very severe reduction	Endangered Severe reduction	Vulnerable Substantial reduction
A1	≥ 90%	≥ 70%	≥ 50%
A2, A3, A4	≥ 80%	≥ 50%	≥ 30%
<p>A1 Population reduction observed, estimated, inferred or suspected in the past and the causes of the reduction are clearly reversible AND understood AND ceased.</p> <p>A2 Population reduction observed, estimated, inferred or suspected in the past where the causes of the reduction may not have ceased OR may not be understood OR may not be reversible.</p> <p>A3 Population reduction, projected or suspected to be met in the future (up to a maximum of 100 years) [(a) cannot be used for A3]</p> <p>A4 An observed, estimated, inferred, projected or suspected population reduction where the time period must include both the past and the future (up to a max. of 100 years in future), and where the causes of reduction may not have ceased OR may not be understood OR may not be reversible.</p>	<p>based on any of the following:</p> <ul style="list-style-type: none"> (a) direct observation [except A3] (b) an index of abundance appropriate to the taxon (c) a decline in area of occupancy, extent of occurrence and/or quality of habitat (d) actual or potential levels of exploitation (e) the effects of introduced taxa, hybridization, pathogens, pollutants, competitors or parasites 		

Evidence:

Not eligible

The population size and sex ratio of the northern hairy-nosed wombat has been monitored since the mid-1980s (e.g. Hoyle et al., 1995). Since 2000, the EFNP population has been monitored by undertaking genetic analysis (genotype and sex) of hair samples collected every three years, with the data analysed by a statistician to produce a population estimate (Banks et al., 2003a; DEHP pers. comm., 2017). Results from those counts have been consistently corroborated with monitoring data related to burrow activity (A. Horsup pers. comm., cited in Woinarski et al., 2014). The monitoring data indicate a marked increase in population size since the early 1990s (Figure 1), with a steady growth rate of greater than 5 percent since 2000 (DEHP pers. comm., 2017).

In the 1980s, the total population at EFNP was estimated to be about 35 individuals, a considerable decline from that known for the area over preceding decades (Horsup 2004). However, with intensive management (initially including removal of cattle: Gordon et al., 1985; Taggart et al., 2008), this increased to about 113 individuals in 2000, to 138 in 2007 (Dinwoodie 2012), to 163 in 2010 (A. Taylor pers. comm., cited in Woinarski, 2014), to about 200 in 2012 (A. Horsup pers. comm., cited in Woinarski, 2014) and 240 in 2016 (DEHP pers. comm., 2017). Of these, about two-thirds of the population are estimated to be mature adults, based on the proportion of immature versus mature individuals captured during trapping programs and recorded on remote cameras (A. Horsup pers. comm., cited in Woinarski, 2014; DEHP pers. comm., 2017).

In 2000–2001, predation by dingoes caused about 15–20 deaths, but that problem has since been resolved through establishment of a 20 km dingo-proof fence (Horsup 2004). Breeding females formerly comprised a minority of the population, with their number estimated at 25 in 2000 (Banks et al., 2003a). However, the proportion has increased to near parity, with an estimate of 87 breeding females in 2010 (A. Taylor pers. comm., cited in Woinarski, 2014) and near parity maintained in subsequent years.

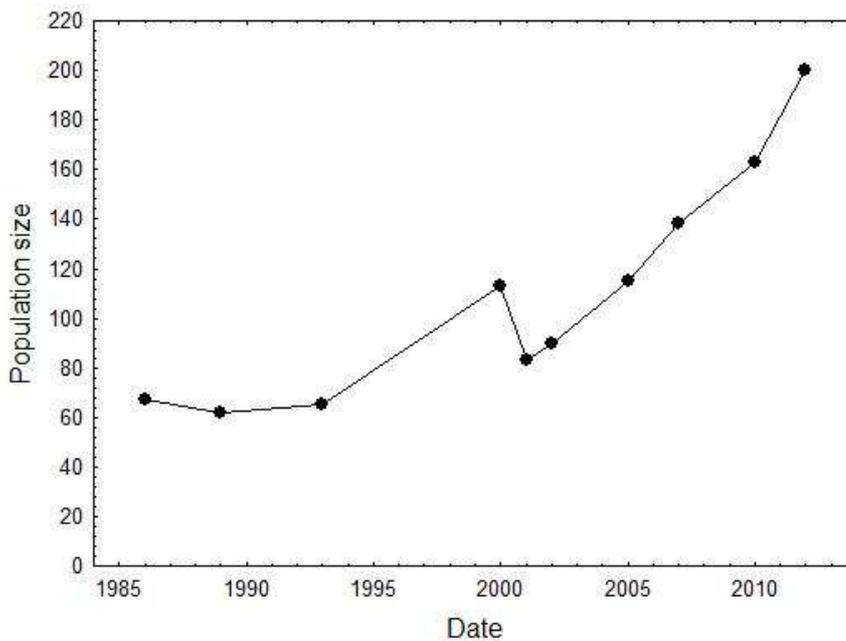


Figure 1. Changes in population size of Northern Hairy-nosed Wombat, Epping Forest (Woinarski et al., 2014)

Following assessment of the data the Committee has determined that the species is not eligible for listing in any category under this criterion as the past, current or future population declines are thought unlikely to exceed 30 percent in any 3-generation period (42 years for this assessment).

Criterion 2. Geographic distribution as indicators for either extent of occurrence AND/OR area of occupancy			
	Critically Endangered Very restricted	Endangered Restricted	Vulnerable Limited
B1. Extent of occurrence (EOO)	< 100 km ²	< 5,000 km ²	< 20,000 km ²
B2. Area of occupancy (AOO)	< 10 km ²	< 500 km ²	< 2,000 km ²
AND at least 2 of the following 3 conditions:			
(a) Severely fragmented OR Number of locations	= 1	≤ 5	≤ 10
(b) Continuing decline observed, estimated, inferred or projected in any of: (i) extent of occurrence; (ii) area of occupancy; (iii) area, extent and/or quality of habitat; (iv) number of locations or subpopulations; (v) number of mature individuals			
(c) Extreme fluctuations in any of: (i) extent of occurrence; (ii) area of occupancy; (iii) number of locations or subpopulations; (iv) number of mature individuals			

Evidence:

Eligible under Criterion 2 B1(a),(b)iii) for listing as Critically Endangered

Previously, the species' range within EFNP was estimated to be 3–6 km² (Johnson 1991; A. Horsup pers. comm., cited in Woinarski et al., 2014). However, the range of the species has since expanded, and its estimated range within EFNP is now greater than 12 km² (DEHP pers. comm., 2017).

The AOO and EOO are formally calculated to both be 24 km², based on the mapping of point records from 1997 to 2017. The EOO was calculated using a minimum convex hull, and the AOO calculated using a 2x2 km grid cell method, based on the IUCN Red List Guidelines 2017

(DoEE 2017). The EOO meets the threshold for listing as Critically Endangered under subcriterion B1.

The species occurs at a single location, which meets the threshold for listing as Critically Endangered under subcriterion (a). Habitat quality is observed to be decreasing due to the spread of non-native grasses (Table 1; Woinarski et al., 2014), which satisfies subcriterion (b)(iii).

The Committee considers that the species' extent of occurrence is very restricted, and the geographic distribution is precarious for the survival of the species because it occurs at a single location and a decline in habitat quality has been observed. Therefore, the species has met the relevant elements of Criterion 2 to make it eligible for listing as Critically Endangered.

Criterion 3. Population size and decline			
	Critically Endangered Very low	Endangered Low	Vulnerable Limited
Estimated number of mature individuals	< 250	< 2,500	< 10,000
AND either (C1) or (C2) is true			
C1 An observed, estimated or projected continuing decline of at least (up to a max. of 100 years in future)	Very high rate 25% in 3 years or 1 generation (whichever is longer)	High rate 20% in 5 years or 2 generation (whichever is longer)	Substantial rate 10% in 10 years or 3 generations (whichever is longer)
C2 An observed, estimated, projected or inferred continuing decline AND its geographic distribution is precarious for its survival based on at least 1 of the following 3 conditions:			
(a) (i) Number of mature individuals in each subpopulation	≤ 50	≤ 250	≤ 1,000
(a) (ii) % of mature individuals in one subpopulation =	90 – 100%	95 – 100%	100%
(b) Extreme fluctuations in the number of mature individuals			

Evidence:

Not eligible

The population at ENFP was estimated to have 196 individuals at the 2013 census (DEHP 2016), and 240 individuals at the 2016 census (DEHP pers. comm., 2017). About two-thirds of the population consist of mature individuals, which equates to approximately 160 mature individuals (DEHP pers. comm., 2017). The 2016 census indicated that the sex ratio is very close to parity (DEHP pers. comm., 2017).

Although the population size is very low, numbers have increased over the past three generation period (42 years). Refer also to Criterion 1.

The Committee considers that the total number of mature individuals is 160 (very low), however the available data does not demonstrate that there is a continuing decline in the population. Therefore, the species has not met this required element of this criterion.

Criterion 4. Number of mature individuals			
	Critically Endangered Extremely low	Endangered Very Low	Vulnerable Low
Number of mature individuals	< 50	< 250	< 1,000

Evidence:

Eligible under Criterion 4 for listing as Endangered

As at 2016, the number of mature individuals is estimated to be 160 (see Criterion 3), which is very low. Therefore, the species has met the relevant elements of Criterion 4 to make it eligible for listing as Endangered.

Criterion 5. Quantitative Analysis			
	Critically Endangered Immediate future	Endangered Near future	Vulnerable Medium-term future
Indicating the probability of extinction in the wild to be:	≥ 50% in 10 years or 3 generations, whichever is longer (100 years max.)	≥ 20% in 20 years or 5 generations, whichever is longer (100 years max.)	≥ 10% in 100 years

Evidence:

Insufficient data to determine eligibility

A population viability analysis has not been undertaken.

Conservation actions

Recovery plan

A recovery plan for the northern hairy-nosed wombat was developed by the State of Queensland (Horsup 2004) and adopted as a national recovery plan under the EPBC Act in 2005. A review of the plan in 2013 concluded that most of the actions have been implemented. The plan expired in 2016.

The Committee recommends that there should be an updated recovery plan for *Lasiorhinus krefftii* (northern hairy-nosed wombat), as the wild population exists at a single location and translocation to establish further populations is urgently required. A recovery plan which includes a detailed translocation strategy would provide further guidance to managers and help ensure the long-term survival of the species.

Primary conservation actions

1. Maintain enclosure fencing around existing populations.
2. Ensure sufficient food resources by managing competition from other herbivores and invasive weeds, and providing supplementary food and water where required.
3. Secure suitable habitat and establish additional populations through reintroductions, possibly protected with predator-exclusion fencing.

Conservation and management priorities

Invasive species and competition from native species (including threats from grazing and predation)

- Continue to maintain enclosure fencing around existing wombat populations to exclude domestic stock, dingoes, wild dogs, foxes and cats; remove any of these animals found in the enclosures.
- Regularly inspect fencing, particularly after fires, floods or storm events, and repair immediately where required.
- Provide supplementary food and water where necessary, particularly during periods of low rainfall or following a major wildfire.
- Control the spread of buffel grass and other invasive weed species.
- Implement weed hygiene practices to prevent the introduction and spread of weeds.
- Monitor the numbers of kangaroos and rabbits and the potential for competition with the northern hairy-nosed wombat, and manage to reduce the numbers of kangaroos and rabbits if required.

Habitat loss, disturbance and modifications (including from fire)

- Re-establish native grasses in areas with existing populations.
- Ensure adjacent land managers are aware of the species' occurrence and implement protection measures against key and potential threats.
- Manage the risk of fire by maintaining a fire break system, and periodically patch burn in areas with existing populations to ensure that fuel loads do not become excessive.

Disease

- Monitor the presence of pathogens and manage any potential outbreaks of disease including, but not limited to, toxoplasmosis and sarcoptic mange.
- Develop and implement a disease incursion protocol to prevent the introduction of disease from other animals and people (such as researchers) entering wombat sites.

Stakeholder engagement

- Continue to foster community and volunteer involvement (including the financial, material and intellectual contribution) that provides benefits to the species' conservation.
- Identify strategies to engage with owners of lands that have high value as reintroduction sites, e.g. develop conservation covenants.
- Develop a northern hairy-nosed wombat advisory group.

Population planning and climate change

- Identify further northern hairy-nosed wombat habitat within its former distribution for the purposes of establishing new reintroduction sites, taking into consideration future climate scenarios.
- Develop and implement a reintroduction strategy, including how to acquire, protect (e.g. from tree clearing and habitat alteration) and manage reintroduction sites over the long-term.
- Undertake reintroductions to establish additional populations, and manage and monitor the populations to ensure long-term viability.

Survey and Monitoring priorities

- Monitor population numbers and trends, sex ratios, health and reproductive status of the species.
- Support and enhance existing monitoring programs, including maintaining volunteer caretaker programs at all sites for survey and monitoring.

- Monitor (and, if necessary, manipulate) genetic diversity at EFNP and reintroduction site(s).
- Monitor changes in available foraging resources for the species over time.
- Monitor the progress of recovery, including the effectiveness of management actions and the need to adapt them if necessary.

Information and research priorities

- Assess the species' ecological requirements for maintaining self-sustaining populations, including the relationship between population size and the area of fenced enclosures.
- Investigate methods to detect signs of overabundance of populations in fenced enclosures.
- Assess the extent to which food availability and quality may limit population size or reproductive success.
- Investigate the impacts of buffel grass on the health and condition of the species arising from its use as a fodder source, and implications of increased buffel grass incursion on wombat behaviour, habitat utilisation and social interaction.
- Assess the efficacy and impacts of management options for reducing the spread of buffel grass in current and potential wombat habitat.
- Identify an optimal fire management regime in wombat habitat that will promote food availability, whilst minimising the risks of wildlife and spread of buffel grass.
- Continue to investigate the requirements for successful reintroduction programs (e.g. number of individuals for each translocation, adverse impacts on the source population at EFNP, conditions to protect the health and welfare of translocated individuals, viability of source and translocated populations).
- Assess options for improving reproductive success (e.g. investigate techniques for, and likely success of, artificial insemination).
- Continue to investigate and improve population monitoring techniques.

Recommendations

- (i) The Committee recommends that the list referred to in section 178 of the EPBC Act be amended by **transferring** from the Endangered category to the Critically Endangered category:
Lasiorhinus krefftii
- (ii) The Committee recommends that there should be a recovery plan for this species.

Threatened Species Scientific Committee

14/09/2017

References cited in the advice

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