

From: [TSSC Secretariat](#)
To: ["David Kendal \(TSSC\)"](#)
Subject: Leadbeater Possum RP comments [SEC=UNCLASSIFIED]
Date: Thursday, 2 February 2017 11:06:49 AM
Attachments: [LBP RP Drafting Group - response to TSSC65.docx](#)
[LBP Recovery Plan - Drafting Group - 3 Nov 2016.docx](#)

Hi Dave,

Please find herewith the LBP material for comment; I've checked in with Terrestrial about the deadline for feedback on the plan and expect to hear back afternoon, I will send you another message as soon as I receive word just to confirm the deadline.

Kind regards,

s22

Threatened Species Scientific Committee Secretariat

Species Information & Policy Section

Department of the Environment and Energy

GPO Box 787 | CANBERRA ACT 2601

Tel: s22 | **Mailbox:** TSSCSecretariat@environment.gov.au

From: s22

Sent: Wednesday, 1 February 2017 12:48 PM

To: s22 <s22@environment.gov.au>

Cc: s22 <s22@environment.gov.au>; s22 <s22@environment.gov.au>

Subject: FW: Documents for Discussion at the TSSC LBP Working Group Teleconference - Thursday 15 December 2016 [SEC=UNCLASSIFIED]

H s22

We had the teleconference with the TSSC Leadbeater's Possum Working Group on Thursday 15 December 2016 with Helene and Sarah. David Kendal was not able to join in but he had some notes and suggestions which Helene was going to send through post the teleconference.

We haven't received these comments from Helene and I'd appreciate it if you wouldn't mind following up with an email as I've now been asked to finalise the plan with the Drafting Group but I'm unable to do so until I receive David's comments.

Thanks very much

s22

From: s22

Sent: Tuesday, 13 December 2016 11:43 AM

To: TSSC Secretariat <TSSCSecretariat@environment.gov.au>

Cc: s22 <s22@environment.gov.au>; s22 <s22@environment.gov.au>

Subject: Documents for Discussion at the TSSC LBP Working Group Teleconference - Thursday 15 December 2016 [SEC=UNCLASSIFIED]

H s22

I would appreciate it if you could please distribute the following documents to the TSSC Leadbeater's Possum Working Group for the teleconference to be held this Thursday 15 December 2016.

Following TSSC65 in September 2016 a range of comments were provided in relation to the draft Leadbeater's Possum Recovery Plan.

The Leadbeater's Possum RP Drafting Group met in Canberra on the 3 November 2016 to discuss the comments provided and propose changes to the draft plan.

Attached for the Working Groups consideration is a response document which outlines the comments from the Committee and how the Drafting Group have addressed them. Secondly, a revised version of the plan with the suggested changes (in track) is provided for discussion.

Thank you

s22

s22

Assistant Director (Part Time)

Terrestrial Species Conservation | Wildlife, Heritage and Marine Division

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From: [Dave Kendal](#)
To: s22
Cc: s22
Subject: RE: Leadbeater's Possum Recovery Plan [SEC=UNCLASSIFIED]
Date: Monday, 6 February 2017 11:54:41 PM

s47C

From: s22 [mailto:s22@environment.gov.au]
Sent: Monday, 6 February 2017 4:30 PM
To: Dave Kendal <s47F>
Cc: s22 <s22@environment.gov.au>
Subject: Leadbeater's Possum Recovery Plan [SEC=UNCLASSIFIED]

Hi Dave

Thank you for calling today, and as discussed I was following up on your comments provided to Helene Marsh from the TSSC Working Group teleconference for the LBP Recovery Plan on 15 December 2016.

If you wouldn't mind sending through your comments that would be much appreciated.

Thank you

s22

s22

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Threatened Species Nomination Form

for amending the list of threatened species under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act)

2017 Nomination Period

The purpose of this form is to provide a nomination to the Threatened Species Scientific Committee (the Committee) for assessment of a non-EPBC Act listed species/subspecies for inclusion on the list of threatened species or to nominate a listed threatened species/subspecies for reassessment for listing in another category of threat.

For a non-EPBC Act listed species to be eligible for listing as a threatened species it must be assessed as meeting at least one of the five [criteria for listing](#). For a species already listed as threatened under the EPBC Act to be eligible for listing in a higher or lower category of threat it must be assessed as meeting the indicative threshold for at least one of the five criteria. For example, for a species listed as endangered to be found eligible for listing as critically endangered, it must meet the critically endangered [indicative thresholds](#) for at least one of the criteria.

If you are nominating a species for removal from the list please complete the nomination form to delist a species at the following link: <http://www.environment.gov.au/system/files/pages/d72dfd1a-f0d8-4699-8d43-5d95bbb02428/files/nomination-form-delisting.pdf>

Please note that nominations will be considered by the Committee and the Minister for the Environment and Energy for inclusion in the Finalised Priority Assessment List for the assessment period commencing 1 October 2017. Not all nominations will be prioritised for assessment.

The Committee recognises that providing the information required to undertake an assessment of the eligibility for listing of a nominated species is demanding. Nominators are encouraged to seek expert advice where appropriate to assist in the completion of the nomination form.

Important notes for completing this form

- **Please complete the form as comprehensively as possible by providing a response in each box with an orange border.** It is important for nominations to provide the Committee with the most comprehensive information available on which to assess a species' eligibility for listing against the EPBC Act criteria.
- ☐ **Certain information in this form is required to be provided by the *EPBC Regulations 2000* (http://www5.austlii.edu.au/au/legis/cth/consol_reg/epabcr2000697/s7.04.html). Nominations that do not provide the information required by the regulations cannot be provided to the Committee for consideration. All of the required information is covered by the questions in this nomination form. If information to answer any of the questions is not available please state this in your response as this is sufficient to meet the requirements of the regulations.**
- ☐ **Reference all information sources**, both in the text and in a [reference list](#) at the end of the form.
- ☐ The opinion of appropriate scientific experts may be cited as [personal communication](#), with their approval, in support of your nomination. Please provide the name of the experts, their qualifications and contact details (including employment in a government agency, if relevant) in the reference list at the end of the form.
- If the species is considered to be affected by [climate change](#), please refer to the guidance for assessing climate change as a threat to native species at Part G of the Committee's *Guidelines for assessing the conservation status of native species* ([Attachment B](#)).
- ☐ Identify any confidential material and explain the sensitivity. The information in the nomination (but excluding any information specifically identified by you to remain confidential) will be made available to the public and experts for comment. However, your details as nominator will not be released, and will remain confidential.
- ☐ The Commonwealth, state and territory governments have agreed to collaborate on national threatened species assessments using a common assessment method. Your nomination, including your details as nominator, may be provided to state and territory government agencies as part of this collaboration.
- ☐ Figures, tables and maps can be included at the end of the form or provided as separate electronic or hardcopy documents (referenced as appendices or attachments in your nomination).
- ☐ Cross-reference relevant areas of the nomination form where needed.

Note – Further information to help you complete this form is provided at [Attachment A](#).

If using this form in Microsoft Word, you can jump to this information by Ctrl+clicking the hyperlinks (in blue text).

Details of the nominated species or subspecies

NAME OF SPECIES (OR SUBSPECIES)

Scientific name: *Gymnobelideus leadbeateri*

Common name(s): Leadbeater's Possum

CURRENT LISTING CATEGORY

What category is the species currently listed in under the EPBC Act? (If you are nominating the species for removal from the list, please complete the [nomination form for removal from the list](#)).

Not Listed Extinct Extinct in the wild **Critically Endangered**
 Endangered Vulnerable Conservation dependent

CONSERVATION THEME

The conservation theme for the 2017 nomination period is "freshwater species and ecological communities".

Explain how the nomination relates to this theme. Note that nominations which do not relate to the theme will still be considered.

This nomination does not relate to the theme.

Transferring a species to another category

Note: If the nomination is to transfer a species between categories please complete this section.

If the nomination is for a new listing please skip this section and proceed to the Taxonomy section below.

If the nomination is to remove a species from the list, please use the [nomination form for removal from the list](#).

REASON FOR THE NOMINATION FOR CATEGORY CHANGE

Please mark the boxes that apply by clicking them with your mouse.

What is the reason for the nomination:

Genuine change of status **New Knowledge** Mistake Other
Taxonomic change – 'split' newly described 'lumped' no longer valid

INITIAL LISTING

Describe the reasons for the species' initial listing and if available the criteria under which it was formerly considered eligible.

In its Conservation advice of 2015, the Threatened Species Scientific Committee found the Leadbeater's Possum to be eligible for listing under the following categories:

Criterion 1: A2 (c), A3(c): Critically Endangered

Criterion 2: B2 (a)(b)(iii)(iv)(v); Endangered

Criterion 3: B (a)(b)(iii)(iv)(v); Endangered

Criterion 5: (c); Vulnerable

CHANGES IN SITUATION

With regard to the listing criteria, how have circumstances changed since the species was listed that now makes it eligible for listing in another category?

The Committee's advice to upgrade the Leadbeater's Possum's listing from endangered to critically endangered relied on the conclusion that the species had met the critically endangered threshold on just one of the five criteria assessed – that there had been a "very severe reduction" in the possum's population under A2(c) and 3(c) of Criterion 1. On all other criteria the possum was assessed as being endangered or vulnerable.

Encouragingly, new evidence shows that Leadbeater's Possum colonies are more numerous and inhabit a wider habitat range than understood at the time of the Committee coming to that conclusion. Evidence shows the Leadbeater's Possum is found in habitats thought in the past not to support them, such as recently burnt areas and regrowth forest.

The Leadbeater's Possum has shown to be more adaptable than previously understood. For example, the success of nest boxes and artificial hollows is at odds with the advice the Committee has previously received.

The effect of changed practices by Vicforests were also not taken into consideration in the 2015 Conservation Advice. These measures have resulted in increasing the amount of forest retained within the area being harvested. These retained areas will be left to mature and can provide both current and future habitat for a range of species found in our forests.

The specifics of these changes are explored in more detail under Criterion 1.

Taxonomy

TAXONOMY

Provide any relevant detail on the species' taxonomy (e.g. authors of taxon or naming authority, year and reference; synonyms; Family and Order).

Conventionally accepted as *Gymnobelideus leadbeateri* McCoy, 1867 (Leadbeater's possum).

CONVENTIONALLY ACCEPTED

Is the species' taxonomy conventionally accepted?

Yes

No

If the species is not conventionally accepted please provide the following information required by the *EPBC Regulations 2000*:

- a taxonomic description of the species in a form suitable for publication in conventional scientific literature;
- OR
- evidence that a scientific institution has a specimen of the species, and a written statement signed by a person who is a taxonomist and has relevant expertise (has worked with, or is a published author on, the class of species nominated), that the species is considered to be a new species.

N/A

Threats

IDENTIFICATION OF KNOWN THREATS AND IMPACT OF THE THREATS

Identify in the tables below any **KNOWN** threats to the species, under the provided headings indicate if the threat is **past, current or future** and whether the threats are **actual or potential**.

NB – CLIMATE CHANGE AS A THREAT. If climate change is an **important** threat to the nominated species, provide **referenced** information on **exactly how** climate change might significantly increase the nominated species' vulnerability to extinction. For guidance refer to the Guidelines for assessing climate change as a threat to native species ([Attachment B; Part G](#)).

Past threats	Impact of threat
Bushfire	As identified in the Committee's 2015 Conservation advice: <i>Fire results in:</i> <i>direct mortality of Leadbeater's possums</i> <ul style="list-style-type: none"> • <i>loss of habitat (extent and fragmentation)</i> • <i>loss of habitat quality.</i> <i>Fire is the primary form of natural disturbance in mountain ash forest. Prior to European settlement the fire regime was less frequent than at present, and occurred in late summer (Lindenmayer et al., 2013b). Many major fires have occurred in the Central Highlands over the past 400 years, the largest and most extensive known are the 1939 'Black Friday' fires which burnt over 1.5 million hectares state-wide, including much of the area of Leadbeater's possum habitat (Lindenmayer and Ough, 2006; DSE, 2008). The 2009 fires burned an estimated 35 per cent of ash forest and snow gum woodlands considered to be potential habitat of Leadbeater's Possum (LPAG, 2013).</i>
Loss of habitat through harvesting	The Committee's 2015 Conservation Advice found "42,685 hectares of montane ash forest in the Central Highlands has been logged in the past 40 years, including approximately 19,338 hectares since late 1997 Lindenmayer et al. (pers. comm., 2014a)."
Current threats	Impact of threat
Decline in habitat condition	The 2013-14 nomination of the Leadbeater's Possum identified this as a current threat for the lowland swamp forest at Yellingbo Nature Conservation Reserve, noting a "46% of active territories at Yellingbo have been abandoned during the past nine years due to deterioration in habitat quality".
Loss of habitat through harvesting	The Committee's 2015 Conservation advice identifies this as a current threat, noting, "In the past 40 years, the usual method of logging has been clear-felling (Lindenmayer et al., 2011) and is currently the conventional form of logging in Victorian mountain ash forests (DSE, 2006)." As outlined below, under "threat abatement", harvesting practices have changed to mitigate this threat.
Actual future threats	Impact of threat
Future bushfire	A 2013 population viability analysis by the Arthur Rylah Institute (ARI) identified large intense wildfires as the greatest threat to future Leadbeater's Possum populations (Lumsden et al., 2013).
Potential future threats	Impact of threat
Climate change	The frequency and intensity of wildfires are likely to increase under climate change scenarios, which predict increased rates of extreme climatic events (Lumsden et al., 2013).

THREAT ABATEMENT

Give an overview of recovery and threat abatement/mitigation actions that are underway and/or proposed.

There are significant efforts underway to mitigate the threats to the Leadbeater's Possum and to manage its conservation.

These measures are summarised in the Progress Report published in December 2016, the Victorian Government's Action Statement, and the Commonwealth Draft Recovery Plan. The progress report provides an update on the Victorian Government's implementation of all 13 recommendations made by the Leadbeater's Possum Advisory Group (LPAG) in 2014 "to support the recovery of the species while maintaining a sustainable timber industry". It notes that "a cross-agency implementation committee is delivering the suite of actions, with representatives from the Department of Environment, Land, Water and Planning (DELWP), VicForests, Zoos Victoria, Parks Victoria, the Department of Economic Development, Jobs, Transport and Resources (DEDJTR) and the Department of Treasury and Finance (DTF)."

The below information is taken from the Action Statement unless otherwise stated.

Previous management actions

Reservation

34 per cent of the ash forest and snow gum woodland potential habitat within the distribution of Leadbeater's Possum is protected in parks and reserves managed by Parks Victoria (DEPI unpubl. data). The largest areas of reserved ash forest are in the Yarra Ranges National Park, which includes three extensive water catchments. The major sub-alpine woodland sites inhabited by the Leadbeater's Possum are protected within the Yarra Ranges National Park (Lake Mountain), Mount Bullfight Nature Conservation Reserve and Baw Baw National Park. The lowland swamp forest inhabited by Leadbeater's Possum is fully protected within the Yellingbo Nature Conservation Reserve. The Yellingbo Nature Conservation Reserve, Baw Baw National Park and Yarra Ranges National Park Management Plans describe the conservation of Leadbeater's Possum and its habitat as a priority (Parks Victoria 2002; 2004; 2005).

Protection measures in State forest Leadbeater's Possum reserve system

Overall within the Central Highlands, 69% of the total mapped area of potential habitat (i.e. ash forests or Snow Gum woodlands) within the range of Leadbeater's Possum is located in formal national parks and conservation reserves, special protection zones in State forest (including the Leadbeater's Possum Reserve) or areas excluded from harvesting due to biodiversity and regulatory reasons. However a high proportion of this forest has been subject to widespread fires (for example, in 1939, 1983 and 2009). Other areas of high quality Leadbeater's Possum habitat are excluded through prescriptions (e.g. Zone 1A and 1B habitat) or for operational reasons.

Response to 2009 Bushfires

Supplementary feeding trials

Following the severe impacts of the February 2009 bushfire a winter supplementary feeding trial was undertaken at Lake Mountain from 2009-2011. Whilst the species' diet has not been studied in sub-alpine woodland, it is assumed that food availability may be at its lowest during the months of snowfall. It is likely that the severe impact of the fire on habitat conditions may have reduced food availability to critically low levels. Two Leadbeater's Possum colonies were provided with food at fixed feeding stations twice per week from June–October over three consecutive winters. The supplementary feeding program was coordinated by Parks Victoria, with extensive volunteer participation from the Friends of Leadbeater's Possum and support from the Lake Mountain Alpine Resort. Food preparation was undertaken by Healesville Sanctuary. Remote cameras were used to examine the pattern of visitation to the feeding stations. The data collected confirmed that both possum colonies made extensive use of the supplementary food provided (J. Antrobus & D. Harley 2014 pers. comm.).

Translocation and captive populations

In 2012, a captive-breeding program commenced for the last lowland population of Leadbeater's Possum at Yellingbo with the intent of providing insurance against the loss of this population (and its unique genetic diversity) and a future source of captive-bred young for release following habitat restoration. To date fourteen individuals have been collected and housed at Healesville Sanctuary.

Leadbeater's Possum Advisory Group

In 2013 the Minister for Environment and Climate Change and the Minister for Agriculture and Food Security established the Leadbeater's Possum Advisory Group to develop recommendations to support the recovery of Leadbeater's Possum while maintaining a sustainable timber industry. The Advisory Group was co-convened by Zoos Victoria and the Victorian Association of Forest Industries, with representatives from Parks Victoria, VicForests and the Leadbeater's Possum Recovery Team. The focus of the group was to recommend actions aimed at managing the near-term risks of decline of the species and medium and longer-term actions focused on ensuring the persistence of the species and its co-existence with a sustainable timber industry. In January 2014, the Advisory Group presented its recommendations to government. In April 2014, the Victorian government committed to fully supporting and implementing all thirteen of the Advisory Group's recommendations and committed \$11 million to support implementing them over the following 5 years. There will be detailed monitoring and review during this five-year intervention to assess progress and inform adaptive management and evaluate the effectiveness of the actions in achieving their intended outcomes.

Provision of nest boxes to increase den site availability

The number of suitable den sites in tree hollows has been recognised as a major factor limiting Leadbeater's Possum abundance (Lindenmayer et. al. 1991b), and the use of artificial nest boxes to supplement natural hollows has been trialled extensively in all habitats.

The provision of nest boxes in montane ash forest and sub-alpine woodland is occurring through 'Project Possum'. This project is a collaboration between scientists, Parks Victoria, and the community-based Friends of Leadbeater's Possum. The Friends of Leadbeater's Possum have raised funds for 200 new nest boxes by asking members of the public to "adopt" nest boxes. Extensive trials in all three forest types inhabited by Leadbeater's Possum have confirmed that the species will colonise recycled plastic nest boxes (D. Harley and J. Antrobus 2014 pers. comm.). Thus far, 130 nest boxes have been installed in Sub-alpine woodland and 110 nest boxes have been installed in Montane Ash forest as part of this den supplementation program (D. Harley 2014 pers. comm.).

Note that the Victorian Government's Progress Report of December 2016 contains an update on the success of the use of nest boxes:

Project Possum is a partnership between Parks Victoria, Zoos Victoria and the Friends of Leadbeater's Possum where members of the community are supporting Leadbeater's Possum conservation.

Project Possum activity spans sub-alpine woodland and montane ash forest sites across State forest and national parks in the Central Highlands. Dedicated volunteers are monitoring nest boxes and transporting new nest boxes to strategic locations throughout the Leadbeater's Possum range. The nest boxes, made from long-lasting recycled plastic, support existing colonies in areas of declining natural hollows. During the past 12 months, an additional 79 nest boxes were installed in high quality habitat on the Toorongo Plateau. This brings the total number of nest boxes to 496 (243 in sub-alpine woodland and 253 in montane ash forest).

Over the same period, 224 nest box inspections and 20 camera trap surveys were completed resulting in 60 new colonies of Leadbeater's Possum (49 in parks and reserves and 11 in State forest). There were a total of 95 new records, with some colonies detected more than once. Overall, the nest box colonization rate is 76% in sub-alpine woodland (excluding sites that were severely burnt in 2009) and 30% in montane ash forest. Significantly, the project has now compiled 85 Leadbeater's Possum records in unburnt sub-alpine woodland on the Baw Baw Plateau, highlighting the significance of this area for the species.

Other measures outlined in the Action Statement include strategic fuel breaks, surveys and monitoring, research, and greater community involvement and awareness. These are explored in more detail in the document. The Committee's Conservation Advice also summarises revised forestry practices arising from the Action Statement:

A revised Action Statement under the Victorian Flora and Fauna Guarantee Act 1988 for Leadbeater's possum was approved and released in August 2014 (DEPI, 2014). This Action Statement sets out what is intended to be done by the Victorian Government to conserve and manage the species. Action Statements are designed to apply for three to five years, after which time they will be reviewed and updated. The Action Statement (DEPI, 2014) for Leadbeater's possum notes further specific reductions in harvesting activities relative to Leadbeater's possum 'potential habitat' ('potential habitat = 'suitable forest'). These include:

- *that all future harvesting activities, including thinning and the construction of new roads, are to be excluded from the timber harvesting exclusion zone around [verified] colonies* [i.e. 200m radius],*
- *harvesting activities will be excluded from within 100 m of modelled old growth ash forests,*
- *protection from harvesting activities for at least 30 per cent of ash forest (approximately 274 ha) to develop old growth forest,*
- *additional exclusions with a 200 metre radius (Special Protection Zones) will be established around all verified records of colony sites from the 15 years prior to February 2014, and all new records once the record is verified.*
- *harvesting will be delayed for two years in areas where modelling (Lumsden et al., 2013) predicts a greater than 0.65 probability of being occupied by Leadbeater's possum. Should Leadbeater's possums be confirmed to occur following, these sites will be confirmed sites and zoned as Special Protection Zones.*

** colonies are required to be verified to a standard developed by DEPI.*

These reductions in harvesting activities are expected to reduce the impact of harvesting beyond 2014, however estimates of the level of reduction relative to the baselines of the above analyses are not quantifiable.

Two changes to VicForests' practices, taken from their website, are summarised below. More detail about these is available in VicForests' handbook.

Pre-harvest surveys

VicForests has commenced a program of preharvest surveys using heat-and-motion detection infrared cameras to look for Leadbeater's Possum colonies in targeted high priority areas planned for timber harvesting. These surveys have been designed to reduce the potential risk of harvesting an area that may be occupied by a Leadbeater's Possum colony and to complement existing measures in place to protect the species habitat. Since early 2016, 19 areas planned for harvest (coupes) have been surveyed for the presence of the species, with 21 new Leadbeater's Possum colonies detected. Coupes planned for harvest that are most likely to provide habitat for Leadbeater's Possum are selected for pre-harvest survey based on criteria such as:

- proximity of known Leadbeater's Possum colonies to a planned coupe
- proximity of planned coupes to known hotspots of Leadbeater's Possum colonies, and
- presence of high quality Leadbeater's Possum habitat within or adjacent to the coupe. The specific survey site location within the selected coupe is then determined by ecological consultants who select the areas expected to have the highest probability of containing Leadbeater's Possum. Where pre-harvest surveys find a new Leadbeater's Possum colony, a 200 metre radius (12.6 hectare) timber harvest exclusion zone is created to protect the colony from any operational activities associated with timber harvesting. A colony sighting is not the only management approach for the protection of Leadbeater's Possum at the coupe level. In addition to pre-harvest surveys using infrared cameras, every coupe is also visually surveyed on the ground prior to timber harvesting. If an area meets specific criteria for high-quality Leadbeater's Possum habitat, as outlined in the species' Action Statement, it is also excluded from timber harvesting.

Regrowth Retention Harvesting

Regrowth Retention Harvesting is a method of harvesting that increases the amount of forest retained within the area being harvested.

This means additional areas for a range of values such as the protection of habitat for species like the Leadbeater's Possum, promoting the development of older forest structures within the harvested landscape and improving connectivity.

It is an alternative to traditional clearfell harvesting methods that aims to match natural disturbances as well as protect biodiversity values.

VicForests is using retention harvesting to retain a larger proportion of forest surrounding areas harvested for timber harvesting - see photo right.

These retained areas will be left to mature and can provide both current and future habitat for a range of species found in our forests.

Retention harvesting is designed to work in conjunction with Victoria's extensive National Park and reserve system to promote older forest and habitat connectivity across the areas of State Forest landscape.

Retention will replace traditional clearfell harvesting methods in 50 per cent of the area harvested across the Leadbeater's Possum range and is one of the key recommendations announced by the Leadbeater's Possum Advisory Group.

The key criteria of retention harvesting operations that differ from traditional clearfell methods are retained unharvested forest, ensuring the influence of retained areas is greater than 50 per cent of the area harvested and the protection of old growth structures and other ecological values.

More than 50 per cent of the area harvested must be within one tree length (or 60 metres in Ash forest of retained habitat) for the operation to be considered retention harvesting. The retained habitat must be more than 50 years old.

This area of influence (one tree length from the retained forest) plays an important role in encouraging the return of local biodiversity to the area after harvesting by influencing light, temperature, seed fall and forest structure.

The age of the retained trees is also important as one of the goals of retention harvesting is to develop future older forest and old growth characteristics in these forests.

Regrowth Retention Harvesting is the newest harvesting method to be adopted by VicForests for ash forest types and is currently being used in up to 50% of the harvesting operations in ash forest within the Leadbeater's Possum range.

When planning retention harvesting operations, VicForests staff not only focus on timber production but also consider biodiversity values and ecological outcomes.

Forest values are not distributed equally across the landscape and the areas identified for retention are unique to each operation.

Some of the factors considered when deciding how and where to retain areas include presence of large old trees, threatened species habitat, operational factors including safety, practicality and likely success of regeneration and social factors including the aesthetics of the harvested area.

Regrowth Retention harvest site in Central Highlands in this case showing a retained island, linear retention along a community walking track, increase hydrology protection and retained scattered Messmate and Grey Gum habitat trees.

Eligibility against the criteria

- To be considered eligible for listing a species must be eligible for at least one of Criteria 1-5 (Q12-16).
- The species does not have to be found eligible for all criteria and information is not required for all criteria if unavailable, however an answer to all questions must be provided, if data/information are unavailable a statement to this effect is required.
- The Committee refers to the 'Guidelines for Using the IUCN Red List Categories and Criteria' <http://s3.amazonaws.com/iucnredlist-newcms/staging/public/attachments/3151/redlistguidelines.pdf> for interpreting the criteria. Please refer to the guidelines for explanations of how to address answers to the criteria.

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>(a) direct observation [except A3]</p> <p>(b) an index of abundance appropriate to the taxon</p> <p>(c) a decline in area of occupancy, extent of occurrence and/or quality of habitat</p> <p>(d) actual or potential levels of exploitation</p> <p>(e) the effects of introduced taxa, hybridization, pathogens, pollutants, competitors or parasites</p>	
		<p>based on any of the following</p>	

Please identify whether the species meets A1, A2, A3 or A4. Include an explanation, supported by data and information, on how the species meets the criterion (A1 – A4). If available include information required by the *EPBC Regulations 2000* on:

- whether the population trend is increasing, decreasing or static
- estimated generation length and method used to estimate the generation length

You must provide a response. If there is no evidence to demonstrate a population size reduction this **must be** stated

Introduction

Part 13, Division 1, Subdivision AA of the EPBC Act provides for the nomination of existing listings to be considered by the Threatened Species Scientific Committee (the Committee) for amendment and potentially updating when new evidence becomes available.

This nomination contends that new and more positive evidence has emerged in the past two years as a result of closer monitoring of the Leadbeater's Possum, which warrants a re-assessment of the Committee's 2015 Conservation Advice.

As the nomination notes, the Committee's advice to upgrade the Leadbeater's Possum's listing from endangered to critically endangered relied on the conclusion that the species had met the critically endangered threshold on just one of the five criteria assessed – that there had been a "very severe reduction" in the possum's population under A2(c) and 3(c) of Criterion 1. On all other criteria the possum was assessed as being endangered or vulnerable. Encouragingly, new evidence shows that Leadbeater's Possum colonies are more numerous and inhabit a wider habitat range than understood at the time of the Committee coming to that conclusion.

Supporting evidence

The lack of accurate population estimates for the Leadbeater's Possum is also identified in the Commonwealth's Draft National Recovery Plan for the species, published February 2016, which states, "There is no precise and robust estimate of the total population size for Leadbeater's possum", and recommends "Further investigations should be undertaken to provide a robust and reliable estimate of current total population size."

Evidence that has emerged since the Conservation Advice casts doubt on the reliability of the conclusions reached by the Committee on the decline of area of occupancy, extent of occurrence and quality of habitat.

With respect to its finding under A2(c), the Committee said:

The Committee considers that predicted suitable habitat is more closely aligned with the possum's area of occupancy. Decline in this area is a more accurate measure of likely decline in Leadbeater's possum. The IUCN (2014) note that area of occupancy is included in the criteria in addition to extent of occurrence because it helps to identify those species that are habitat specialists (such as Leadbeater's possum) and these species are considered to have an increased risk of extinction. It also notes that area of occupancy can be a useful proxy for population size because there is generally a positive correlation between area of occupancy and population size. Given this, the Committee considers that decline in the predicted suitable habitat is a closer approximation to decline in population size than is 'suitable forest' or extent of occurrence.

In this instance, where there are different decline rates for these two measures, the Committee considers predicted suitable habitat to be a closer representation to decline in Leadbeater's possum over this time period. The Committee therefore considers that the decline of 81–83 per cent is a closer representation to decline in population size of Leadbeater's possum over this time period, which it considers to be very severe.

However, this conclusion was predicated on a narrow interpretation of what constitutes "suitable habitat" for the Leadbeater's Possum, which is challenged by recent survey results in recent years.

For example, the Conservation Advice stated, "Leadbeater's possums do not occur on burned sites, including those subject to low and moderate severity fire, clearfell logged, or regenerated montane ash forest where hollow-bearing trees are largely absent (Lindenmayer et al., pers. comm., 2014a) until required conditions have returned."

However, the Victorian Government's Progress Report in December 2016, *Supporting the Recovery of the Leadbeater's Possum*, states:

Leadbeater's Possums were recorded in all forest age classes that were sampled, including 1939 regrowth, timber harvesting regrowth and regrowth from the 1983 fires. Detailed habitat assessments have been undertaken at 289 sampling sites, recording key habitat features such as the number and type of hollow-bearing trees and the density of the mid-storey layer. This information will be used to investigate which are the most important habitat features influencing where the species occurs, and to predict across the species range where they are most likely to be found. A detailed report on the findings from the second year of surveys will be released early in 2017.

The report referred to is yet to be published, and should be considered by the Committee if it proceeds with a reassessment of this listing.

The wider habitat range of the possum observed from these surveys coincides with a much higher rate of observation. The Progress Report states:

As at 30 September 2016, 354 new Leadbeater's Possum colonies have been located since the program commenced in July 2014, consisting of:

270 colonies in State forest:

- 158 found through DELWP surveys
- 21 found through VicForests pre-harvest surveys
- 79 from reports by members of the community in State forest
- 12 through Project Possum, a partnership between Parks Victoria, Zoos Victoria and the Friends of Leadbeater's Possum.

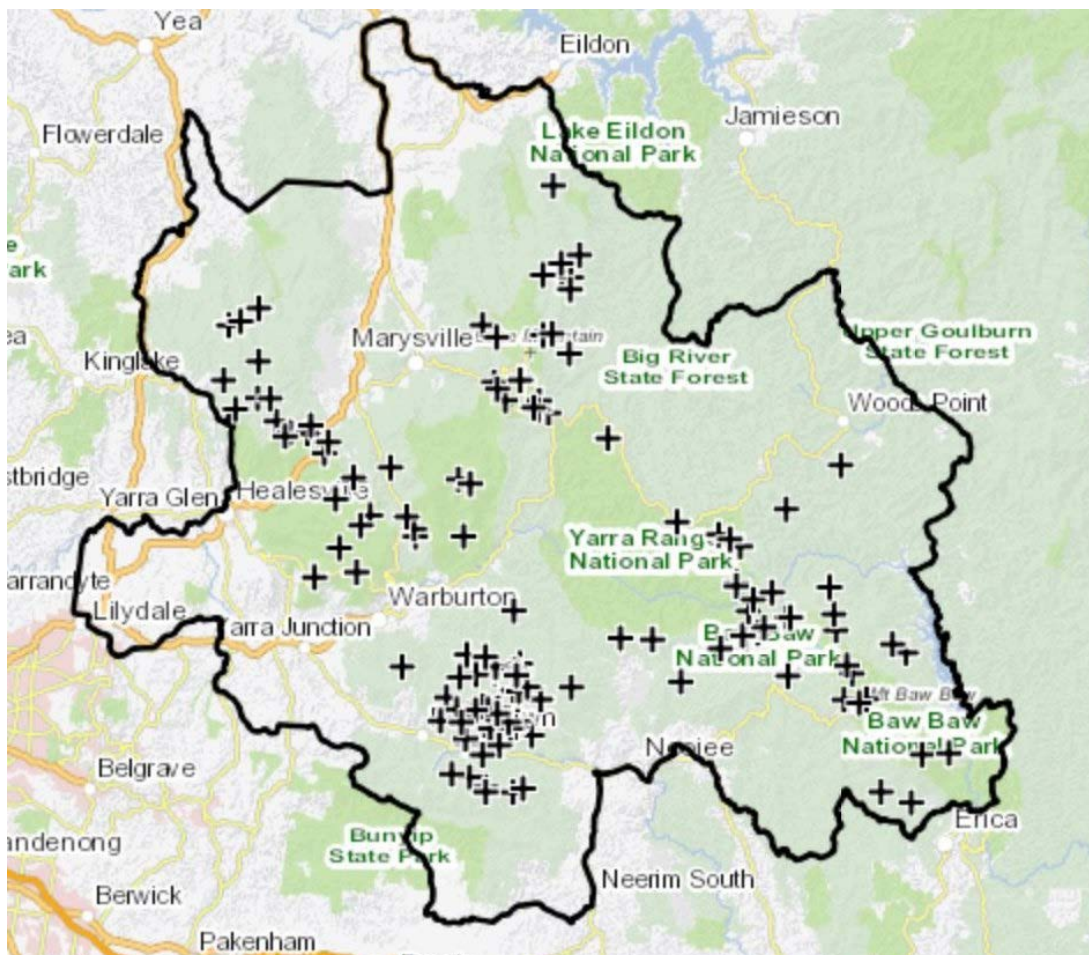
84 colonies in national parks and reserves:

- 1 from a report by a member of the community
- 83 through Project Possum.

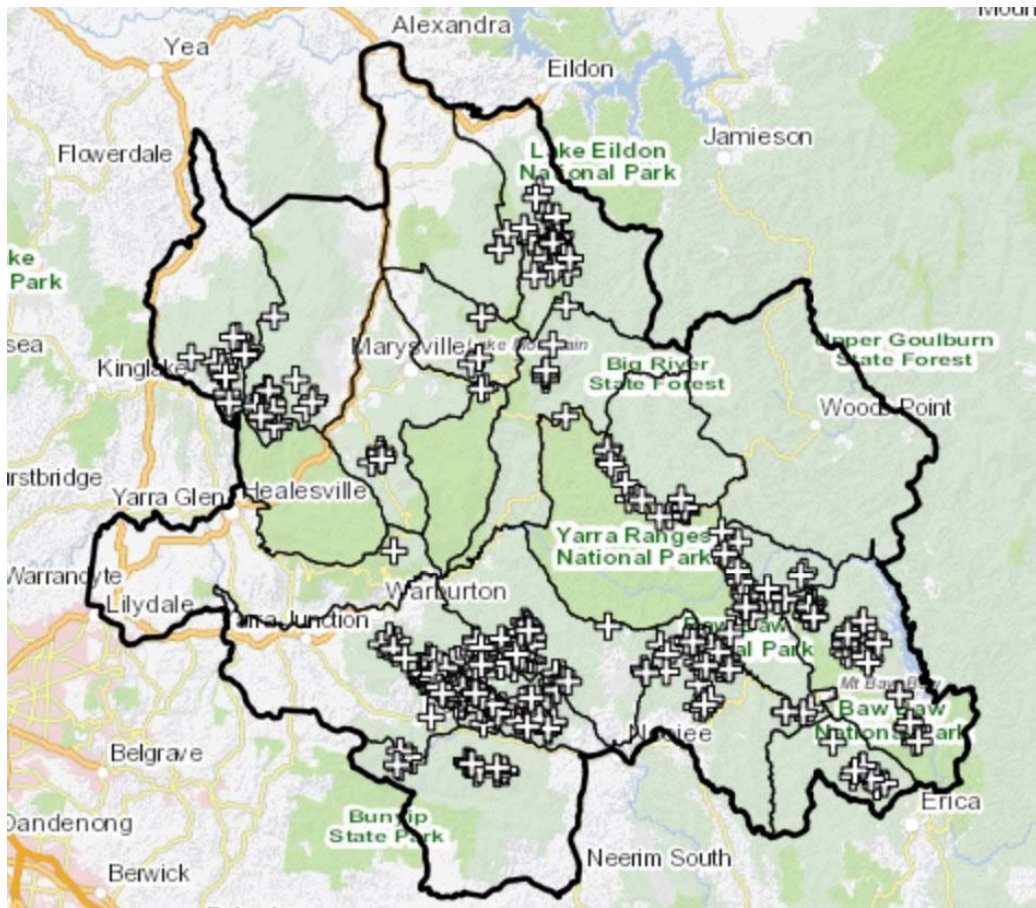
Since then there have been many more colonies identified and protected, all of them in state forest. According to Vicforests' website, as at 28 March 2017, there were 599 known colonies protected, 444 of which had been identified since 2014 (and 362 of those in state forest).

The Victorian Department of Environment's interactive map of Leadbeater's Possum habitat shows the distribution of pre-2014 colony sightings and those since, overlaid against the surrounding timber harvesting exclusion zones, areas where there is a modelled high probability of occupancy by Leadbeater's Possum, areas where DELWP has undertaken targeted surveys, as well as VicForests' Timber Release Plan.

Existing (verified) records (1998-2014)



New (verified) colonies (post February 2014)



Source: Victorian Government interactive Leadbeater's Possum map http://lbp.cerdi.edu.au/possum_map.php

The increasing detection rates for Leadbeater's Possum colonies, particularly those in regrowth forest, suggest that the population of the possum is not in severe decline as originally assumed, that the habitat and home range assumptions used to arrive at the critically endangered listing are overly conservative.

As recent surveys have largely targeted state forests zoned for timber production, it is likely that a systematic survey program covering state forests, national parks and reserves would continue to discover new possum colonies across all land tenures.

The Committee's Conservation Advice also relied on research that underestimated the success of nest boxes and artificial hollows in supporting the conservation of the Leadbeater's Possum and increasing its suitable habitat range.

The nomination to the Committee downplayed the potential of these supplementary hollows, stating:

"The use of artificial nest boxes to supplement natural hollows has been trialled extensively in montane ash forest with limited success (Lindenmayer et al., 2003, 2009). In 1998, the use of artificial nest boxes by arboreal marsupials including Leadbeater's Possum was investigated in the Central Highlands (Lindenmayer et al. 2003a). There were only low rates of occupancy by Leadbeater's Possum, possibly due to differences in vegetation structure or because natural hollows are generally located substantially higher in montane ash forest than the heights at which nest boxes were installed (Smith & Lindenmayer 1988; Harley 2006). There was also a high rate of nest box loss due to falling branches (Lindenmayer et al. 2009). This should only be viewed as an interim measure (with serious limitations) to offset the collapse of existing large old trees and until replacement hollows develop in regenerating forests.

Professor David Lindenmayer has repeatedly stated nest boxes don't work, citing his study. In 2013, for example, he told ABC Radio, "A 10-year study showed that Leadbeater's possum doesn't use nest boxes."

However, the results of Project Possum initiative have shown the use of nest boxes has been far more successful

than previously understood. The Progress Report states:

Project Possum activity spans sub-alpine woodland and montane ash forest sites across State forest and national parks in the Central Highlands. Dedicated volunteers are monitoring nest boxes and transporting new nest boxes to strategic locations throughout the Leadbeater's Possum range. The nest boxes, made from long-lasting recycled plastic, support existing colonies in areas of declining natural hollows. During the past 12 months, an additional 79 nest boxes were installed in high quality habitat on the Toorongo Plateau. This brings the total number of nest boxes to 496 (243 in sub-alpine woodland and 253 in montane ash forest).

Over the same period, 224 nest box inspections and 20 camera trap surveys were completed resulting in 60 new colonies of Leadbeater's Possum (49 in parks and reserves and 11 in State forest). There were a total of 95 new records, with some colonies detected more than once. Overall, the nest box colonization rate is 76% in sub-alpine woodland (excluding sites that were severely burnt in 2009) and 30% in montane ash forest. Significantly, the project has now compiled 85 Leadbeater's Possum records in unburnt sub-alpine woodland on the Baw Baw Plateau, highlighting the significance of this area for the species.

These findings suggest that the use of nest boxes has the potential to mitigate against future habitat loss, and to increase the potential suitable habitat of the species. According to the Leadbeater's Possum Implementation Plan 2016 – 17, Artificial Hollows project #10.2 demonstrates that the possums find and use artificially created hollows in ash trees at a high rate of occupancy. Individual hollows were developed at 18 different sites. 16 of the 18 sites (88%) had use of hollows by Leadbeater's Possums. Repeated checks of these artificially created hollows results in continued use of hollows by possums (LBPAG project data).

The new evidence outlined above should also be taken into consideration in reassessing the Committee's conclusions regarding A3, pertaining to future habitat loss and projected population reduction. With respect to A3, the Committee stated in its Conservation advice:

Losses from predicted harvesting (with different harvesting rates) and a 63 per cent loss of quality to the remaining unharvested habitat /forest, as a result of a decline from 4 hollow-bearing trees per hectare to 1.5 hollow-bearing trees per hectare in 2035 (Lindenmayer et al., pers. comm., 2014a), are deducted sequentially (to prevent double counting of loss). This area also has the potential to be lost to fire in the 18 year period to 2031, although the quantities of loss are speculative. Given fire history of the region, various potential losses from fire have been included, noting these include loss scenarios less than those of Lumsden et al. (2013) and over a longer time period, and are therefore relatively conservative. As the analysis provides for outcomes from a range of scenarios, including no fire, they do not include the quantitative probability of fire occurring within this time period. The results indicate that should fire damage 50 per cent of area by 2031, overall loss will be greater than 80 per cent, regardless of the various predicted harvest rates or the original baselines used (predicted occupied habitat or 'suitable forest'). This loss is considered to be very substantial. Under the maximum predicted harvest rates the loss is very substantial if fire only damages 35 per cent of habitat to 2031.

A revised Action Statement under the Victorian Flora and Fauna Guarantee Act 1988 for Leadbeater's possum was approved and released in August 2014 (DEPI, 2014). This Action Statement sets out what is intended to be done by the Victorian Government to conserve and manage the species. Action Statements are designed to apply for three to five years, after which time they will be reviewed and updated. The Action Statement (DEPI, 2014) for Leadbeater's possum notes further specific reductions in harvesting activities relative to Leadbeater's possum 'potential habitat' ('potential habitat = 'suitable forest'). These include:

- *that all future harvesting activities, including thinning and the construction of new roads, are to be excluded from the timber harvesting exclusion zone around [verified] colonies* [i.e. 200m radius],*
- *harvesting activities will be excluded from within 100 m of modelled old growth ash forests,*
- *protection from harvesting activities for at least 30 per cent of ash forest (approximately 274 ha) to develop old growth forest,*
- *additional exclusions with a 200 metre radius (Special Protection Zones) will be established around all verified records of colony sites from the 15 years prior to February 2014, and all new records once the record is verified.*
- *harvesting will be delayed for two years in areas where modelling (Lumsden et al., 2013) predicts a greater than 0.65 probability of being occupied by Leadbeater's possum. Should Leadbeater's possums be confirmed to occur following surveys [presumably undertaken across these areas within*

*the two year timeframe?], these sites will be confirmed sites and zoned as Special Protection Zones.
* colonies are required to be verified to a standard developed by DEPI.*

These reductions in harvesting activities are expected to reduce the impact of harvesting beyond 2014, however estimates of the level of reduction relative to the baselines of the above analyses are not quantifiable.

Notably, under the Committee's assessment is that the critically endangered threshold is only reached if, in the event of a 35 per cent fire, habitat loss from harvesting activities is at the maximum predicted levels. There is substantially more information available now about the impact Vicforests' changed practices arising from the 2014 Action Statement. The Progress Report states:

All new colonies located in State forest were immediately protected by a 200 metre radius (12.6 hectare) timber harvesting exclusion zone, resulting in an additional 2,983 hectares reserved to protect Leadbeater's Possums.

Since then there have been a further 92 colonies protected in state forest, so the area reserved would be much higher.

Other changes that should be considered in a reassessment of A3 include VicForests' pre-harvest surveys and regrowth retention harvesting, which are outlined in the Threat Abatement section of this nomination. These measures have resulted in increasing the amount of forest retained within the area being harvested. These retained areas will be left to mature and can provide both current and future habitat for a range of species found in our forests. The impact of these measures on the projections about habitat availability should be examined by the Committee.

Conclusion

It is the contention of this nomination that new evidence since the 2015 listing provide sufficient grounds for the Committee to include this in its Proposed Priority Assessment List to the Minister, as it establishes that that the 2015 listing could have been based on inaccurate and incomplete information. A reassessment would allow an opportunity for further evidence to be collated between now and the assessment period.

CRITERION 2:

Geographic distribution is precarious 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; (number of mature individuals)			

Please refer to the [‘Guidelines for Using the IUCN Red List Categories and Criteria’](#) for assistance with interpreting the criterion particularly in relation to calculating area of occupancy and extent of occurrence.

Please identify whether the species meets B1 or B2. Include an explanation, supported by data and information, on how the species meets 2 of (a) (b) or (c).

If available include information required by the EPBC Regulations 2000 on:

- Whether there are smaller populations of the species within the total population and, if so, the degree of geographic separation between the smaller populations within the total population

Any biological, geographic, human [Grab your reader’s attention with a great quote from the document or use this space to emphasize a key point. To place this text box anywhere on the page, just drag it.]

- induced or other barriers enforcing separation

Noting that the Committee assessed the Leadbeater’s Possum as endangered in its 2015 Conservation advice, this nomination has no further evidence to offer against this criterion.

CRITERION 3

Small 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
(ii) % of mature individuals in one subpopulation =	90 – 100%	95 – 100%	100%
(b) Extreme fluctuations in the number of mature individuals			

Please identify the estimated total number of mature individuals and either an answer to C1 or C2. Include an explanation, supported by data and information, on how the species meets the criteria. **Note:** If the estimated total number of mature individuals is unknown but presumed to be likely to be >10 000 you are not required to provide evidence in support of C1 or C2 just state that the number is likely to be >10 000.

You must provide a response. If there is no evidence to demonstrate small population size and decline this **must be** stated.

Noting that the Committee assessed the Leadbeater's Possum as endangered in its 2015 Conservation advice, this nomination has no further evidence to offer against this criterion.

CRITERION 4:

Very small population			
	Critically Endangered Extremely low	Endangered Very Low	Vulnerable Low
Number of mature individuals	< 50	< 250	< 1,000

Please identify the estimated total number of mature individuals and evidence on how the figure was derived.

You must provide a response. If there is no evidence to demonstrate very small population size and decline this **must be** stated.

Noting that the Committee's 2015 Conservation Advice accepted this was not a relevant Criterion as the population is accepted as greater than 1000, this nomination has no further evidence to offer against 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

Please identify the probability of extinction and evidence as to how the analysis was undertaken.

You must provide a response. If there has been no quantitative analysis undertaken must be stated.

Noting that the Committee assessed the Leadbeater's Possum as vulnerable in its 2015 Conservation Advice, this nomination has no further evidence to offer against this criterion.

NOMINATED CATEGORY

Note: after answering the questions relating to the eligibility against the criteria sufficient evidence should be available to determine the category for listing. Refer to the indicative threshold criteria at [Attachment B](#).

- | | | |
|--|--|---|
| <input type="checkbox"/> Extinct | <input type="checkbox"/> Extinct in the wild | <input type="checkbox"/> Critically Endangered |
| <input checked="" type="checkbox"/> Endangered | <input type="checkbox"/> Vulnerable | <input type="checkbox"/> Conservation dependent |

CRITERIA UNDER WHICH THE SPECIES IS ELIGIBLE FOR LISTING

Please mark the criteria and sub-criteria that apply.

- | | |
|---|---|
| <input checked="" type="checkbox"/> Criterion 1 | <input type="checkbox"/> A1 (specify at least one of the following) <input type="checkbox"/> a) <input type="checkbox"/> b) <input type="checkbox"/> c) <input type="checkbox"/> d) <input type="checkbox"/> e); AND/OR
<input checked="" type="checkbox"/> A2 (specify at least one of the following) <input type="checkbox"/> a) <input type="checkbox"/> b) <input checked="" type="checkbox"/> c) <input type="checkbox"/> d) <input type="checkbox"/> e); AND/OR
<input checked="" type="checkbox"/> A3 (specify at least one of the following) <input type="checkbox"/> b) <input checked="" type="checkbox"/> c) <input type="checkbox"/> d) <input type="checkbox"/> e); AND/OR
<input type="checkbox"/> A4 (specify at least one of the following) <input type="checkbox"/> a) <input type="checkbox"/> b) <input type="checkbox"/> c) <input type="checkbox"/> d) <input type="checkbox"/> e) |
| <input type="checkbox"/> Criterion 2 | <input type="checkbox"/> B1 (specify at least two of the following) <input type="checkbox"/> a) <input type="checkbox"/> b) <input type="checkbox"/> c); AND/OR
<input type="checkbox"/> B2 (specify at least two of the following) <input type="checkbox"/> a) <input type="checkbox"/> b) <input type="checkbox"/> c) |
| <input type="checkbox"/> Criterion 3 | <input type="checkbox"/> estimated number of mature individuals AND
either C1 or C2 either a or b
<input type="checkbox"/> C1 OR 2 of C2 a(i), a(ii) or b
<input type="checkbox"/> C2 <input type="checkbox"/> a (i) <input type="checkbox"/> a (ii)
<input type="checkbox"/> C2 <input type="checkbox"/> b) |
| <input type="checkbox"/> Criterion 4 | |
| <input type="checkbox"/> Criterion 5 | |
| For conservation dependent nominations only: | <input type="checkbox"/> Criterion 1
<input type="checkbox"/> Criterion 2 |

Species Information

DESCRIPTION

Provide a description of the species including where relevant, distinguishing features, size and social structure
How distinct is this species in its appearance from other species? How likely is it to be misidentified?

Leadbeater's possum is a small, nocturnal, arboreal possum. It has a prominent dark brown stripe along its back and is pale underneath. Its ears are thin, large and rounded and it grows up to 17 cm in length. Its thick tail grows to 18 cm in length (Cronin, 1991; Strahan, 1998). During the day it shelters in tree hollows, within which small denning groups ('colonies' of up to 12 individuals) construct a communal nest from shredded bark (Smith 1984a; Harley 2005). The species is socially monogamous, and the composition of denning groups is based around a single breeding pair with one or more generations of their young. As a consequence of past fires and timber harvesting, the availability of suitable hollows for denning is a limiting factor across much of the Leadbeater's Possum's range (Lindenmayer et al. 1990, 1997, 2012).

DISTRIBUTION

Provide a succinct overview of the species' known or estimated current and past distribution, including international/national distribution. Provide a map if available.

Is the species protected within the reserve system (e.g. national parks, Indigenous Protected Areas, or other conservation estates, private land covenants, etc.)? If so, which populations? Which reserves are actively managed for this species? Give details.

Leadbeater's possum is endemic to Victoria. Genetic work indicates that Leadbeater's possum consists of two genetically-distinct subpopulations that have historically occupied different habitats (Hansen, 2008). An outlier 'lowland population' is located at Cockatoo Swamp near Yellingbo (Smales, 1994) within 181 ha of lowland floodplain forest where less than 20 hectares provides suitable habitat (D. Harley 2014, pers. comm., cited in DEPI, 2014). The small subpopulation is a surviving remnant of a lowland subpopulation that has historically been, and remains, isolated from others (Hansen, 2008). The Yellingbo population occurs at 110 m elevation (Harley, 2004a).

The core location of the species is an area of approximately 70 x 80 km in the Central Highlands of Victoria at altitudes between 400–1,200 m above sea level (Lindenmayer et al., 1989) where it is patchily distributed (Macfarlane et al., 1997) and occupies alpine forest and subalpine woodland comprising *Eucalyptus regnans* (mountain ash), *Eucalyptus delegatensis* (alpine ash), *Eucalyptus nitens* (shining gum) and *Eucalyptus camphora* (snow gum). Prior to the 2009 fires, the greatest numbers were considered to occur in montane ash forests, and subalpine woodlands including at Lake Mountain, Mt Bullfight, and Mt Baw Baw.

BIOLOGY/ECOLOGY

Provide a summary of biological and ecological information.

Include information required by the *EPBC Regulations 2000* on:

- life cycle including age at sexual maturity, life expectancy, natural mortality rates
- specific biological characteristics
- habitat requirements for the species
- for fauna: feeding behaviour and food preference and daily seasonal movement patterns
- for flora: pollination and seed dispersal patterns

Leadbeater's possums live in small groups of between two to twelve individuals containing one breeding pair, and shelter in tree hollows during the day (Lindenmayer, 1996a). Colonies live in territories that contain multiple den sites (Lindenmayer and Meggs, 1996). Female dispersal is greater than male dispersal (Smith, 1984) and females are subject to higher rates of mortality. Among young adults, males outnumber females by three to one (Lindenmayer, 1996a) and the general adult population is thought to have a sex ratio approaching 3:1 (Smith, 1984).

Breeding is limited by the number of mature females (Lindenmayer, 1996a). Observations of mating behaviour in captivity suggest that Leadbeater's possum is strictly monogamous, that only one adult male per colony is reproductively active (Smith, 1984) and colonies typically contain only a single adult female (Smith, 1984; Harley and Lill, 2007), although other studies have found colonies with two breeding females (Lindenmayer and Meggs, 1996). Breeding females reproduce twice per year and mean litter size is approximately 1.5 (Smith, 1984; Harley and Lill, 2007). Adult longevity is approximately ten years and age at first breeding is typically two years (Lindenmayer and Possingham, 1995b; Lindenmayer et al., 1993b).

Generation length ($[(\text{longevity} + \text{age at maturity})/2]$) for Leadbeater's possum is six years.

Leadbeater's possum habitat is usually defined as montane ash forest dominated by mountain ash, alpine ash and shining gum with a dense understorey of *Acacia* and an abundance of large hollow-bearing trees. The species also inhabits sub-alpine woodland dominated by snow gum containing a dense midstory of mountain tea tree (*Leptospermum grandiflorum*) along drainage lines (Jelinek et al., 1995) or forest dominated by mountain swamp gum (*Eucalyptus camphora*) with a dense midstory of *Melaleuca* and *Leptospermum* species (Smales, 1994). Colonies live in territories of 1–3 ha that contain multiple den sites and are actively defended from neighbouring colonies (Lindenmayer and Meggs, 1996). Leadbeater's possum is typically sedentary and territorial, with resident animals travelling between den trees and feeding areas, or between alternative den trees (Lindenmayer and Meggs, 1996; Smith, 1984) with the distance between a set of nest sites used by a colony possibly exceeding 100 m (Lindenmayer and Meggs, 1996). The species appears to have long-term site fidelity (Lindenmayer et al., 2013a).

Leadbeater's possum may be a central place forager. Nest trees are spaced close to the centre of a relative exclusive home range (Smith, 1984), and linear strips of habitat (e.g., 80 m) may be insufficient for their social and dietary requirements (Lindenmayer et al., 1993d). Leadbeater's possums feed on carbohydrate-rich plant and insect secretions (e.g. sap, manna, honeydew) and invertebrates (Smith, 1980; 1984). In montane ash forest, the species has been recorded incising acacias and feeding on the gum that exudes into the wound (Smith, 1980). Smith (1980) also highlights the dietary importance of an undescribed species of tree cricket. Paperbarks and tea trees may also be incised in lowland swamp forest. Tree hollows are a critical resource for Leadbeater's possum and the species' abundance is positively correlated with hollow availability (Lindenmayer et al., 1991b). The majority of trees occupied by Leadbeater's possum are dead hollow-bearing trees. Living hollow-bearing trees are also used and become the next cohort of dead hollow-bearing trees in the future (Lindenmayer et al., 2013a). Leadbeater's possum rarely descends to the ground and is highly reliant upon dense, continuous vegetation with interconnecting lateral branches and/or high stem density (Lindenmayer, 1996a). The key attributes of Leadbeater's possum across all forest types (LPAG, 2013) are:

- Hollow-bearing trees (for nest sites and refuge) with large internal dimensions in the order of 30 cm in diameter are a critical habitat feature for Leadbeater's possums (LPAG, 2013), particularly and almost exclusively large old trees (Lindenmayer et al., 2013a; Lindenmayer et al., pers. comm., 2014a).
- Density of hollow-bearing trees is recognised as a critical habitat feature (e.g., DEPI, 2014). There are strong and quantified links between the abundance of hollow-bearing trees and the occurrence of Leadbeater's possum (e.g., Lindenmayer et al., 1991b; Lindenmayer et al., 2013b; Lindenmayer et al., pers. comm., 2014a), with nest hollow availability the limiting factor to population size. Density of less than one hollow-bearing tree per hectare is considered to represent ecosystem collapse for the Mountain Ash Forest ecosystem (Burns et al., 2014).
- Predominance of smooth-barked eucalypts (with loose bark hanging in strips providing shelter for insect prey and material for nests) or gum-barked eucalypts (related to foraging behaviour) (Lindenmayer, 1996a; Harley, 2004a;b;c). Forest types of Leadbeater's possum are most commonly ash forest typically dominated by mountain ash, alpine ash and shining gum but it is also known to occur in subalpine woodlands and lowland swamp forest dominated by snow gum or mountain swamp gum (Smith and Hartley, 2008)
- A structurally dense interlocking canopy or secondary tree layer of continuous interconnecting structure (to facilitate movement) (Lindenmayer, 1996a; Harley, 2004a;b;c), and a wattle understory (providing food) (Smith and Lindenmayer, 1988; Menkhorst and Lumsden, 1995; DSE, 2013).

Habitat considered most likely to be currently occupied by Leadbeater's possums is characterised by lush, unburnt vegetation in gullies, located in areas that have relatively low summer temperatures and high summer rainfall (Lumsden et al., 2013). An optimum habitat is an uneven-aged ash forest with a dense understory of wattle trees and a supply of hollowbearing trees of between 4.2 – 10 per 3 ha (Smith and Lindenmayer, 1988). Leadbeater's possums appear to have critical minimum habitat size of around 12 ha (Lindenmayer et al., pers. comm., 2014b). Leadbeater's possums do not occur on burned sites, including those subject to low and moderate severity fire, clearfell logged, or regenerated montane ash forest where hollow-bearing trees are largely absent (Lindenmayer et al., pers. comm., 2014a) until required conditions have returned. Habitat of the lowland population is different to that throughout the possum's core range of montane ash forest (Harley et al., 2005). The lowland population occupies lowland swamp forest of varied densities of mountain swamp gum with *Melaleuca* spp or *Leptospermum* spp in the middle-story. Densities of Leadbeater's possum are highest in young (e.g., 20–40 years old) stands of forest supporting high stem density. Like the montane population, the lowland population habitat has a predominance of smooth-barked eucalypts (that provide exudates from the trunks), hollow-bearing trees (that provide den sites) and highly-connected in the middlestory or canopy (Harley et al., 2005). Given the genetic distinction of this population, its gene pool may include genes involved in adaptation to a lowland swamp environment, adding to the conservation importance of this population.

INDIGENOUS CULTURAL SIGNIFICANCE

Is the species known to have cultural significance for Indigenous groups within Australia? If so, to which groups? Provide information on the nature of this significance if publicly available.

Not known.

ADDITIONAL COMMENTS/INFORMATION

Please include any additional comments or information on the species such as survey or monitoring information, maps that would assist with the consideration of the nomination.

FURTHER STUDIES

Identify relevant studies or management documentation that might relate to the species (e.g. research projects, national park management plans, recovery plans, conservation plans, threat abatement plans, etc.).

A review by the Victorian Government of the 200m timber harvesting exclusion zone commenced in late 2016 and is due to report in April 2017 (Progress Report, 2016).

Initiatives arising from the Victorian Government's Action Statement which have been covered in this nomination are ongoing and continually providing more information about the species.

IMAGES OF THE SPECIES

Please include or attach images of the species if available.

The Committee has previously been provided with considerable images of this species and this nomination has no more to add.

Conservation Dependent Considerations

Only complete this section if nominating for consideration under the conservation dependent category, or if nominating a fish (or harvested marine species) with a management plan answer either the first or second question below, **whichever is more appropriate**.

CONSERVATION PROGRAM (if species is a fish or harvested marine species, answer the question below instead)

- a) Give details of the conservation program for which this species is a focus.
- b) Provide details of how the species would become vulnerable, endangered or critically endangered should the program cease.

- a)
- b)

FISH MANAGEMENT PLANS

- a) Give details of the plan of management that focuses on the fish.
- b) Provide details of how the plan provides for management actions necessary to stop the decline of and support the recovery of the species, so that its chances of long term survival in nature are maximised.
- c) Explain the effect on the fish if the plan of management ceased

a)
b)
c)

MANAGEMENT PLAN'S LEGISLATIVE BASIS

Is the plan of management (or some component/s of it) in force under Commonwealth or State/Territory law? If so, provide details.

Reviewers and Referencing

REVIEWER(S)

Has this nomination been peer-reviewed? Have relevant experts been consulted on this nomination? If so, please include their names, current professional positions and contact details.

No.

REFERENCE LIST

Please list key references/documentation you have referred to in your nomination.

References relating to this nomination and to the Committee's 2015 Conservation Advice are listed below:

Victoria Department of Environment, Land, Water and Planning, Supporting the Recovery of the Leadbeater's Possum Progress Report December 2016,

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Vicforests website, Leadbeater's Possum population numbers <http://www.vicforests.com.au/leadbeaters-possum1/leabeaters-possum-population-numbers>

Vicforests website, Regrowth Retention Harvesting <http://www.vicforests.com.au/leadbeaters-possum1/regrowth-retention-harvesting-1>

Vicforests website, Pre-harvest surveys, <http://www.vicforests.com.au/leadbeaters-possum1/leadbeaters-possum-projects-1/lbp-pre-harvest-surveys>

Victorian Government interactive Leadbeater's Possum map http://lbp.cerdi.edu.au/possum_map.php

ABC PM, 13 August 2013 <http://www.abc.net.au/pm/content/2013/s3824786.htm>

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Nominator's Details

Note: Your details are subject to the provisions of the *Privacy Act 1988* and will not be divulged to third parties, except for state and territory governments which have agreed to collaborate with the Commonwealth on national threatened species assessments using a common assessment method.

If there are multiple nominators please include details below for all nominators.

TITLE (e.g. Mr/Mrs/Dr/Professor/etc.)

Mr

FULL NAME

s47F

ORGANISATION OR COMPANY NAME (IF APPLICABLE)

Australian Forest Products Association

CONTACT DETAILS

Email: s47F

Phone: s47F

Postal address: PO Box 239 Deakin West ACT 2600

DECLARATION

I declare that, to the best of my knowledge, the information in this nomination and its attachments is true and correct.

Signed:

s47F

** If submitting by email, please attach an electronic signature*

Date: 31 March 2017

Lodging your nomination

How to lodge your nomination

Completed nominations may be lodged either:

1. by email in word format to: epbc.nominations@environment.gov.au, or
2. by mail to: The Director
Species Information and Policy Section
Department of the Environment and Energy
GPO Box 787
Canberra ACT 2601

*** If submitting by mail, you must include an electronic copy on a memory stick.**

Where did you find out about nominating species?

The Committee would appreciate your feedback regarding how you found out about the nomination process. Your feedback will ensure that future calls for nominations can be advertised appropriately.

Please tick

- Department website Web search *The Australian* newspaper word of mouth
- Journal/society/organisation web site or email? If so which one
- Other.....

Attachment A: Further information on completing this form <back to top>

NAME OF NOMINATED SPECIES/SUBSPECIES <back>

You may nominate a native species or subspecies for listing under the EPBC Act. If the taxon you wish to nominate is not a species or subspecies (e.g. a family, race, variation or hybrid) please contact the Director of the Species Information and Policy Section, on (02) 6274 2535 for further guidance.

For the purposes of this form, subspecies are hereafter referred to as 'species'.

You may wish to search the current list of threatened species in the department's Species Profile and Threats Database, here: www.environment.gov.au/cgi-bin/sprat/public/sprat.pl

You can also find a full list of fauna and flora that are listed as threatened under the EPBC Act, here:

www.environment.gov.au/cgi-bin/sprat/public/publicthreatenedlist.pl?wanted=fauna
www.environment.gov.au/cgi-bin/sprat/public/publicthreatenedlist.pl?wanted=flora

You will find a list of species assessed as ineligible for listing here:

www.environment.gov.au/biodiversity/threatened/unsuccesful-species.html

CURRENT LISTING CATEGORY <back>

Please specify the EPBC Act listing category in which the species is listed:

- Extinct
- Extinct in the Wild
- Critically Endangered
- Endangered
- Vulnerable
- Conservation Dependent.

For more information about these categories, see [Attachment B](#),

You can search for the current status of threatened species in the department's Species Profile and Threats Database, here: www.environment.gov.au/cgi-bin/sprat/public/sprat.pl

REASONS FOR THE NOMINATION TO TRANSFER TO ANOTHER CATEGORY <back>

Please specify the reason for the nomination to transfer to another category.

- *Genuine*. The change in category is the result of a genuine status change that has taken place since the previous assessment. For example, the change is due to an increase in the rate of decline, a decrease in population or range size or habitat, or declines in these for the first time (owing to increasing/new threats).
- *Knowledge*. The change in category is the result of new knowledge, e.g. owing to new or newly synthesized information about the status of the taxon (e.g. better estimates for population size, range size or rate of decline).
- *Taxonomy*. The new category is different from the previous owing to a taxonomic change adopted during the period since the previous assessment. Such changes include:
 - *newly split* (the taxon is newly elevated to species level)
 - *newly described* (the taxon is newly described as a species)
 - *newly lumped* (the taxon is recognized following lumping of two previously recognized taxa)
 - *no longer valid/recognised* (either the taxon is no longer valid e.g. because it is now considered to be a hybrid or variant, form or subspecies of another species, or the *Red List Guidelines 11* previously recognized taxon differs from a currently recognized one as a result of a split or lump).
- *Mistake*. The previous category was applied in error.
- *Other*. The change in category is the result of other reasons not easily covered by the above, and/or requires further explanation. Examples include change in assessor's attitude to risk and uncertainty (as defined in section 3.2.3) and changes in this guidelines document.

INITIAL LISTING <back>

Information on the reasons for the initial listing may be available in the original listing for the species. You can search for the listing and conservation advice for threatened species in the department's Species Profile and Threats Database, here: www.environment.gov.au/cgi-bin/sprat/public/sprat.pl

If there is insufficient information to provide details as to the reasons for the original listing please state this.

TAXONOMY <back>

- What are the currently accepted scientific and common name(s) for the species (include Indigenous names, where known)? Note any other scientific names that have been used recently. Note the species' authority and the taxonomic

group to which the species belongs (Family name is sufficient for plants; both Order and Family name are required for invertebrates).

- Is the species known to hybridise with other species? Describe any cross-breeding with other species in the wild, indicating how frequently and where this occurs.

THREATS <[back](#)>

For each threat, describe:

- a. whether the threats are actual or potential;
- b. how and where it impacts on this species;
- c. what its effect has been so far (indicate whether it is known or suspected; present supporting information/research; does it only affect certain populations);
- d. what is its expected effect in the future (is there supporting research/information; is the threat only suspected; does it only affect certain populations);
- e. what is the relative importance or magnitude of the threat to the species.

If subject to natural catastrophic events, i.e. events with a low predictability that are likely to severely affect the species, identify the type of event, explain its likely impact and indicate the likelihood of it occurring (e.g. a drought/cyclone in the area every 100 years).

Identify and explain any additional biological characteristics particular to the species that are threatening to its survival (e.g. low genetic diversity).

THREAT ABATEMENT <[back](#)>

- Describe how threats are or could be abated.
- Identify who is undertaking these activities and how successful the activities have been to date.
- Describe any mitigation measures or approaches that have been developed specifically for the species at identified locations. Identify who is undertaking these activities and how successful the activities have been to date.
- For species nominated as extinct in the wild, provide details of the locations in which the species occurs in captivity and the level of human intervention required to sustain the species.

DISTRIBUTION <[back](#)>

- If the species occurs only within the Australian jurisdiction:
 - Describe the species' current distribution within Australia (including external territories if relevant).
 - Provide a map, if available, indicating latitude, longitude, map datum and location names.
- If the species also occurs outside of the Australian jurisdiction:
 - Include information on the species' geographic distribution within and outside Australia.
 - What percentage of the global population occurs in Australia, and what is its significance?
 - Is the Australian population distinct, geographically isolated, or does part or all of the population migrate into/out of Australia's jurisdiction?
 - Explain the relationship between the Australian population and the global population.
 - Do global threats affect the Australian population?
- Give locations of other populations, e.g. captive/propagated populations, populations recently re-introduced to the wild, and sites for proposed population re-introductions. Note if these sites have been identified in recovery plans. Provide latitude, longitude, map datum and location name, where available, in an attached table.
 - For fauna species only – give details of the species' home ranges/territories. Describe any relevant daily and seasonal pattern of movement for the species, or other irregular patterns of movement, including relevant arrival/departure dates if migratory.
- Does the species occur within an EPBC Act listed ecological community? You will find a list of EPBC Act listed ecological communities here: www.environment.gov.au/cgi-bin/sprat/public/publiclookupcommunities.pl

21. BIOLOGY/ECOLOGY <[back](#)>

- **Life Cycle:** Provide detail on the age at sexual maturity, average life expectancy, natural mortality rates, and generation length
 - "*Generation length*" is defined as the average age of parents of the current cohort (i.e. newborn individuals in the population). Generation length therefore reflects the turnover rate of breeding individuals in a population. Generation length is greater than the age at first breeding and less than the age of the oldest breeding individual, except in species that breed only once. Where generation length varies under threat, the more natural, i.e. pre-disturbance, generation length should be used. It is often calculated as $=(\text{longevity} + \text{age at maturity})/2$. Provide details of the methods used to calculate the generation length.

- **Reproduction:** Provide detail on the reproductive requirements of this species.
 - **Flora:** When does the species flower and set fruit? What conditions are needed for this? What is the pollinating and seed dispersal mechanisms? If the species is capable of vegetative reproduction, include a description of how this occurs, the conditions needed and when. Does the species require a disturbance regime (e.g. fire, cleared ground) in order to reproduce?
 - **Fauna:** provide an overview of the species' breeding system and breeding success, including: when it breeds; what conditions are needed for breeding; whether there are any breeding behaviours that may make it vulnerable to a threatening process?
- **Habitat**
 - Provide information on aspect, topography, substrate, climate, forest type, associated species, sympatric species and anything else that is relevant to the species' habitat.
 - Explain how habitats are used (e.g. breeding, feeding, roosting, dispersing, basking, etc.)
 - Does the species use refuge habitat (e.g. in times of fire, drought or flood)? Describe this habitat.
- **For fauna:**
 - **Feeding :** Summarise the species' feeding behaviours, diet, and the timing/seasonality associated with these. Include any behaviour that may make the species vulnerable to a threatening process.
 - **Movement:** provide information on daily and seasonal movement patterns.

26 CONSERVATION PROGRAM <back>

Note that according to the EPBC Act a fish includes all species of bony fish, sharks, rays, crustaceans, molluscs and other marine organisms, but does not include marine mammals or marine reptiles.

A species that has a specific conservation program, the cessation of which would result in the species becoming vulnerable, endangered or critically endangered, may be eligible for listing as conservation dependent.

Please provide information such as:

Details of the program, its publication and/or availability for viewing

- Who implements the program?
- What is the length of the program, date of termination, or is it perpetual?
- Is it a single program or a combination of programs and/or actions, and if so, provide details.
- Does the program manage the entire range of the species, or part?
- If part, to what extent does this prevent the entire species from being eligible for listing as as vulnerable, endangered or critically endangered.
- What is the estimated probability of decline to vulnerable, endangered or critically endangered for the species if the program ceases.
- Does the program address all known threats to the species that would otherwise cause the species to become vulnerable, endangered or critically endangered?

Note: If eligible as conservation dependent based on a specific conservation program (Section 179 (6)(a)), the species cannot also be found to be eligible as vulnerable, endangered or critically endangered.

27 FISH MANAGEMENT PLANS <back>

- Provide details of the management plan, its publication and/or availability for viewing.
- Who implements the management plan?
- What is the length of the management plan, date of termination, or is it perpetual?
- Is it a single management plan or a combination of plans, and if so, provide details.
- Does the management plan manage the entire range of the species, or part?
- Provide details of the management actions that stop the species' decline, and support its recovery so that its chances of long term survival in nature are maximised? Note that only legislated actions (in force under law) can be considered in this criterion.
- What is the projected recovery under the plan (population numbers, percentage of virgin biomass) and in what timeframe?
- Is there an estimation of likelihood of recovery under the plan within the timeframe provided (e.g., % chance of recovery to the identified level)?

Note: If a fish is found eligible as conservation dependent based on a management plan (Section 179 (6)(b)), the species is not necessarily ineligible as vulnerable, endangered or critically endangered.

28 MANAGEMENT PLAN LEGISLATIVE BASIS [<back>](#)

- Is the plan in its entirety legislated?
 - If yes, provide details of the legislation.
 - if no, are specific actions within it legislated? Note, only these actions can be considered in meeting this criterion. Provide specific details of the legislated actions and explain to what extent the plan is not in force under law. To what extent do these management actions provide for the entire species?

35. DECLARATION [<back >](#)

In signing this nomination form, you agree to grant the Commonwealth of Australia (as represented by the Department of the Environment and Energy) a perpetual, non-exclusive, worldwide, royalty-free licence to use, reproduce, publish, communicate and distribute information described in the nomination form (i.e. information you have provided that is not referenced to other sources), but excluding any information specifically requested by you to remain confidential, in the Department's websites and publications and to promote those web sites and publications in any medium.

As nominator your details are automatically subject to the provisions of the *Privacy Act 1988* and will not be divulged to third parties. The Commonwealth, state and territory governments have agreed to collaborate on national threatened species assessments using a common assessment method. Your nomination, including your details as nominator, may be provided to state and territory government agencies as part of this collaboration.

If you subsequently agree to be cited as the author of specific, cited information, you will be acknowledged in all publications and websites in which that information appears, in a manner consistent with the *Style Manual for Authors, Editors and Printers* (latest edition).

THREATENED SPECIES SCIENTIFIC COMMITTEE

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

**Guidelines for assessing the conservation status
of native species according to the
Environment Protection and Biodiversity Conservation Act 1999
and *Environment Protection and Biodiversity Conservation
Regulations 2000***

Part	Content
Part A:	Criteria for listing species in the critically endangered, endangered or vulnerable categories under the <i>Environment Protection and Biodiversity Conservation Act 1999</i> and <i>Environment Protection and Biodiversity Conservation Regulations 2000</i>
Part B:	Guidance thresholds that may be used by the Committee to judge the subjective terms provided by the criteria for listing in the critically endangered, endangered and vulnerable categories
Part C:	Eligibility for listing species in the extinct, extinct in the wild, or conservation dependent categories under the <i>Environment Protection and Biodiversity Conservation Act 1999</i>
Part D	Calculating Area of Occupancy (AOO) and Extent of Occurrence (EOO)
Part E:	Data Deficient species
Part F:	Thresholds for assessing commercially harvested marine fish
Part G	Guidelines for assessing climate change as a threat to native species

Part A: Criteria for listing species in the critically endangered, endangered or vulnerable categories under the *Environment Protection and Biodiversity Conservation Act 1999* and *Environment Protection and Biodiversity Conservation Regulations 2000*

For section 179 of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), a native species is eligible for listing in the critically endangered, endangered or vulnerable category, if it meets any of the criteria for the category identified in Part 7.01 of the *Environment Protection and Biodiversity Conservation Regulations 2000* (EPBC Regulations).

Criteria for listing threatened species (Part 7.01 of the EPBC Regulations)			
Criterion	Critically Endangered	Endangered	Vulnerable
1. It has undergone, is suspected to have undergone or is likely to undergo in the immediate future:	a <u>very severe</u> reduction in numbers	a <u>severe</u> reduction in numbers	a <u>substantial</u> reduction in numbers
2. Its <u>geographic distribution is precarious</u> for the survival of the species and is:	<u>very restricted</u>	<u>restricted</u>	<u>limited</u>
3. The estimated total number of mature individuals is:	<u>very low</u>	<u>low</u>	<u>limited</u>
and either of (a) or (b) is true:			
(a) evidence suggests that the number will continue to decline at:	a <u>very high</u> rate	a <u>high</u> rate	a <u>substantial</u> rate
(b) the number is likely to continue to decline and its geographic distribution is	<u>precarious</u> for its survival	<u>precarious</u> for its survival	<u>precarious</u> for its survival
4. The estimated total number of mature individuals is:	<u>extremely low</u>	<u>very low</u>	<u>low</u>
5. The probability of its extinction in the wild is at least	50% in the <u>immediate</u> future	20% in the <u>near</u> future	10% in the <u>medium-term</u> future

These criteria define situations in which a relatively large risk of extinction in the wild, some time in the future, is deemed to exist for a species (for the purposes of section 179 of the EPBC Act). It is not necessary to identify a quantitative risk of extinction, but it is important to ensure that judgements about the criteria (for example, whether a reduction in numbers represents a severe decline).

Due to the subjective nature of the criteria provided in the EPBC Regulations, the Threatened Species Scientific Committee (the Committee) have adopted guidance thresholds ([Part B](#)) based on the “IUCN Red List Categories and Criteria Version 3.1, 2001”, that may be used by the Committee to judge the subjective terms for listing in the EPBC Regulations. It should be noted that the Committee has an obligation to have regard to these guidance thresholds and generally applies them but there can be exceptions.

Part B: Guidance thresholds that may be used by the Committee to judge the subjective terms provided by the criteria for listing

When assessing a species' eligibility against the listing criteria for inclusion in the critically endangered, endangered or vulnerable categories, the Committee exercises its judgement to give practical meaning to the subjective terms of the criteria. The Committee does this by considering the information provided to it via the nomination form in the context of the species' biology and relevant ecological factors, and having regard to the degree of complexity and uncertainty associated with that context and the information provided.

To provide guidance for the Committee to interpret the subjective terms provided by the criteria for assessment of eligibility for inclusion listing in the categories of vulnerable, endangered and critically endangered in the list of threatened species, the Committee has adopted Indicative Thresholds. The Committee is informed, but not bound by, Indicative Thresholds which have been adapted from the [IUCN Red List Categories and Criteria Version 3.1, 2001](#) to conform to the EPBC Regulations. The IUCN Red List Categories and Criteria are an internationally accepted system developed for classifying the extinction risk for a wide range of species.

When interpreting the Indicative Thresholds for particular species, the Committee judges their appropriateness to characteristics of the species in question. . This consideration of biological attributes is placed in the context of matters such as the relative population size so as to judge whether, for the species in question, a decline is substantial, severe or very severe, for the purposes of the criteria for listing.

For guidance on the use of the Indicative Thresholds, the Committee refers to the [IUCN guidelines](#) that explain how to apply the criteria to determine if a taxon is eligible for inclusion in a category and provide explanations and definitions of the terms used in the criteria.

Threatened Species Scientific Committee's Guidance Thresholds

to judge the subjective terms provided by the criteria for assessment of eligibility for inclusion listing in the categories of vulnerable, endangered and critically endangered in the list of threatened species

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%
A1	<i>based on any of the following</i> <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 		
A2			
A3			
A4			

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 indicating distribution is precarious for survival :			
(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			

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 generations (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
(ii) % of mature individuals in one subpopulation =	90 – 100%	95 – 100%	100%
(b) Extreme fluctuations in the number of mature individuals			

4. Number of mature individuals

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

Note: The IUCN Red List Criterion D allows for species to be listed as vulnerable under D2¹. [Criterion 4](#) under the EPBC Act Regulations does not include the provision for a species assessment for listing in the vulnerable category similar to D2.

5. Quantitative Analysis

	Critically Endangered Immediate future	Endangered Near future	Vulnerable Medium-term future
Indicating the probability of extinction in the 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

¹ IUCN Criterion D2: *Only applies to the VU category*. Restricted are of occupancy or number of locations with a plausible future threat that could drive the taxon to CR or EX in a very short time.

Part C: Eligibility for listing species in the extinct, extinct in the wild, or conservation dependent categories under the *Environment Protection and Biodiversity Conservation Act 1999*

For section 179 of the EPBC Act (which provides general eligibility for inclusion in a category of the list of threatened species), a native species is eligible for inclusion in the extinct, extinct in the wild or conservation dependant category, if it meets the criteria for listing in that category as defined in the EPBC Act.

Extinct (section 179(1))

A native species is eligible to be included in the **extinct** category at a particular time if, at that time, there is no reasonable doubt that the last member of the species has died.

The EPBC Act uses the same eligibility criteria for listing in the extinct category as the IUCN Red List and the Committee refer to the guidelines for applying the category in the [Guidelines for Using the IUCN Red List Categories and Criteria](#).

The Committee uses an evidentiary approach and considers each taxon on a case-by-case basis to assess its eligibility for inclusion in the extinct category. Taxa that are listed as extinct under are not considered Matters of National Environmental Significance under the EPBC Act and are afforded no protection under the EPBC Act. If an extinct species is rediscovered in nature and considered to be extant, it is offered no protection under the EPBC Act until it is transferred from the extinct category, this process could have implications for the protection of the taxon. The Committee needs to be confident that there is no reasonable possibility that the taxon may still be extant in recommending listing as extinct.

Extinct in the wild (section 179(2))

A native species is eligible to be included in the **extinct in the wild** category at a particular time if, at that time:

- (a) it is known only to survive in cultivation, in captivity or as a naturalised population well outside its past range; or
- (b) it has not been recorded in its known and/or expected habitat, at appropriate seasons, anywhere in its past range, despite exhaustive surveys over a time frame appropriate to its life cycle and form.

The Committee uses an evidentiary approach and considers each taxon on a case-by-case basis to assess its eligibility for inclusion in the extinct in the wild category. The Committee refer to the guidelines for applying the category in the [Guidelines for Using the IUCN Red List Categories and Criteria](#).

Conservation dependent (section 197(6))

A native species is eligible to be included in the **conservation dependent** category at a particular time if, at that time:

- (a) the species is the focus of a specific conservation program the cessation of which would result in the species becoming vulnerable, endangered or critically endangered; **or**
- (b) the following subparagraphs are satisfied:
 - (i) the species is a species of fish;
 - (ii) the species is the focus of a plan of management that provides for management actions necessary to stop the decline of, and support the recovery of, the species so that its chances of long term survival in nature are maximised;
 - (iii) the plan of management is in force under a law of the Commonwealth or of a State or Territory;
 - (iv) cessation of the plan of management would adversely affect the conservation status of the species.

Part D: Calculating Area of Occupancy (AOO) and Extent of Occurrence (EOO)

Extent of occurrence

Extent of occurrence is defined as the area contained within the shortest continuous imaginary boundary which can be drawn to encompass all the known, inferred or projected sites of present occurrence of a taxon, excluding cases of vagrancy (see [Figure 1](#)). This measure may exclude discontinuities or disjunctions within the overall distributions of taxa (e.g. large areas of obviously unsuitable habitat, see 'area of occupancy' below). However, such exclusions are not recommended for reasons detailed by IUCN (2016, section 4.9). Extent of occurrence can often be measured by a minimum convex polygon (the smallest polygon in which no internal angle exceeds 180 degrees and which contains all the sites of occurrence).

Area of occupancy

Area of occupancy is defined as the area within its 'extent of occurrence' (see above) which is occupied by a taxon, excluding cases of vagrancy. The measure reflects the fact that a taxon will not usually occur throughout the area of its extent of occurrence, which may contain unsuitable or unoccupied habitats. In some cases (e.g. irreplaceable colonial nesting sites, crucial feeding sites for migratory taxa) the area of occupancy is the smallest area essential at any stage to the survival of existing populations of a taxon. The size of the area of occupancy will be a function of the scale at which it is measured, and should be at a scale appropriate to relevant biological aspects of the taxon, the nature of threats and the available data. To avoid inconsistencies and bias in assessments caused by estimating area of occupancy at different scales, IUCN (2016) recommends standardization of estimates by applying a 2 x 2 km grid to occurrence data. IUCN (2016) give guidance on how standardization should be done, although conversion between different scales is difficult because different types of taxa have different scale-area relationships.

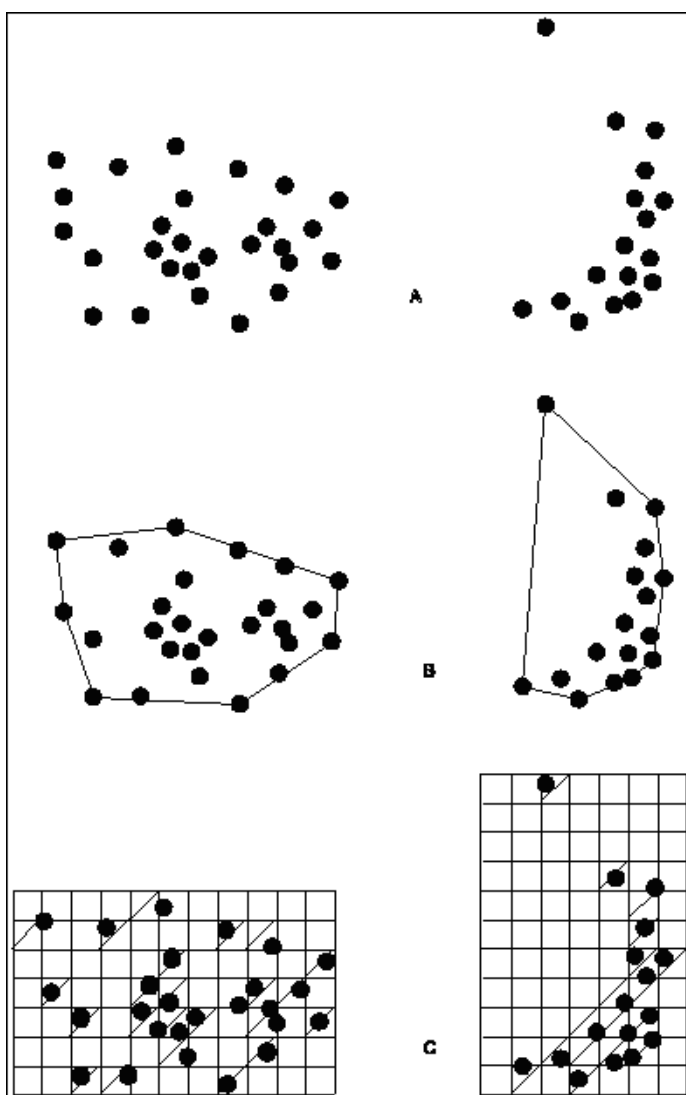


Figure 1. Two examples of the distinction between extent of occurrence and area of occupancy. (A) is the spatial distribution of known, inferred or projected sites of present occurrence. (B) shows one possible boundary to the extent of occurrence, which is the measured area within this boundary. (C) shows one measure of area of occupancy which can be achieved by the sum of the occupied 2 x 2 km grid squares

Part E: Data Deficient species

Section 178 of the EPBC Act identifies the [categories](#) under which species assessed can be and found eligible for listing. Unlike the categories for listing under the International Union for Conservation of Nature (IUCN) Red List, the EPBC Act does not provide for formal listing in a data deficient category. Species assessed by the [Threatened Species Scientific Committee](#) where insufficient data (evidence) are available to allow the taxon to be placed in a category against the criteria for listing are found ineligible and a recommendation is made to the Minister to not include the species in any category under the EPBC Act. For reasons of transparency and to inform future research, the Threatened Species Scientific Committee publishes the names of those species found to be [data deficient](#). As data deficient is not a listing category under the EPBC Act, this has no statutory implications and the species is not considered to be listed under the EPBC Act.

Acknowledging that the species is data deficient does not imply that the taxon is not threatened.

Examples of species that could be assessed and found to be data deficient included wide ranging species where information is only available on impacts and populations across part of their range. In some such cases, the available information cannot easily be extrapolated across the entire range and therefore it is hard to determine whether a decline in one part of the range represents trends across the whole range. Without information across the national extent of the species justification for listing against the criteria is therefore difficult to determine.

As noted above a taxon cannot be assigned to a data deficient category under the EPBC Act. Under IUCN Red List, a taxon can be assigned data deficient where a taxon 'is known, but there is no direct or indirect information about its current status or possible threats'. 'If the data is so uncertain that both least concern and critically endangered are plausible categories, the taxon can be assigned as data deficient'.

Part F: Thresholds for assessing commercially harvested marine fish

When considering thresholds for assessing commercially harvested marine fish, the Committee refers to the [Commonwealth Government Harvest Strategy Policy](#). This policy defines declines of up to 60% (from pre-fishing biomass levels) as acceptable for commercially harvested fish species where depletion is a managed outcome. Variations in the extent of acceptable decline depend on the biology of the individual species. The Committee is informed, but not bound, by a series of limit and target biological reference trigger points (commonly referred to as B_{lim} and B_{targ}) provided in the policy for management intervention for species that decline below 60% of their pre-fishing biomass. These interventions include listing assessments.

Part G: Guidance for assessing climate change as a threat to native species

Anthropogenic climate change is occurring at an unprecedented rate and is likely to place greater climate stresses on species than has occurred for many thousands of years. Many species are affected by climate change and respond in a range of ways. Species will respond to these stresses in a range of ways: they may remain in areas where they are able to tolerate or adapt to conditions; move to more suitable habitats where possible; or die out. Despite the widespread effects of climate change, without detail specific to the species under consideration and without some ability to quantify its likely effects, it is difficult to incorporate the threat into the assessment of the species.

Refer to the *Guidelines for Using the IUCN Red List Categories and Criteria* (IUCN 2016) for explanation of key factors for determining whether the threat posed by climate change has had, is having, or will be important to the nominated species' across the entirety of the national extent of the species range and will increase the species' vulnerability to extinction in the immediate to medium term future (i.e. 10 to 50 years). When considering if climate change is a threat to a species, some key factors to consider when determining eligibility against the criteria include time horizons for the impact, number of locations and the impact of climate change and using bioclimatic models.

A species' vulnerability to climate change will depend on a combination of biological traits, generation length, microhabitat use and behaviour, as well as its degree of exposure to climate change.

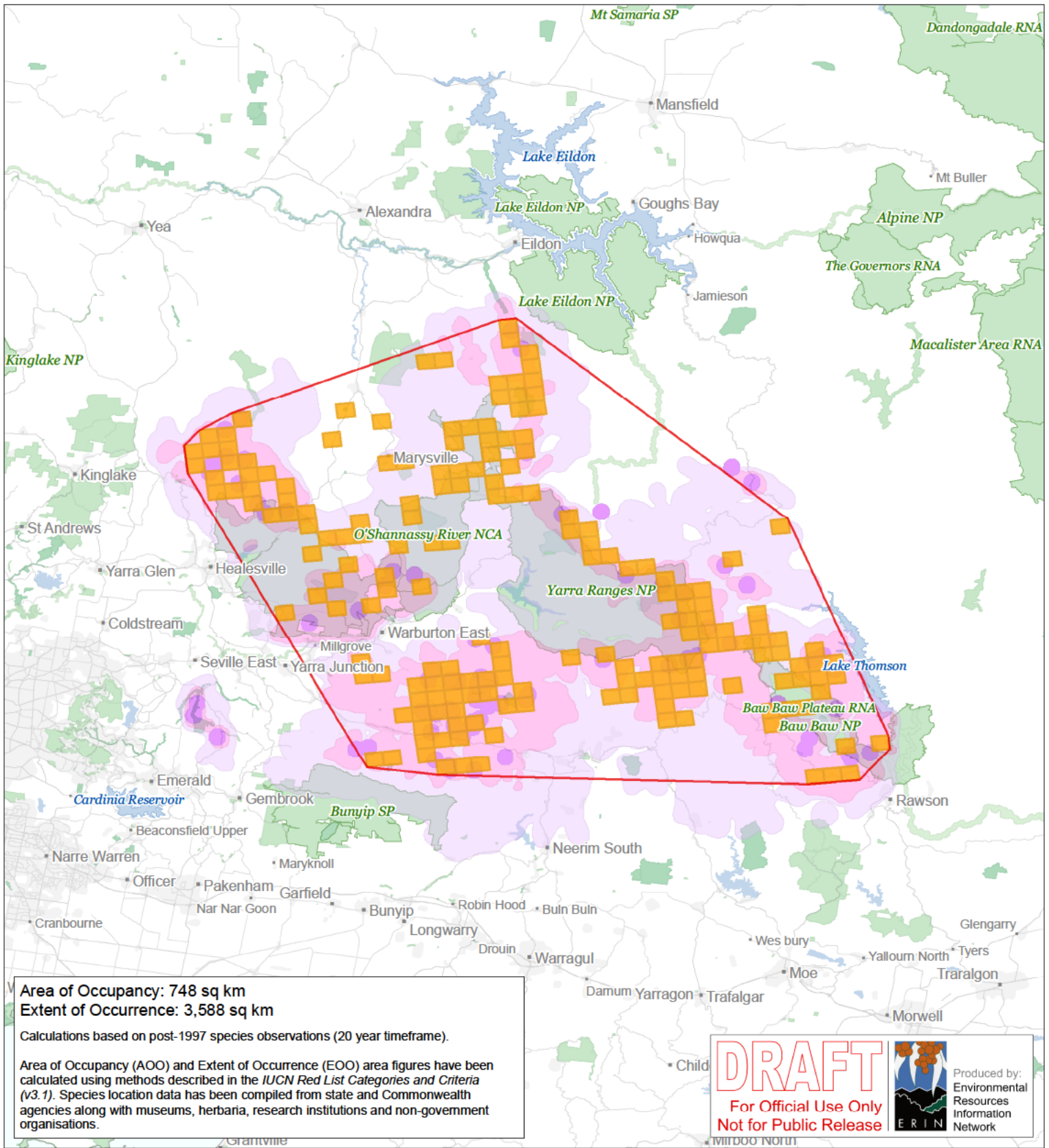
If climate change is an **important** threat to the nominated species provide **referenced** information on exactly **how** climate change might significantly increase the nominated species' vulnerability to extinction.

Please cite the climate change references that you use to argue for significant climate change impact across the national extent of the nominated species over the immediate to medium term timeframe (i.e. 10 to 50 yrs). The impact of the relevant timeframe should be linked to the generation length of the species.

References:

- Hobday AJ, Okey TA, Poloczanska ES, Kunz TJ, and Ricardson AJ (eds) (2006) Impacts of climate change on Australian marine life. Report to the Australian Greenhouse Office, Canberra, Australia
Downloadable from <http://www.australiancoralreefsociety.org/pdf/Hobday%20et%20al%202006.pdf>
- IUCN Standards and Petitions Subcommittee (2016) *Guidelines for Using the IUCN Red List Categories and Criteria. Version 12*. Prepared by the Standards and Petitions Subcommittee, IUCN, Gland.
Downloadable from <http://s3.amazonaws.com/iucnredlist-newcms/staging/public/attachments/3151/redlistguidelines.pdf>.
- Steffen W, Burbidge A, Hughes L, Kitching R, Lindenmayer D, Musgrave W, Stafford Smith M & Werner P (2009) Australia's Biodiversity and Climate Change. CSIRO Publishing.
- Steffen W, Burbidge A, Hughes L, Kitching R, Lindenmayer D, Musgrave W, Stafford Smith M & Werner P (2009). Australia's Biodiversity and Climate Change, Technical Synthesis. Technical synthesis of a report to the Natural Resource Management Ministerial Council. Department of Climate Change. Commonwealth of Australia. Downloadable from www.climatechange.gov.au/publications/biodiversity/biodiversity-climatechange.aspx

Indicative distribution of the Leadbeater's Possum (*Gymnobelideus leadbeateri*)



Area of Occupancy: 748 sq km
Extent of Occurrence: 3,588 sq km

Calculations based on post-1997 species observations (20 year timeframe).

Area of Occupancy (AOO) and Extent of Occurrence (EOO) area figures have been calculated using methods described in the *IUCN Red List Categories and Criteria (v3.1)*. Species location data has been compiled from state and Commonwealth agencies along with museums, herbaria, research institutions and non-government organisations.

DRAFT
 For Official Use Only
 Not for Public Release

Produced by:
 Environmental Resources Information Network

0 8 16 24 32 40 km
 © Copyright | Commonwealth of Australia, 2017.

Map produced by the Environmental Resources Information Network

Contextual data sources from the Department of the Environment and Energy, Geoscience Australia, and the Public Sector Mapping Agency.

Caveat The information presented in this map has been provided by a range of groups and agencies. While every effort has been made to ensure accuracy and completeness, no guarantee is given, nor responsibility taken by the Commonwealth for errors or omissions, and the Commonwealth does not accept responsibility in respect of any information or advice given in relation to, or as a consequence of, anything containing herein.

Species distribution mapping The species distribution mapping categories are indicative only and aim to capture (a) the specific habitat type or geographic feature that represents the recent observed locations of the species (known to occur), (b) the suitable or preferred habitat occurring in close proximity to these locations (likely to occur); and, (c) the broad environmental envelope or geographic region that encompasses all areas that could provide habitat for the species (may occur). These presence categories are created using an extensive database of species observation records, national and regional-scale environmental data, environmental modelling techniques and documented scientific research.

Legend

- Extent of Occurrence
- Area of Occupancy
- Species distribution mapping**
- known to occur
- likely to occur
- may occur
- Conservation Areas**
- Nature Reserve and Wilderness Area
- National Park and Habitat Protection
- Protected Landscape and Sustainable Use



THREATENED SPECIES SCIENTIFIC COMMITTEE

Meeting 67

6 – 8 March 2017, Canberra

MINUTES

Committee attendance		
Professor Helene Marsh (Chair Day 1 and 2)		
Dr Hamish Campbell	Professor Kingsley Dixon	
Ms Louise Gilfedder	Dr David Kendal	Dr Sarah Legge (Acting chair for Day 3)
Dr Nicola Mitchell	Professor Colin Simpfendorfer	

s22 - material irrelevant to scope

s22

Terrestrial Threatened Species

s22

- The Briefing for the Recovery Plan for *Gymnobelideus leadbeateri* (Leadbeater's possum) will be submitted to the Minister for decision by the end of March, following consideration of approximately 3,700 comments received during public consultation.

s22

s22

s22

Species	Common name	Nomination type	Likely listing outcome	Amount/quality of the data	Benefits of listing	Comments from States/territories regarding nomination	Complexity	Department recommendation	CAM Jurisdiction Lead - Endemic species	Proposed completion time if included on PPAL
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s22 - material irrelevant to scope

<i>Gymnobelideus leadbeateri</i>	Leadbeaters possum	Public 2017	Downlist from CR to EN under, possible criterion 1 - criterion 2, criterion 3, and VU criterion 5	Peer review data to be published. This is contingent on the availability of the detailed report on surveys undertaken subsequent to the 2015 listing decision.	conservation. This would have minor reductions in the protection for the species.		straightforward	Do not include on PPAL		30 Mar 2019
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s22

THREATENED SPECIES SCIENTIFIC COMMITTEE

Meeting 68

6 – 8 June 2017, Canberra

MINUTES

Committee attendance: Professor Helene Marsh, Dr Hamish Campbell, Professor Kingsley Dixon, Ms Louise Gilfedder, Dr David Kendal, Dr Sarah Legge, Dr Nicola Mitchell, Professor Colin Simpfendorfer

Meeting opened at 9 00 am

s22 - material irrelevant to scope

s22

s22

s22

7.6 *Gymnobelideus leadbeateri* (Leadbeater's Possum) update

- Members noted that recent media had been suggesting the up-listing of Leadbeater's possum was causing job losses at the Heyfield timber mill; however, members noted the management prescriptions in place for Leadbeater's possum, which preceded the up-listing, had not been changed by the up-listing decision.
- Members noted the Minister for Agriculture and Water Resources, the Hon Barnaby Joyce MP, wrote to the Minister requesting he review the status of Leadbeater's Possum, and offering staff from his Department to facilitate further survey work, which was declined in favour of a short-term analysis from the Victorian Government over the next months (for example, of possum density in unburnt areas), which could inform a reassessment.

- Members noted the Victorian Association of Forest Industries provided a recommendation on Leadbeater's Possum, with the Victorian Government anticipated to have a peer-reviewed report finished by April 2018. The aim of the Victorian Government report was to review survey results to date to evaluate the effectiveness of the buffer zones in conservation as well as their impact on forestry. Members noted it would be possible to have access to the data from this report, but that there was no indication at this stage when these data would be available. Members requested the report be tabled as soon as it is available for consideration.
- Members noted that there were no recommendations provided by the industry taskforce the Victorian Government had initiated.
- Members noted that Regional Forestry Agreement (RFA) reviews are underway, with the Department developing a new Regional Forestry Agreement model to better address threatened species management.
- Members noted that if the new Regional Forestry Agreement was finalised prior to the approval of the Recovery Plan for Leadbeater's Possum, the Plan would need to factor in the Agreement, which could complicate the approval of the Plan. The Department was considering the feasibility of an expedited process to approve the Recovery Plan over eight or nine months, noting that the Minister's office was waiting to receive the RFA report from Victoria before considering the Recovery Plan. Members noted that the existing Recovery Plan would remain in force until the new Recovery Plan is approved.
- Members requested a letter be sent to the Minister explaining Committee concerns about the hiatus of the Minister's decision on the Recovery Plan, and explaining the importance of the Recovery Plan informing the new Regional Forestry Agreement process. The letter should mention the Committee's decision with respect to the Proposed Priority Assessment List, and that a re-assessment, if carried out, would be a separate process to the decision to make the Recovery Plan.

The Committee:

- **noted** the update on developments around the listing status of *Gymnobelideus leadbeateri* (Leadbeater's Possum).
- **requested** a letter be drafted to the Minister as a matter of high priority, expressing the Committee's concern at the delay with the making of the Recovery Plan, and to reassure the Minister that the Plan will not have regulatory effect in the context of the current central highlands Regional Forestry Agreement; however, it will be an important source of information for the next phase of the RFA.

S22

s22

s22

From: s22
To: s22
Subject: FW: TSSC: Leadbeaters Possum - Victorian Report on buffer zones [SEC=UNCLASSIFIED]
Date: Thursday, 21 December 2017 3:40:05 PM
Attachments: @

From: TSSC Secretariat
Sent: Thursday, 10 August 2017 10:26 AM
To: EA to Chair - TSSC (JCU) (s47F);
s47F; s47F; s47F;
Colin Simpfordorfer (TSSC) (s47F); David Keith (TSSC)
(s47F); David Kendal (TSSC) (s47F); Hamish Campbell
- TSSC (s47F); Helene Marsh (TSSC)
(s47F); Kingsley Dixon (TSSC) (s47F); Louise
Gilfedder (TSSC) (s47F); Nicola Mitchell (TSSC)
(s47F); Sarah Legge (TSSC) (s47F); Stuart Bunn
(TSSC) (s47F)
Subject: TSSC: Leadbeaters Possum - Victorian Report on buffer zones [SEC=UNCLASSIFIED]

This message has been archived.

Dear Members,

You may recall that at the last meeting, the Committee requested a copy of the Victorian government's report on Leadbeater's possum. Attached is Vic report into effectiveness of

Attachments:

Independent-LBP-Review-Conservation-Benefits-Analysis.pdf	(172 KB)
Independent-Review-of-LBP-Review-Report-Industry-Costs-Analysis.pdf	(1.3 MB)
Leadbeaters-Possum-Review-Report-Jul-2017.pdf	(2.5 MB)

Independent Review Report: Assessment of the conservation benefit provided to Leadbeater's Possum by the establishment of Timber Harvesting Exclusion Zones

Publicly available:

https://www.wildlife.vic.gov.au/_data/assets/pdf_file/0025/73870/Independent-Review-of-LBP-Review-Report-Conservation-Benefits-Analysis.pdf

Independent review of the Leadbeater's possum colony – 200 m radius buffer review –
Impacts on the timber industry – Final Report

Publicly available:

https://www.wildlife.vic.gov.au/_data/assets/pdf_file/0022/74119/Independent-Review-of-LBP-Review-Report-Industry-Costs-Analysis.pdf

A review of the effectiveness and impact of establishing timber harvesting exclusion zones around Leadbeater's Possum colonies

Publicly available:

https://www.wildlife.vic.gov.au/_data/assets/pdf_file/0033/73869/eadbeaters-Possum-Review-Report-July-2017.pdf

2.2 ACTIONS ARISING TSSC69

<i>Action responsibility codes:</i>		
AAD = Australian Antarctic Division	MFSS = Marine & Freshwater Species Section	SIPS = Species Information & Policy Section
EBS = Environmental Biosecurity Section	MSS = Migratory Species Section	TTSS = Terrestrial Threatened Species Section
ECS = Ecological Communities Section	SFS = Sustainable Fisheries Section	WTA = Wildlife Trade Assessment Section

progress in bold italics; red text are item arising from the previous meeting, completed Actions are shaded in grey and removed after the meeting

Mtg item	Committee Decisions/Actions	Status	Responsibility
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s22 - material irrelevant to scope

4. CORRESPONDENCE

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68:7.6	<ul style="list-style-type: none">Members requested a letter be sent to the Minister explaining Committee concerns about delays in the Minister's decision on the Leadbeater's possum recovery plan, expressing their concern at any information that may be used to inform decision making that was not peer-reviewed, and explaining the importance of the Recovery Plan informing the new Regional Forestry Agreement process. The letter should mention the Committee's decision with respect to the Proposed Priority Assessment List.	complete	TTSS s22
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***Gymnobelideus leadbeateri* (Leadbeater's possum)**

68:7.6

- Members requested the Victorian report on Leadbeater's possum be tabled as soon as it is available for consideration.

pending

TTSS

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10. RECOVERY PLANS

s22

<i>Gymnobelideus leadbeateri</i> (Leadbeaters possum)			
65:1.4	<ul style="list-style-type: none">Members requested a presentation on the Recovery Plan for Leadbeater's Possum (<i>Gymnobelideus leadbeateri</i>) by a presenter who could explain the implications of the Regional Forest Agreements, noting the agreements were likely to be relevant to several threatened species. Update to be provided at TSSC68 (June 2017).	in progress	TTSS s22

s22

s22

Threatened Species Scientific Committee

69th Meeting: 12 – 14 September	
Agenda Item	4.1
Title	Correspondence to TSSC69
Purpose	Provide the Committee with correspondence received since TSSC68 (June 2017)
Recommendations	<ol style="list-style-type: none"> 1. Notes incoming letters from the Minister (at Item 4.1.1a). 2. Notes other incoming letters and state committee advices. 3. Notes outgoing letters (Item 4.1.2).
Index	<p>Summaries of correspondence:</p> <ul style="list-style-type: none"> • Table 1: Incoming correspondence from the Minister and other sources • Table 2: Incoming correspondence from NSW Departments and Committees • Table 3: Outgoing correspondence <p>Full correspondence:</p> <ul style="list-style-type: none"> • From the Minister • From NSW Departments and Committees • From other sources • To the Minister • Other outgoing correspondence from the Committee

s22 - material irrelevant to scope

s22

s22

Table 3: Outgoing Correspondence Summary

Date of letter	Regarding	Key message
8 June 2017	To Minister — <i>Gymnobelideus leadbeateri</i> (Leadbeater's possum)	The Chair writes to the Minister enquiring on the status of the revised national recovery plan for <i>Gymnobelideus leadbeateri</i> (Leadbeater's possum), for which the Committee finalised its consideration in December 2016.

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THREATENED SPECIES SCIENTIFIC COMMITTEE

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

The Hon Josh Frydenberg MP
Minister for the Environment and Energy
Parliament House Office
M1:17, Parliament House
CANBERRA ACT 2600

Dear Minister

On behalf of the Threatened Species Scientific Committee, I am writing to enquire on the status of the revised national recovery plan for the threatened Leadbeater's possum.

Development of the recovery plan involved extensive consultation and was undertaken over a relatively short time frame, following release of the Leadbeater's possum Action Plan in August 2015. The Committee finalised its consideration of the Leadbeater's possum recovery plan in December 2016.

We are aware that a large number of public submissions was received and these were considered in finalising the recovery plan. We are also aware of the great public interest in this species and the complexities and challenges associated with its management under the Central Highlands Regional Forest Agreement in Victoria.

Given ongoing concerns about the threatened status of the Leadbeater's possum, and its identification as a species for emergency intervention under the Threatened Species Strategy, having an up-to-date recovery plan in place as soon as practicable will be crucial in guiding collaborative conservation effort. The Committee is confident that the recovery plan, informed by the latest science, provides for those actions necessary to stop the decline, and support recovery over the long-term, of Leadbeater's possum.

I note the Committee is also currently considering a public nomination to downlist the Leadbeater's possum from critically endangered to endangered. The Committee's advice on the Proposed Priority Assessment List will be provided to you in due course.

I look forward to your advice on the timing and release of the final recovery plan.

Yours sincerely



Helene Marsh FAA FTSE
Professor
Chair

8 June 2017

s22

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THE HON JOSH FRYDENBERG MP
MINISTER FOR THE ENVIRONMENT AND ENERGY

MS17-000638

Professor Helene Marsh
Threatened Species Scientific Committee Chair
c/- Species Information & Policy Section
Department of the Environment and Energy
GPO Box 787
CANBERRA ACT 2601

Dear Professor Marsh

I refer to your letter concerning the status of the Leadbeater's possum draft recovery plan. I would like to thank the Committee for their consideration of the draft recovery plan and their expert advice provided in its drafting. I would also like to thank the Committee for their consideration of the public nomination to reassess the listing status of the Leadbeater's possum.

Given the Leadbeater's possum's iconic but highly threatened status, and the challenges of managing its habitat within the Central Highlands Regional Forest Agreement area, there is significant community interest in the species and its conservation as you are well aware. I am therefore particularly interested in new data that have been collected over the past three years which could provide us with a better understanding of the species' status and therefore better inform its long term conservation.

A major source of new information is the work undertaken by the Victorian Government over the past three years, including extensive targeted surveys for Leadbeater's possum across all tenures, as part of its commitment to implement their 2013 Leadbeater's Possum Advisory Group recommendations. This set of data are now available to the Department with the recent release on 11 July 2017 of 'A review of the effectiveness and impact of establishing timber harvesting exclusion zones around Leadbeater's Possum colonies' by Victoria.

In light of this new information, I have decided to add the Leadbeater's possum nomination to the 2017 Finalised Priority Assessment List for assessment, and to also delay my consideration of the draft recovery plan. I acknowledge the significant work undertaken in the drafting of the plan and don't want to unduly delay my consideration of it. I have therefore set a short timeframe of March 2018 for completion of the listing assessment during which I also ask the Committee to consider whether the new information now available necessitates updating of the recovery plan.

Thank you for writing on this matter.

Yours sincerely

A handwritten signature in black ink, appearing to be 'J. Frydenberg', written over a horizontal line.

JOSH FRYDENBERG

Threatened Species Scientific Committee

69 th Meeting: 12 – 14 September 2017	
Agenda Item	3
Title	TSSC Work plans
Purpose	NOTE: The progress of statutory assessments.
Recommendations	1. notes decisions by the Minister since June 2017. 2. notes the progress of the assessments. 3. discusses the usefulness of the work plan document and/or whether improvements could be made
Attachments	<u>Item 3.1</u> Progress report <u>Item 3.2</u> Statutory work plan

Considerations

1. All work plans under this item have been updated since the previous meeting.
2. All assessments are being progressed within the statutory timeframes.

Decisions since TSSC68 (June 2017)

3. The Minister has made the following determination on the Finalised Priority Assessment List (FPAL) for the assessment period commencing 1 October 2017:

s22 - material irrelevant to scope

- Added *Gymnobelideus leadbeateri* (Leadbeater's possum) to the FPAL, with a completion deadline of 30 March 2018.

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STATUTORY WORK PLAN – TSSC69

Key:

Grey shading indicates that the Minister has made a decision and the assessment is finalised

Red highlighting indicates that the assessment or plan is overdue.

Yellow highlighting – indicates that the assessment or plan is due to the Minister in the next 6 months.

Red text indicates new information since the previous meeting.

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Table 4 Outstanding species assessments (on FPAL) – this table is arranged by completion date and species name

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<i>Gymnobelideus leadbeateri</i> (Leadbeater's possum)	2017	30 Mar 18	Public				Minister added this species to the 2017 FPAL
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THREATENED SPECIES SCIENTIFIC COMMITTEE

Meeting 69

12 – 14 September 2017, Canberra

MINUTES

Committee attendance: Professor Helene Marsh, Dr Hamish Campbell, Professor Kingsley Dixon, Ms Louise Gilfedder, Dr David Kendal, Dr Sarah Legge, Dr Nicola Mitchell, Professor Colin Simpfendorfer

Meeting opened at 9.30 am

s22 - material irrelevant to scope



s22

1.4 Assistant Secretary and Directors' Update

- The Assistant Secretary advised the members about decisions by the Minister in August:
 - 2017 Finalised Priority Assessment List: The Minister accepted the 2017 Proposed Priority Assessment list with two changes: s22 [REDACTED] and including *Gymnobelideus leadbeateri* (Leadbeater's possum) for re-assessment, with a short timeframe of 30 March 2018

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s22

Species Policy and Information

- Members noted the out session agreement to include s22 s22, along with the set of 26 legacy species previously recommended for addition to the 2016 PPAL. Including the Minister's addition of *Gymnobelideus leadbeateri* (Leadbeaters possum), the PPAL totalled 84 species and three ecological communities. The Minister agreed to the assessment timeframe extensions proposed, and the 2017 FPAL was published on the Department's website on 11 September.

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4. CORRESPONDENCE

4.1 Correspondence since TSSC68

- The Secretariat outlined correspondence received since TSSC68.
- Members noted that since the correspondence paper had been finalised, the Secretariat had received the Minister's letter to the Committee advising of his decision to accept the Committee's proposed priorities for the 2017 FPAL, with the addition of Leadbeater's possum (with a completion timeframe of 30 March 2018) s22 [REDACTED]. Members noted the s22 [REDACTED] FPAL letter would be included in the correspondence to TSSC70.

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7. SPECIES

Other

7.1 Update on *Gymnobelideus leadbeateri* (Leadbeater's possum)

- Members noted that survey data for Leadbeater's possum were available based on two years of field collection by the Victorian government, with further data on a third year of surveying pending.
- Members noted that the Minister had spoken to the Victorian Minister, who had noted additional federal support would be appreciated to undertake further research. Members noted that any data from further surveys would not be available in time to be included in the Committee's reassessment of the possum, due by 30 March 2018.
- Members noted recent radio tracking data by Professor David Lindenmayer (ANU) suggests that the possums move further than modelling has previously indicated. Members noted a dataset may be available on the Long Term Ecological Research Network (LTERN) data portal.
- Members noted that work was underway to finalise the renewal of the Regional Forestry Agreements for Central Highland and Gippsland (due March 2018).

The Committee:

- **noted** the update provided by the Department with regard to *Gymnobelideus leadbeateri* (Leadbeater's possum)

s22

s22

From: [Marsh, Helene](#)
To: s22
Subject: FW: Leadbeaters
Date: Tuesday, 3 October 2017 6:44:39 PM
Attachments: [The Leadbeater"s Possum Review August 2017.pdf](#)

From: sarah legge [mailto:s47F]
Sent: Tuesday, 19 September 2017 10:32 AM
To: 'David Keith' <s47F >; Marsh, Helene <s47F >
Subject: RE: Leadbeaters

Hi Helene, David

I passed the ANU report (attached) to s22 last week; they knew it was in the pipelines. It's available online too, I believe.

S

From: David Keith [mailto:s47F]
Sent: Tuesday, 19 September 2017 10:24 AM
To: Marsh, Helene <s47F >
Cc: Sarah Legge <s47F >
Subject: Leadbeaters

Hi Helene,

Last meeting we discussed the possibility of new information on the status of Leadbeaters possum becoming available from additional sources. There does seem to be some relevant work from ANU that has been completed since the last assessment. The Department might be aware of this already, but it's probably worth checking whether they can access it for consideration or whether they have already contacted ANU seeking new information.

cheers

David

The Leadbeater's Possum Review – ANU

Publicly available: https://fennergchool-associated.anu.edu.au/documents/Leadbeater_Pos_Rev_Aug_2017.pdf

Threatened Species Scientific Committee

TSSC70: 20 – 21 November	
Agenda Item	4.1
Title	Correspondence to TSSC70
Purpose	Provide the Committee with correspondence received since TSSC69 (September 2017)
Recommendations	<ol style="list-style-type: none"> 1. Notes incoming letters from the Minister (at Item 4.1.1a). 2. Notes other incoming letters and state committee advices. 3. Notes outgoing letters (Item 4.1.2).
Index	<p>Summaries of correspondence:</p> <ul style="list-style-type: none"> • Table 1: Incoming correspondence from the Minister and other sources • Table 2: Incoming correspondence from NSW Departments and Committees • Table 3: Outgoing correspondence <p>Full correspondence:</p> <ul style="list-style-type: none"> • From the Minister • From NSW Departments and Committees • From other sources • To the Minister • Other outgoing correspondence from the Committee

s22 - material irrelevant to scope

s22



THE HON JOSH FRYDENBERG MP
MINISTER FOR THE ENVIRONMENT AND ENERGY

MS17-001184

Professor Helene Marsh
Threatened Species Scientific Committee Chair
c/- Species Information & Policy Section
Department of the Environment and Energy
GPO Box 787
CANBERRA ACT 2601

Dear Professor Marsh

Thank you for the Threatened Species Scientific Committee's Proposed Priority Assessment list of species, ecological communities and key threatening processes under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) for the assessment period commencing 1 October 2017.

I note the Committee's reasoning behind the inclusion and exclusion of species, ecological communities and key threatening processes on the proposed list. I have accepted the Committee's recommendations on the species and ecological communities to be included on the Finalised Priority Assessment List. I have amended the Committee's proposed list to include *Gymnobelideus leadbeateri* (Leadbeater's possum) as a priority for assessment, with an assessment completion time of 30 March 2018.

s22

I look forward to receiving your advice on these assessments in due course.

Yours sincerely


A handwritten signature in blue ink, appearing to be 'J. Frydenberg', written over a light blue horizontal line.

JOSH FRYDENBERG

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Threatened Species Scientific Committee

TSSC70: 20 – 21 November 2017	
Agenda Item	6.11
Title	Addition of species to the 2017 Finalised Priority Assessment List
Purpose	Review capacity and consider adding further species to the 2017 FPAL.
Recommendations	1. Agrees to include a further two species to the 2017 Finalised Priority Assessment List.
Previous Committee Consideration	TSSC68 Item 6.1: 2017 Proposed Priority Assessment List TSSC69 Item 7.2: New Common Assessment Method (CAM) endemic legacy species assessments
Next Steps for the Committee	Consider assessments for species included in the FPAL.
Attachments	 For reference <u>Item 6.11.1</u> Updated capacity calculator <u>Item 6.11.2</u> Cross-jurisdictional freshwater species priorities identified through consultation with the states and territories <u>Item 6.11.3</u> Summary of the EPBC Act listing changes arising from the draft IUCN Squamate Assessment

Issues

Development of the 2017 priority list

s22 - material irrelevant to scope

- The Minister subsequently removed the proposed key threatening process assessment from the PPAL, and added *Gymnobelideus leadbeateri* (Leadbeater's Possum).

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Item 6.11.1 Updated capacity calculator

Number of species	Estimated 'effort units' per species	Total 'effort units' per row	Subtotal for each group	Subtotals
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Public nominations

s22

Leadbeater's possum added by the Minister (led by PSCB)

1

1.00

1.00

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