

THREATENED SPECIES SCIENTIFIC COMMITTEE

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

The Minister approved this conservation advice and transferred this species from the Vulnerable to the Endangered category, effective from 07/12/2016

Conservation Advice

Petrogale lateralis lateralis

black-flanked rock-wallaby

Note: The information contained in this conservation advice was primarily sourced from the Western Australian Department of Parks and Wildlife (DPAW) and 'The Action Plan for Australian Mammals 2012' (Woinarski et al., 2014). Any substantive additions obtained during the consultation on the draft have been cited within the advice. Readers may note that conservation advices resulting from the Action Plan for Australian Mammals show minor differences in formatting relative to other conservation advices. These reflect the desire to efficiently prepare a large number of advices by adopting the presentation approach of the Action Plan for Australian Mammals, and do not reflect any difference in the evidence used to develop the recommendation.

Taxonomy

Conventionally accepted as *Petrogale lateralis lateralis* (Gould 1842). Other common names include the black-footed rock-wallaby or warru. Four other subspecies are recognised: *P. l. hacketti*, *P. l. pearsoni*, *P. l. subsp.* (MacDonnell Ranges) and *P. l. subsp.* (west Kimberley).

Summary of assessment

Conservation status

Endangered: Criterion 2 B2,(a),(b)(ii)(iv)(v) and Criterion 3 C2(i)

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 reassess the listing status of *Petrogale lateralis lateralis*.

Public Consultation

Notice of the proposed amendment and a consultation document was made available for public comment for 32 business days between 4 May 2016 and 17 June 2016. 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 black-flanked rock-wallaby is dark grey-brown in colour with a distinct white to sandy cheek-stripe. A white side-stripe also extends from below the shoulders to the thigh, and a dark-brown to black dorsal stripe is visible from between the ears to beyond the shoulders. There are light brown patches at the base of the ears, and the upper forearms are sandy. The coat is thick and woolly; the tail is brownish-grey with a black tip. In summer the fur color becomes lighter and browner. The head and body length is 497–529 mm in males and 446–486 mm in females.

Individuals weigh between 3.1 and 5.0 kg. The long tail, up to 605 mm long, is important for balance when hopping among rocks, and the rock-wallaby can also climb trees with sloping trunks (Eldridge & Pearson 2008; WA DPaW 2012).

Distribution

The black-flanked rock-wallaby is endemic to Western Australia (WA). It was formerly widespread, though patchily distributed, throughout most of the state south of the Kimberley (Burbidge et al., 1988; Pearson & Kinnear 1997). It is known to have occurred on the southern coastline of Western Australia (Baynes 1987), perhaps as far east as Mount Ragged (Pearson & Kinnear 1997). There are subfossil records from Devil's Lair Cave near Margaret River (Dortch & Merrilees 1971; Merrilees 1979), although there are no records from this area since European settlement. There is also evidence (old scats) from several rocks in the WA Wheatbelt near Mukinbudin and at Knungajin Hill, 35 km north-west of Merredin (Pearson 2013).

However, its distribution greatly declined and it became confined to small patches of suitable habitat in central and southern Western Australia including Depuch, Barrow and Salisbury Islands. It became extinct on Depuch Island (11.2 km²) after incursion of foxes (*Vulpes vulpes*) (Kinnear et al., 1984; Pearson & Kinnear 1997). The identification of the extinct Depuch Island subpopulation has been confirmed through ancient DNA analysis (Haoucher et al., 2012).

Current subpopulations are restricted to the best habitat in: the Barlee Range (Ashburton; however, there is some doubt as to whether these are *P. lateralis* or *P. rothschildi* or hybrids, Eldridge pers. comm., cited in Woinarski et al., 2014); Kaalpi (Calvert Range, Little Sandy Desert); parts of Cape Range; granite rocks in the Avon Wheatbelt (Nangeen Hill, Mount Caroline, Mount Stirling, Sales Rock, Tutakin Rock (Gundaring Nature Reserve)); Barrow Island; and Salisbury Island. In recent decades, subpopulations at Durba Hills and some Wheatbelt granites (Gardiner's Rock, Mount Shackleton, Mokenby) have become extinct (Pearson 2013). It has been reintroduced to Querekin Rock (1990, 2009, 2010), Paruna Sanctuary (2001, 2002, 2003, 2005, 2006, 2007, 2010), Avon Valley National Park (2001, 2002, 2003, 2008, 2009, 2010), Walyunga National Park (2002, 2004) and Cape Le Grande National Park (2003, 2004) (Mawson 2004; Davies et al., 2007; Pearson 2013).

A subpopulation at Kokerbin Nature Reserve in the Avon Wheatbelt was thought to be extinct, but a new population recolonised the Reserve from Gundaring Nature Reserve across 8 km of farmland (Freegard & Orell 2005). The subpopulation at Murchison River Gorge at Kalbarri was also thought to have become extinct (Pearson 2013); however, in 2015 a breeding pair was sighted during a survey of the gorge (Mutton pers. comm., 2016). In May 2016, 23 individuals were translocated from the Wheatbelt to Kalbarri National Park (WA DPaW 2016a).

Relevant Biology/Ecology

Black-flanked rock-wallabies occur where suitable shelter and food co-exist. During the daytime they shelter under deep shade in rocky areas such as caves, cliffs, screes and rockpiles, and emerge at dusk to feed on grasses, forbs, shrubs and occasionally seeds and fruits. Feeding occurs as near to shelter as possible, especially where exotic predators are present; however, if food is unavailable near shelter they will move up to several hundred metres away to obtain it (Eldridge & Pearson 2008). They do not need to drink, and conserve water by sheltering from the hot day-time temperatures in caves (WA DPaW 2012).

Breeding can occur throughout the year, but with two peaks – autumn and late winter/spring – in southern subpopulations (Willers et al., 2011). Breeding varies in response to seasonal rainfall, and the species exhibits embryonic diapause where the embryo becomes dormant until suitable conditions occur for it to develop (WA DPaW 2012). Research in the south-west of Western Australia showed that breeding commences at 18–24 months and that some individuals may live longer than 12 years (Kinnear et al., 1988). However, due partly to predation, few live that long and generation time is assumed to be 4 years (Woinarski et al., 2014).

Threats

Threats to the black-flanked rock-wallaby are outlined in the table below (Woinarski et al., 2014; WA DPaW 2016b).

Predation by foxes and feral cats is likely to have a significant impact on the species, particularly during the peak breeding seasons. Further habitat degradation from intensive grazing and invasion of woody weeds within the species' distribution is also likely to have a significant impact on the species.

Threat factor	Consequence rating	Extent over which threat may operate	Evidence base
Predation by foxes (<i>Vulpes vulpes</i>)	Catastrophic for many subpopulations, severe for others	Large (entire mainland range; medium-risk for Nangeen which has predator proof fence).	<p>Experimental studies have demonstrated that individuals or small groups of foxes can kill large numbers of rock-wallabies in short periods of time (Kinnear et al., 1988, 1998, 2002, 2010).</p> <p>An incursion of red foxes onto Depuch Island caused extinction of this subpopulation (Kinnear et al., 1984).</p> <p>After fox baiting programs were suspended at Kokerbin Rock Nature Reserve (NR), rock-wallaby numbers fell to very low levels (WA DPaW 2016b). Following the cessation of 1080 baiting programs at Querekin Rock in 2013, up to a 43% population decline was observed in rock-wallabies (WA DPaW 2016b).</p> <p>The presence of foxes is also likely to alter the behaviour of rock-wallabies, resulting in a reduction in time spent foraging and a confined foraging range from their rocky refuge habitats (Hayward et al., 2011).</p> <p>The presence of rabbits also supports higher fox numbers.</p>
Predation by feral cats (<i>Felis catus</i>)	Severe	Large (entire mainland range; medium-risk for Nangeen which has predator proof fence).	<p>The impact of feral cats on black-flanked rock-wallabies is poorly known. However, long-term baiting for cats at Calvert Range (Kaalpi) has coincided with a steady increase in the wallaby population (Kendrick pers. comm., cited in WA DPaW 2016b).</p> <p>The population at Paruna Wildlife Sanctuary has declined by up to 50% over 2010–2015. There is no direct evidence but predation by feral cats is suspected to be a contributing factor in the decline (AWC pers. comm., 2016).</p> <p>The presence of rabbits also supports higher feral cat numbers.</p>

Habitat degradation due to weed incursion	High	Moderate (some mainland subpopulations).	The reduction in native grass cover due to drought and grazing from rabbits, euros and livestock has led to weed invasion and thus longer term resource depletion, which is a major issue at some Wheatbelt granite rocks. Burrowing by rabbits also encourages weed infestations.
Competition for food and shelter from introduced and native herbivores	High	Large (all mainland subpopulations).	<p>All mainland unfenced rock-wallaby subpopulations co-occur with exotic herbivores in or adjacent to their habitats. These herbivores reduce available forage and degrade habitat.</p> <p><i>Rabbits</i></p> <p>Rabbits reduce the amount of available forage and may limit the carrying capacity of an area. They particularly compete for food in the WA Wheatbelt.</p> <p><i>Feral goats</i></p> <p>In Kalbarri NP, goat grazing has resulted in vegetation communities along the Murchison River cliffs being dominated by unpalatable species, with reduced forage for rock-wallabies. In Cape Range NP, boat operators on Yardie Creek have reported occasional aggressive behaviour by goats, forcing rock-wallabies to abandon caves during daylight hours.</p> <p><i>Domestic stock and feral camels</i></p> <p>These have the ability to limit vegetation cover and forage around rock outcrops. This either confines foraging activities to areas close to the refuge site or causes rock-wallabies to travel further to forage, exposing them to increased predation risk (Hayward et al., 2011).</p> <p><i>Euro</i></p> <p>Competition with the euro (<i>Macropus robustus</i>) for feeding sources and shelter has been noted in South Australia (Ward et al., 2011), but the extent of competition with rock-wallabies elsewhere is unknown.</p>

Drying climate due to climate change	Medium-low	Entire (future threat).	<p>Predictions indicate that a decline in rainfall, higher summer temperatures and more variable weather patterns in the WA heatbelt will increase the likelihood of habitat change and possibly accelerated degradation, with impacts on the survivorship of black-flanked rock-wallabies.</p> <p>Almost all the rock-wallaby subpopulations are effectively closed populations. Fragmented populations and reduced genetic variability limit possible evolutionary responses to climate change, such as <i>in situ</i> adaptation of populations and dispersal to other habitats, increasing the potential impact of climate change.</p>
Clearing and habitat fragmentation	High	Minor (only subpopulations on land that is not managed for conservation).	The clearing of habitat is not a high current threat to this subspecies, because most extant subpopulations are located on land that is being managed for conservation.
Large, intense, or frequent fires	Unknown	Moderate (some mainland subpopulations).	Fire may lead to a lack of food for small isolated subpopulations.

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:

Insufficient data to determine eligibility

Available information indicates that the population has declined and is continuing to decline. However, there are limited data on the rate of decline. The number of individuals present at a site varies with available habitat and the effectiveness of fox and feral cat control. Some subpopulations are relatively stable due to predator control. However, some are declining even with fox baiting, and any cessation of baiting, even for a short time, can lead to significant decline. Remote subpopulations are difficult to manage and have a high risk of local extinction. Woinarski et al. (2014) consider that the population decline is unlikely to be greater than 30 percent in the past 12 year (three generation) period.

Monitoring has been undertaken at the regions listed in Table 1.

Table 1. Regions where monitoring has been undertaken

Region	Monitoring activities
Western Australian Wheatbelt	Irregularly monitored by the Western Australia Department of Parks and Wildlife (DPaW) via trapping. The Shire of Kellerberrin and World Wildlife Fund – Australia coordinate a regular community scat-based monitoring program.
Paruna Wildlife Sanctuary	Monitored by the Australian Wildlife Conservancy
Kaalpi (Calvert Range)	DPaW, Kanyirninpa Jukurrpa and the Martu traditional owners
Cape Range National Park	DPaW and the Cape Conservation Group.

Wheatbelt region

Pioneering experiments by J. Kinnear and colleagues since 1982 have provided accurate estimates of numbers on granite rocks in the Western Australian Wheatbelt, and demonstrated the deleterious effects of fox predation on these subpopulations (Kinnear et al., 1988, 1998, 2002). In the 1980s, sites with limited shelter and no fox control, e.g. Tutakin Rock, had as few as six or seven animals (Kinnear et al., 2010). Following fox control via baiting with dried meat baits containing 1080, remnant subpopulations at Nangeen Hill, Mount Caroline and Mt Stirling all showed dramatic increase, and some nearby rocks (Kokerbin Rock and Gardiner's Rock) were colonised by natural dispersal. Rock-wallabies at control sites with no fox baiting either remained at low numbers or became locally extinct.

However, in 2010 a dramatic decline in the Nangeen Hill subpopulation was detected, initially by scat counts and then confirmed by a trapping census in early 2011, which recorded 14 animals. A follow-up survey in early 2012 detected nine animals, but a later survey in 2014 recorded 39 (WA DPaW 2016b). Mt Caroline suffered a similar decline from greater than 300 individuals in 2009 (N. Willers, cited in Kinnear et al., 2010) to approximately 70 (2011) and 80 individuals (early 2012) (Pentland pers. comm., cited in Woinarski et al., 2014), but a survey in 2014 recorded 100 individuals (WA DPaW 2016b). A survey at Mt Stirling in late 2014 recorded zero individuals (WA DPaW 2016b).

At Querekin, black-flanked rock-wallabies originally numbered up to 100 before the arrival of foxes in the 1920s, but declined to extinction by 1990. Following fox control and the reintroduction of 10 animals in 1990, the subpopulation expanded to a level that the local landholder considered them to be at pest status and, in 2002, 98 rock-wallabies were removed to establish new subpopulations.

Since 2007, three Wheatbelt subpopulation sites have been lost (WA DPaW 2016b). The last remaining animals from these sites were used to re-stock the remaining subpopulations. One of these subpopulations disappeared because the landowner withdrew permission to undertake ongoing fox baiting (Pearson pers. comm., cited in WA DPaW 2016b). There are concerns that some of the other Wheatbelt subpopulations are susceptible to loss due to low numbers and may experience future declines. However, there are no current data indicating declines in other

subpopulations. The Wheatbelt subpopulations are estimated to constitute approximately 25 percent of the total population (WA DPaW 2016b).

Other regions

At Paruna Wildlife Sanctuary (Avon Valley), which has a translocated population of black-flanked rock-wallabies, annual monitoring shows that the population has declined by up to 50% over the period 2010–2015, despite intensive control efforts by AWC. Capture-mark recapture studies at the largest colony on the property gave an estimate of 18 individuals in 2010 and 8 in 2015, while the number of mature individuals caught declined from 16 to 8 over same period. Scat surveys show that the area of occupancy has also declined since 2010, from around 2000 ha to less than 150 ha. The declines are likely due to predation by foxes and feral cats, which are common on the property and have been recorded on camera traps within all outcrops currently occupied by the wallabies (AWC pers. comm., 2016).

In Kaalpi (Calvert Range), following a decline in black-flanked rock-wallaby numbers from 1985 to 1991, fox control was implemented in 1992, and an intensive aerial and ground baiting program was conducted from 1994 to 2002. During this period low numbers of rock-wallabies were trapped and observed. Kinnear et al. (2002) concluded that cat predation was a major factor in suppression of the rock-wallaby population at Kaalpi. Whilst there was little evidence of foxes and wild dogs at the range and in the surrounding sand plain, cats continued to elude the standard fox bait. Aerial and ground cat baiting commenced in June 2003 using the experimental 1080 cat bait *Eradicat*. Although rock-wallaby trapping effort has varied due to the remoteness of the site, trapping records since 2005 indicate an increase in the subpopulation. In 2012, 45 individuals were trapped across 600 m of the range (58% female), with 83% of the trapped mature females having pouch young. In 2013, suitable animals were translocated from Kaalpi to Pinpi (Durba Hills), a large sandstone range approximately 35 km to the west of Kaalpi (McGilvray pers. comm., cited in Woinarski et al., 2014).

In Cape Range National Park (Pilbara), monitoring shows that the species is regularly observed at Yardie Creek, Mandu Mandu and Pilgonaman Gorges.

Conclusions

In summary, the declines recorded in the WA Wheatbelt (which comprises about one quarter of the total population) are approximately 50 percent or perhaps even greater. However, there is no evidence of decline at Cape Range, no reason to suspect declines on Barrow and Salisbury islands, numbers are increasing at Kaalpi-Durba Hills, and there are no data available from other sites. Although the overall trend is likely declining, the heterogeneity among sites makes it difficult to estimate the extent of that decline.

The Committee considers that there is insufficient information to determine the eligibility of the species for listing in any category under this criterion.

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 B2(a),(b)(ii)(iv)(v) for listing as Endangered

The extent of occurrence is estimated to be 1 438 000 km², calculated using a minimum convex polygon around post-2004 database records (WA DPaW 2016b). The area of occupancy is estimated at 212–224 km² using 2x2 km grids on post-2000 record points, and estimated at 172–180 km² using the sum of reserves or outcrops where the subspecies has been recorded. The latter AOO estimate excludes areas on the Cape Range where they have been recorded outside of the conservation estate, and may overestimate the areas where they are only found in a small proportion of the reserve such as Cape Le Grand (WA DPaW 2016b).

The distribution is severely fragmented. Isolated subpopulations occur throughout Western Australia, with little or no dispersal between them. Two are on offshore islands in the Pilbara and South Coast, while mainland subpopulations are scattered from south of the Kimberley to the South Coast regions (WA DPaW 2016b). Around 21 locations (Table 2), and 7–19 subpopulations, are thought to occur (WA DPaW 2016b).

Table 2. Latest population estimates (WA DPaW 2016b)

Location	Survey date (T=targeted survey)	Number of mature individuals
<i>WA Wheatbelt</i>		
Mt Caroline	April 2016 (T)	148
Nangeen hill (fenced)	April 2016 (T)	54
Sales rock	Dec 2014 (T)	27
Gundaring Nature Reserve	Dec 2014 (T)	15
Kokerbin Rock Nature Reserve	2015	3
Mt Stirling Nature Reserve	2015	3
<i>Avon Valley</i>		
Avon Valley National Park		Present
Walyunga National Park	2014 (T)	Present
Paruna Sanctuary	2014 (T)	8

<i>South Coast</i>		
Cape le Grand	2013	Present
Salisbury Island	2004	200
<i>Pilbara and nearby areas</i>		
Bilgunmarina, Karlamilyi National Park	August 2014 (T)	Estimated to be <20
Parngurr East, Karlamilyi National Park	August 2014 (T) (camera survey)	Estimated to be <15
South Parngurr area	August 2014 (T) (camera survey)	Estimated to be <20
South East Parngurr area	July 2014 (T) (camera survey)	Estimated to be <20
Barrow Island	2004	150
Cape Range and surrounding area	2012	Estimated maximum 200–250
Calvert Range (Kaalpi)	2013 (T)	65
Jilikurru Translocated Population, Pinpi (Durba Hills)	2014	17 individuals known to be alive
<i>Mid-west Coast</i>		
Kalbarri Translocated Population	2016	25
TOTAL		~ 1040 (using maximum estimates)

There has been an observed decline in the Wheatbelt region in the number of locations, subpopulations and mature individuals, due to the loss of three locations within the last 12 years. There are concerns that some of the other Wheatbelt subpopulations are susceptible to loss due to low numbers and may experience future declines (WA DPaW 2016b).

At the Paruna Wildlife Sanctuary, declines in the area of occupancy, number of locations and number of mature individuals have been recorded between 2010 and 2015 (AWC pers. comm., 2016).

The Committee considers that the species' area of occupancy is restricted (<500 km²), and the geographic distribution is precarious for the survival of the species because its distribution is severely fragmented and a continuing decline in the area of occupancy, number of mature individuals and number of locations may be inferred or projected. Therefore, the species has been demonstrated to have met the relevant elements of Criterion 2 to make it eligible for listing as 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:			
(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:

Eligible under Criterion 3 C2(i) for listing as Endangered

There are no robust estimates of total population size. The species has a severely fragmented distribution with small, isolated subpopulations, and the number of individuals present at a site varies with available habitat and effectiveness of fox and feral cat control measures. However, based on available data, the number of mature individuals is likely to be fewer than 2500.

Pearson (2012) provided the following ‘rough’ estimates of the number of individuals in some subpopulations, with some figures updated by Woinarski et al. (2014): Barrow Island 150–200, Cape Range 200–250, Calvert Range (Kaalpi) <50, seven Wheatbelt populations 300–500, Salisbury Island 500, and translocated subpopulations: Cape Le Grand <50, Avon Valley <50, Paruna Sanctuary <50. AWC (pers. comm., 2016) estimated the size of the Paruna Sanctuary subpopulation to be less than 30. This gives a total population size in the range of 1330–1630.

A more recent set of estimates by DPaW (2016b) gives the total population at less than 1000 mature individuals, with each subpopulation having fewer than 250 mature individuals (Table 2). This population estimate is based on different methods employed at different sites including direct counts, mark-recapture survey population estimates and maximum carrying-capacity estimates. However, it doesn’t include the Avon Valley, Cape le Grand and Walyunga national parks where population estimates are unknown. New populations were discovered on several rock outcrops in the McKay Range and Karlamilyi (Rudall River) National Park in August 2014. The abundance and overall distribution of these populations is currently unknown, but further survey work is proposed (WA DPaW 2016b).

The Committee considers that the estimated total number of mature individuals of this species is low (<2500), and the geographic distribution is precarious for the survival of the species because the number of mature individuals in each subpopulation is fewer than 250. Therefore, the species has been demonstrated to have met the relevant elements of Criterion 3 to make it eligible for listing as Endangered.

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

Evidence:

Insufficient data to determine eligibility

WA DPaW (2016b) estimates the population to have around 1000 mature individuals (Table 2). However, the available data are not sufficient to conclude whether the population has less than, or greater than, 1000 mature individuals.

The Committee considers that there is insufficient information to determine the eligibility of the species for listing in any category under this criterion.

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

Population viability analysis has not been undertaken.

Conservation Actions

Recovery Plan

A recovery plan is currently in place for five species of rock-wallabies, including the black-flanked rock-wallaby (Pearson 2013). The plan was developed by the State of Western Australia and adopted as a national recovery plan under the EPBC Act in 2014. The plan is scheduled to expire in 2024. The Committee recommends that the current recovery plan be retained, and the decision whether to continue to have a recovery plan be considered prior to the plan expiring.

Primary Conservation Actions

1. Implement ongoing control measures for foxes, feral cats, goats and rabbits.
2. Manage livestock grazing and weeds in order to maintain adequate native grass cover near rock-wallaby subpopulations.
3. Translocate to additional protected sites.

Habitat critical to survival are rocky areas within the species' distribution (such as caves, cliffs, screes and rockpiles) and surrounding native grasses.

Conservation and Management Priorities

The Western Australian Department of Parks and Wildlife controls foxes in the Avon Wheatbelt. Fox control and feral goat control are also underway at Cape Range and Cape Le Grande. Cat control, fire management and feral herbivore control are conducted at the Calvert Range. Barrow Island has a high-quality quarantine management system. Salisbury Island is remote and difficult to access and there is no specific management for this species.

Recommended management actions are outlined in the table below (Woinarski et al., 2014).

Theme	Specific actions	Priority
Active mitigation of threats	Maintain effective fox and feral cat control at all mainland subpopulations.	High
	Reduce the incidence of weed invasion at selected locations.	Medium
	Maintain effective goat control in Kalbarri, Cape Range and Avon Valley National Parks.	Medium
	Maintain effective rabbit control on WA Wheatbelt sites with rock-wallaby subpopulations.	Medium
Captive breeding	Breed animals in captivity with suitable organisational partners, and ensure genetic diversity is maintained.	Low
Quarantining isolated populations	Plan and implement biosecurity measures for Salisbury Island. Maintain biosecurity measures at Barrow Island.	Medium
Translocation	Translocate to additional sites (e.g. Durba hills, Kalbarri National Park, Knungajin Rocks; reintroduce to Depuch Island), but only with ongoing fox and cat control.	Medium
Community engagement	Consult and involve farmers who live near subpopulations; involve Aboriginal rangers in the management of remote subpopulations.	Medium

Survey and Monitoring priorities

Theme	Specific actions	Priority
Survey to better define distribution	Additional surveys required at Cape Range (especially the eastern side of the range), and at McKay Range in the Little Sandy Desert.	Medium
Establish or enhance monitoring program	Enhance monitoring of all subpopulations, including translocations.	High

Information and Research priorities

Theme	Specific actions	Priority
Assess impacts of threats on species	Assess the impact of feral cats.	High
	Assess the impacts of feral goats at Cape Range National Park.	Medium
	Assess the relative contribution of euros to total grazing pressure on rock-wallaby habitat.	Low
	Investigate the impacts of different fire regimes.	Medium
Assess effectiveness of threat mitigation options	Assess the effectiveness of control measures for introduced predators and herbivores.	High
Resolve taxonomic uncertainties	N/a	
Assess habitat requirements	N/a	
Assess diet, life history	N/a	
Undertake research to develop improved management methods	Develop broad-scale, targeted feral cat eradication methods.	Medium

Recommendations

- (i) The Committee recommends that the list referred to in section 178 of the EPBC Act be amended by **transferring** from the Vulnerable category to the Endangered category:
- Petrogale lateralis lateralis*
- (ii) The Committee recommends that there should be a recovery plan for the species and that the current recovery plan be retained and updated as appropriate.

Threatened Species Scientific Committee

06/09/2016

References cited in the advice

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