



Consultation Document on Listing Eligibility and Conservation Actions

***Melithreptus brevirostris magnirostris* (Kangaroo Island Brown-headed Honeyeater)**

You are invited to provide your views and supporting reasons related to:

- 1) the eligibility of *Melithreptus brevirostris magnirostris* (Kangaroo Island Brown-headed Honeyeater) for inclusion on the EPBC Act threatened species list in the Endangered category; and
- 2) the necessary conservation actions for the above species.

Evidence provided by experts, stakeholders and the general public are welcome. Responses can be provided by any interested person.

Anyone may nominate a native species, ecological community or threatening process for listing under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) or for a transfer of an item already on the list to a new listing category. The Threatened Species Scientific Committee (the Committee) undertakes the assessment of species to determine eligibility for inclusion in the list of threatened species and provides its recommendation to the Australian Government Minister for the Environment.

Responses are to be provided in writing either by email to:
species.consultation@environment.gov.au

or by mail to:

The Director
Migratory Species Section
Biodiversity Conservation Division
Department of Agriculture, Water and the Environment
PO Box 858
Canberra ACT 2601

Responses are required to be submitted by 2 July 2021.

Contents of this information package	Page
General background information about listing threatened species	2
Information about this consultation process	3
Draft information about the Kangaroo Island Brown-headed Honeyeater and its eligibility for listing	4
Conservation actions for the species	13
References cited	15
Collective list of questions – your views	25

General background information about listing threatened species

The Australian Government helps protect species at risk of extinction by listing them as threatened under Part 13 of the EPBC Act. Once listed under the EPBC Act, the species becomes a Matter of National Environmental Significance (MNES) and must be protected from significant impacts through the assessment and approval provisions of the EPBC Act. More information about threatened species is available on the department's website at: <http://www.environment.gov.au/biodiversity/threatened/index.html>.

Public nominations to list threatened species under the EPBC Act are received annually by the Department. In order to determine if a species is eligible for listing as threatened under the EPBC Act, the Threatened Species Scientific Committee (the Committee) undertakes a rigorous scientific assessment of its status to determine if the species is eligible for listing against a set of criteria. These criteria are available on the Department's website at: <http://www.environment.gov.au/system/files/pages/d72dfd1a-f0d8-4699-8d43-5d95bbb02428/files/tssc-guidelines-assessing-species-2018.pdf>.

As part of the assessment process, the Committee consults with the public and stakeholders to obtain specific details about the species, as well as advice on what conservation actions might be appropriate. Information provided through the consultation process is considered by the Committee in its assessment. The Committee provides its advice on the assessment (together with comments received) to the Minister regarding the eligibility of the species for listing under a particular category and what conservation actions might be appropriate. The Minister decides to add, or not to add, the species to the list of threatened species under the EPBC Act. More detailed information about the listing process is at: <http://www.environment.gov.au/biodiversity/threatened/nominations.html>.

To promote the recovery of listed threatened species and ecological communities, conservation advices and where required, recovery plans are made or adopted in accordance with Part 13 of the EPBC Act. Conservation advices provide guidance at the time of listing on known threats and priority recovery actions that can be undertaken at a local and regional level. Recovery plans describe key threats and identify specific recovery actions that can be undertaken to enable recovery activities to occur within a planned and logical national framework. Information about recovery plans is available on the Department's website at: <http://www.environment.gov.au/biodiversity/threatened/recovery.html>.

Privacy notice

The Department will collect, use, store and disclose the personal information you provide in a manner consistent with the Department's obligations under the Privacy Act 1988 (Cth) and the Department's Privacy Policy.

Any personal information that you provide within, or in addition to, your comments in the threatened species assessment process may be used by the Department for the purposes of its functions relating to threatened species assessments, including contacting you if we have any questions about your comments in the future.

Further, the Commonwealth, State and Territory governments have agreed to share threatened species assessment documentation (including comments) to ensure that all States and Territories have access to the same documentation when making a decision on the status of a potentially threatened species. This is also known as the '[common assessment method](#)'. As a result, any personal information that you have provided in connection with your comments may be shared between Commonwealth, State or Territory government entities to assist with their assessment processes.

The Department's Privacy Policy contains details about how respondents may access and make corrections to personal information that the Department holds about the respondent, how respondents may make a complaint about a breach of an Australian Privacy Principle, and how the Department will deal with that complaint. A copy of the Department's Privacy Policy is available at: <http://environment.gov.au/privacy-policy> .

Information about this consultation process

Responses to this consultation can be provided electronically or in hard copy to the contact addresses provided on Page 1. All responses received will be provided in full to the Committee and then to the Australian Government Minister for the Environment.

In providing comments, please provide references to published data where possible. Should the Committee use the information you provide in formulating its advice, the information will be attributed to you and referenced as a 'personal communication' unless you provide references or otherwise attribute this information (please specify if your organisation requires that this information is attributed to your organisation instead of yourself). The final advice by the Committee will be published on the department's website following the listing decision by the Minister.

Information provided through consultation may be subject to freedom of information legislation and court processes. It is also important to note that under the EPBC Act, the deliberations and recommendations of the Committee are confidential until the Minister has made a final decision on the nomination, unless otherwise determined by the Minister.

Consultation document for *Melithreptus brevirostris magnirostris* (Kangaroo Island Brown-headed Honeyeater)

Conservation status

Melithreptus brevirostris magnirostris is being assessed by the Threatened Species Scientific Committee to be eligible for listing under the EPBC Act. The Committee's preliminary assessment is at Attachment A. The Committee's preliminary assessment of the subspecies' eligibility against each of the listing criteria is:

- Criterion 1: A2c: Endangered
- Criterion 2: Not eligible
- Criterion 3: Not eligible
- Criterion 4: Not eligible
- Criterion 5: Insufficient data

The main factor that appears to make the subspecies eligible for listing in the Endangered category is that the population has declined by 50–80 percent in the last ten years (one generation 2.8 years) (Bird et al. 2020; Paton et al. 2021). This major reduction in population was largely caused by the 2019/2020 wildfires on Kangaroo Island, though decreases were also projected prior to 2012 (Paton et al. 2021). The Kangaroo Island Brown-headed Honeyeater's extent of occurrence (EOO) is estimated to be stable (5,300 km²), however the area of occupancy (AOO) has contracted to 1,420 km². There are estimated to be 51,000 mature individuals in the wild with a declining trend (high reliability) (Paton et al. 2021).

Analysis by the Wildlife and Threatened Species Bushfire Recovery Expert Panel, based on intersecting the modelled distribution of the Kangaroo Island Brown-headed Honeyeater and the National Indicative Aggregated Fire Extent Dataset, indicates that 65 percent of the range of the subspecies was within the extent of the 2019/20 bushfires (Legge et al. 2020). Further analysis of the severity and nature of the impacts of the fires on Kangaroo Island Brown-headed Honeyeater is underway by the Threatened Species Recovery Hub of the National Environmental Science Program and other organisations. The Threatened Species Scientific Committee will update the description of the fire impacts in this Conservation Advice to incorporate the latest evidence, prior to providing the assessment of this subspecies to the Minister for the Environment.

Species can also be listed as threatened under state and territory legislation. For information on the current listing status of this subspecies under relevant state or territory legislation, see the [Species Profile and Threat Database](#).

Species information

Taxonomy

The subspecies is conventionally accepted as *Melithreptus brevirostris magnirostris* (North 1905).

Melithreptus brevirostris is a polytypic species consisting of five subspecies. The subspecies *M. b. magnirostris* is endemic to Kangaroo Island, South Australia. The nominate subspecies *brevirostris* is endemic to coastal south-east Australia and the Great Divide. Its range extends from the NSW – Qld Border, southwest to the Bassian Plains of Victoria and South Australia, and to the eastern fringes of the Murray-Darling Basin. The subspecies *pallidiceps* occurs in the central and eastern Murray-Darling Basin from the Dawson River in Queensland, to the Coorong in South Australia and to the gulfs of eastern South Australia. The subspecies *leucogenys* is endemic to the Eyre Peninsula and Western Australia. Subspecies *wombeyi* is endemic to the Otway peninsular and Strzelecki Range through to Wilsons Promontory, Victoria.

Description

Kangaroo Island Brown-headed Honeyeaters are similar in appearance to the nominate subspecies *brevirostris*; however, they are slightly larger and have a noticeably longer bill (Higgins et al. 2001). Adult male and female Kangaroo Island Brown-headed Honeyeaters differ in size, with females being slightly smaller than males. There is no seasonal variation in appearance (Higgins et al. 2001).

Kangaroo Island Brown-headed Honeyeaters are approximately 13 cm long, have a wing length between 7.3–7.5 cm, and weigh around 14 g. Their tail is approximately 6 cm long and their bill is approximately 1.7 cm long (Higgins et al. 2001). Brown-headed Honeyeaters are a small, plain honeyeater. Adults are dull olive-green above, with a brighter rump and uppertail coverts. Their underparts are buff-white with a pale-yellow rufous wash. The subspecies has a brown head with a buff crescent across the nape. This nape band is not as prominent as that of the nominate subspecies (Higgins et al. 2001). The chin and throat of the Kangaroo Island subspecies is off-white. The underwing is brown. The bill is black, and the feet and legs are brown. The area surrounding the eye is a creamy-yellow colour. The Kangaroo Island subspecies' cap appears a darker grey-brown colour (Higgins et al. 2001).

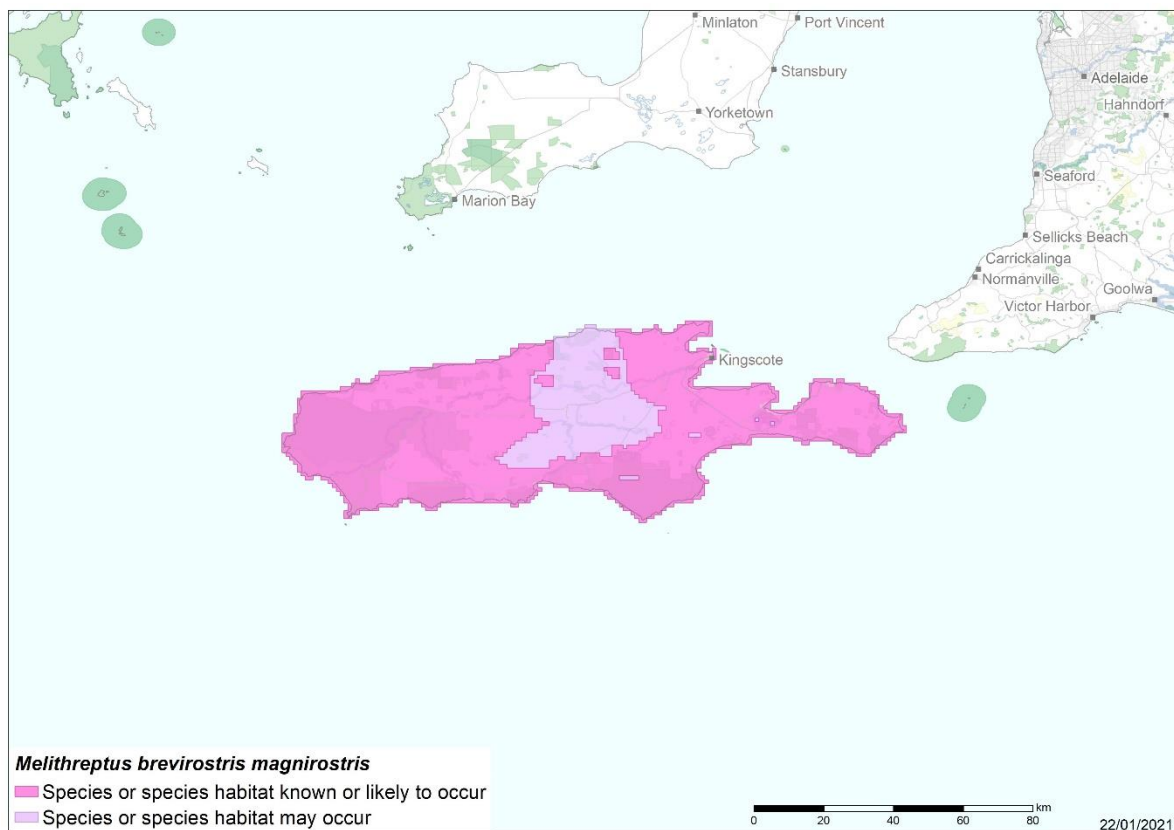
Juveniles differ slightly from adults. The crescent on the nape is initially inconspicuous and is usually only visible on the side of the juvenile's head. The secondaries of the upperwing tend to have light-olive edges and the bill tends to be a light orange-yellow colour with a dark-brown tip (Higgins et al. 2001).

Distribution

The subspecies is endemic to Kangaroo Island, South Australia. It mainly inhabits temperate and semi-arid open assemblages, especially those dominated by eucalypts (Higgins et al. 2001). Dry sclerophyll forests dominated by box, ironbark, stringybark, red gums or mana gum support the highest densities of the subspecies. Areas with *Acacia*, *Banksia* or *Callitris* understories are also thought to support a high density of the subspecies (Higgins et al. 2001).

There is insufficient information available to describe the distribution in more detail. Further surveys and monitoring programs are required to assess the area of occupancy, population size and trend of the subspecies post 2019/2020 bushfires.

Map 1 Modelled distribution of Kangaroo Island Brown-headed Honeyeater



Source: Base map Geoscience Australia; species distribution data [Species of National Environmental Significance](#) database.

Cultural and community significance

The lands and waters of and around Kangaroo Island are of high cultural and spiritual significance to a number of Aboriginal Nations, particularly the Ramindjeri, Ngarrindjeri, Kaurana and Narungga, and all have cultural stories associated with the Island. The cultural and community significance of the subspecies is not known. Further research into the subject area may benefit the conservation of the subspecies by providing insights about traditional culture and land management.

Relevant biology and ecology

Kangaroo Island Brown-headed Honeyeater are endemic to Kangaroo Island, South Australia. Within the confines of the island, Robinson & Kemper (N.D.) recorded the subspecies at 26 distinct survey sites. These sites primarily consisted of areas of low eucalypt woodland and mallee with a heathy understory. Sites were occasionally defined by areas of *Banksia marginata* and *E. cneorifolia* open scrub.

The Kangaroo Island Brown-headed Honeyeater has a significantly longer beak and wings and is typically heavier than the nominate mainland subspecies. It is suggested that these physiological differences were developed because of an increased amount of bark-feeding by the Kangaroo Island subspecies, which is more insectivorous than nectivorous (Ford 1977). Approximately 65 percent of the subspecies' diet consists of insects, and only 35 percent consists of nectar (Higgins et al. 2001). Foraging activities are mainly arboreal, occurring in the canopy of woodland, forests and shrublands. Occasionally feeding activities will occur in the mid-story or understory.

Feeding mainly takes place within eucalypts, especially mature trees, but occasionally will take place in banksias and acacias.

Roosting takes place at night within the canopy of eucalypts. Roosting tends to occur within groups, wherein members roost side-by-side, touching one other and facing outwards in different directions. Adults take outer positions within these roosting assemblages, with juveniles protected within the groupings (Noske 1983, 1985).

There is limited breeding information for the subspecies. They are thought to breed between August and late-January, with eggs laid between September and October (Higgins et al. 2001). Clutches of three, or sometimes two, are typical. Incubation activities are carried out by both sexes, and occasionally by helpers. Feeding of the incubating female is conducted by the whole roosting group. Nests tend to be built within the outer foliage of trees and tall shrubs. This usually occurs within eucalypts, but has also been recorded within paperbarks, acacias, native pines, and Monterey Pines (Higgins et al. 2001). Nests are made of strips of stringybark or grass woven together with hair, fur, wool, and spider web.

Kangaroo Island Brown-headed Honeyeaters are thought to move locally within large home ranges (Higgins et al. 2001). Such movements seem to be in response to changing food availability within areas. Despite the nominate subspecies being described as nomadic in many parts of its range, the Kangaroo Island subspecies is considered resident (Higgins et al. 2001), as it is recorded within the confines of Kangaroo Island year-round.

Habitat critical to the survival

Kangaroo Island Brown-headed Honeyeater's extent of occurrence is confined entirely within Kangaroo Island. The subspecies' specific habitat requirements are areas of low eucalypt woodland and mallee with a heathy understory. A small number of sites are defined by areas of *Banksia marginata* and *E. cneorifolia* open scrub.

Although the basic habitat requirements of the Kangaroo Island Brown-headed Honeyeater have been identified, further study is required to produce a clear, comprehensive definition of habitat critical to survival of the subspecies. For the purpose of this Conservation Advice, all known occupied areas and suitable habitats within the known range of the subspecies could be considered as habitat critical to the survival. Areas that are not currently occupied by the subspecies because they have been burnt (either during the 2019/20, or in future fires), but should become suitable again in the future, should also be considered habitat critical to survival.

Additionally, the whole of Kangaroo Island has been identified as a Key Biodiversity Area (KBA) (BirdLife International 2020), guided by the KBA Standard (IUCN 2016). Although this subspecies has not been identified as a KBA trigger species, conservation actions implemented would likely benefit other already threatened species (e.g., Kangaroo Island Glossy Black-cockatoo *Calyptorhynchus lathami halmaturinus*) and other species with similar ecological needs (e.g., Kangaroo Island White-eared Honeyeater *Nesoptilotis leucotis thomasi*) which were also affected by the 2019/2020 bushfires.

No Critical Habitat defined under section 207A of the EPBC Act has been identified or included in the Register of Critical Habitat.

Important populations

Kangaroo Island Brown-headed Honeyeater form a single, homogenous breeding population across Kangaroo Island. Owing to the small number of mature individuals and the significant declines in total numbers, all individuals in the population should be considered important for the subspecies' long-term survival and recovery.

Threats

One of the most significant threats to Kangaroo Island Brown-headed Honeyeater is the loss of suitable habitat by processes such as wildfire. Following the 2019/20 bushfires, burnt area on Kangaroo Island covered 210,606 hectares, affecting almost half of the island (Boulton et al. 2020; Government of South Australia 2020). It is suspected that large portions of the subspecies' habitat were either completely lost or severely degraded. The subspecies is now likely to suffer from increased habitat degradation by pest animals, intensified edge effects, and invasive weeds.

Climate change associated alterations to weather systems, and an increased frequency of extreme weather events also poses a considerable risk to Kangaroo Island Brown-headed Honeyeater. The cumulative effects of climate change have led to a continuing increase in the likelihood of heatwaves, droughts, and intense bushfires. These alterations to weather systems will have innumerable additional effects on ecological functioning and will likely result in increased heat-related illness and mortality rates within Kangaroo Island Brown-headed Honeyeater populations.

Table 1 Threats impacting Kangaroo Island Brown-headed Honeyeater

Threat	Status and severity ^a	Evidence
Fire		
Increase in frequency and/or intensity of wildfires	Status: historical/current Confidence: known Consequence: severe Trend: increasing Extent: across the entire range	The 2019/20 bushfires had a catastrophic impact on Australian fauna and flora. Burnt area on Kangaroo Island covered 210,606 hectares, affecting almost half of the island (Boulton et al. 2020; Government of South Australia 2020). Initial fire mapping has indicated that many bird species have lost major proportions of their habitat on Kangaroo Island (Boulton et al. 2020). The full extent of impact on Kangaroo Island Brown-headed Honeyeater is currently unclear, but preliminary population decline estimates from surveys carried out one year after the fires indicate declines of approximately 48 percent (Paton et al. 2021). The cumulative effects of climate change have contributed to an increase in the likelihood of intense bushfires in South Australia (BOM 2010, 2018; Government of South Australia 2015, 2020).
Climate change		
Increased likelihood of extreme events (i.e.,	<ul style="list-style-type: none"> Status: current/future 	In the Kangaroo Island NRM region average temperatures are projected

wildfire, heatwave, and drought)	<ul style="list-style-type: none"> • Confidence: inferred • Consequence: severe • Trend: increasing • Extent: across the entire range 	<p>to increase by 1.6–3.5 degrees Celsius by 2070. Annual rainfall in South Australia is projected to decline by 7.5 to 8.9 by 2050, and 7.9 to 12.5 percent by 2070 (Resilient Hills and Coasts 2016). Within the Kangaroo Island region, rainfall is projected to decrease by up to 30 percent by 2070 (Government of South Australia 2015).</p> <p>The cumulative effects of climate change are contributing to a continued increase the likelihood of extreme events such as heatwaves, droughts, and more intense bushfires (BOM 2010, 2018; Government of South Australia 2015, 2020). These could contribute to increased heat-related illness and mortality rates within Kangaroo Island Brown-headed Honeyeater populations. Increasing temperatures and decreasing rainfall are also likely to degrade the habitats of native plants and animals and improve conditions for some pest animals and weeds. These climate anomalies may have detrimental impacts to Kangaroo Island Brown-headed Honeyeater and their habitats.</p>
Habitat loss, degradation and modification		
<i>Phytophthora cinnamomi</i> induced diebacks	<ul style="list-style-type: none"> • Status: current • Confidence: suspected • Consequence: moderate • Trend: static • Extent: across the entire range 	<p>Kangaroo Island is particularly vulnerable to <i>P. cinnamomi</i> because of the ideal climatic conditions on the island (i.e., warm and wet winters, dry summer; Burgess et al. 2016). <i>P. cinnamomi</i> infects a wide range of native plants, altering their structural and floristic characteristics (Commonwealth of Australia 2018a, Hardham and Blackman 2018). This is potentially threatening because of its capacity to cause widespread dieback, and consequently reduce suitable habitat for Kangaroo Island Brown-headed Honeyeaters.</p>
Invasive weeds	<ul style="list-style-type: none"> • Status: current • Confidence: known • Consequence: low • Trend: increasing • Extent: across the entire range 	<p>Invasive weeds are a potential minor threat as they can change the availability of resources, reducing the quality of habitat (French & Zubovic 1997). Additionally, due to the flammable nature of some weeds (e.g., gorse <i>Ulex europaeus</i>), the risk and severity of wildfire is also increased (Invasive Plants and Animals Committee 2016).</p>
Invasive species (including threats from grazing, trampling, predation)		
Pest animals (i.e., pigs and peafowl)	<ul style="list-style-type: none"> • Status: current • Confidence: known • Consequence: moderate • Trend: decreasing 	<p>Pest animals pose a considerable threat to the native avifauna of Kangaroo Island as they cause widespread habitat degradation and increase competition for resources.</p>

	<ul style="list-style-type: none"> • Extent: across the entire range 	<p>In 2007, approximately 80 percent of agricultural businesses within the Kangaroo Island NRM region reported pest animal problems and resultantly implemented pest animal control activities (Government of South Australia 2015).</p> <p>The major pests currently on Kangaroo Island are feral pig (<i>Sus scrofa</i>) and the Peafowl (<i>Pavo cristatus</i>). Feral pigs cause habitat degradation through grazing, trampling, and digging. They may also spread the plant pathogen <i>Phytophthora cinnamomi</i> which can cause severe diebacks of native vegetation (Commonwealth of Australia 2017a).</p> <p>The impacts of peafowl are not well studied. Their pest status primarily originates from the species' tendency to feed on agricultural crops and pasture, impacting livestock. They are also susceptible to diseases and parasites, which could spread to native bird species (Latham 2011). Cunningham et al. (2016) modelled peafowl population sizes on Kangaroo Island and indicated that unmanaged peafowl populations on the island could exceed 2000 individuals after 10 years. Therefore, it is important for management actions to be in place.</p>
<p>Predation by cats</p>	<ul style="list-style-type: none"> • Status: current • Confidence: inferred • Consequence: low • Trend: static • Extent: across the entire range 	<p>Predation by feral cats (<i>Felis catus</i>) may be a threat to the Kangaroo Island Brown-headed Honeyeater (Woinarski et al. 2017). Kangaroo Island has a higher average density of feral cats than the mainland, with a total of around 1600 individuals on the island (Taggart et al. 2019; Hohnen et al. 2020). A large proportion of these feral cats are thought to have perished during the 2019/20 wildfire event. However, predation impacts on surviving wildlife could still be higher post-fire, and cat populations are likely to recovery over time.</p> <p>Management actions to control feral cats are in place. Current goals aim to eradicate feral cats from Kangaroo Island by 2030 (Kangaroo Island Landscape Board 2015).</p>

Status—identify the temporal nature of the threat;

Confidence—identify the extent to which we have confidence about the impact of the threat on the species;

Consequence—identify the severity of the threat;

Trend—identify the extent to which it will continue to operate on the species;

Extent—identify its spatial content in terms of the range of the species.

Each threat has been described in Table 1 in terms of the extent that it is operating on the species. The risk matrix (Table 3) provides a visual depiction of the level of risk being imposed by a threat and supports the prioritisation of subsequent management and conservation actions. In preparing a risk matrix, several factors have been taken into consideration, they are: the life stage they affect; the duration of the impact; and the efficacy of current management regimes, assuming that management will continue to be applied appropriately (Table 2). The risk matrix (Table 3) and ranking of threats has been developed in consultation with experts, community consultation and by using available literature.

Table 2 Risk prioritisation

Likelihood	Consequences				
	Not significant	Minor	Moderate	Major	Catastrophic
Almost certain	Low risk	Moderate risk	Very high risk	Very high risk	Very high risk
Likely	Low risk	Moderate risk	High risk	Very high risk	Very high risk
Possible	Low risk	Moderate risk	High risk	Very high risk	Very high risk
Unlikely	Low risk	Low risk	Moderate risk	High risk	Very high risk
Unknown	Low risk	Low risk	Moderate risk	High risk	Very high risk

Categories for likelihood are defined as follows:

Almost certain – expected to occur every year

Likely – expected to occur at least once every five years

Possible – might occur at some time

Unlikely – such events are known to have occurred on a worldwide basis but only a few times

Rare or Unknown – may occur only in exceptional circumstances; OR it is currently unknown how often the incident will occur

Categories for consequences are defined as follows:

Not significant – no long-term effect on individuals or populations

Minor – individuals are adversely affected but no effect at population level

Moderate – population recovery stalls or reduces

Major – population decreases

Catastrophic – population extinction

Table 3 Kangaroo Island Brown-headed Honeyeater risk matrix

Likelihood	Consequences				
	Not significant	Minor	Moderate	Major	Catastrophic
Almost certain	Predation by cats			Climate change	Wildfire
Likely		Invasive weeds	Pest animals <i>P. cinnamomi</i> induced diebacks		
Possible					
Unlikely					
Unknown					

Priority actions have then been developed to manage the threat particularly where the risk was deemed to be 'very high' or 'high'. For those threats with an unknown or low risk outcome it may be more appropriate to identify further research or maintain a watching brief.

Conservation and recovery actions

Primary conservation outcome

- Increase the population size of Brown-headed Honeyeater to estimated pre-2020 levels.

Conservation and management priorities

Wildfire

- Fire management protocols in place to prevent fires affecting more than 25 percent of the population per decade.
- Develop approaches to stop fire on hot, windy days.
- Actively manage the landscape to minimise the risk of very large wildfires, particularly of very large high intensity wildfires.
- Develop a site-based fire management strategy with local authorities which considers the ecological needs of the subspecies.
- Monitor bushfire-affected areas to assess the impact of wildfire on the subspecies and their habitats, and the capacity of the subspecies to recover from such events.
- Minimise or avoid burning unburnt areas within or adjacent to recently burnt ground that may provide refuge, until the burnt areas have recovered sufficiently to support the subspecies once again.

Climate change

- Use climate modelling techniques to investigate the potential impact of climate change on the subspecies and their habitat critical for survival. For example, examining the likely reduction in inter-fire intervals and comparing that with the recovery rates of Brown-headed Honeyeater populations, would be valuable.

Pest animals

- Assess the impact of pest animals on the subspecies and its habitats, and the effectiveness of current control programs (e.g., Threat Abatement Plan addressing habitat degradation, competition and disease transmission by feral pigs), and incorporate new knowledge into management interventions.
- Investigate the impacts of peafowl have on the subspecies and its habitat.

P. cinnamomi and invasive weeds

- Consult with local authorities to determine the appropriate methods and the effectiveness of weed control and implement recommendations.
- Continue to raise awareness with the public on the impact of weeds and *P. cinnamomi* have on native vegetation and ecosystems (e.g., promote the Weed Control App produced by Biosecurity South Australia, and the Bushwalking guidelines to prevent *P. cinnamomi* (Natural Resources Kangaroo Island 2017)).

- Review risk of *P. cinnamomi* and monitor for sites of infection regularly.
- Undertake surveys to assess the effectiveness of the control program for *P. cinnamomi* and incorporate new knowledge into management preventions.

Predation by cats

- Continue to implement Kangaroo Island Feral Cat Eradication Program with the aim of eradicating feral cats on the island by 2030.
- Continue to implement Feral Cat Threat Abatement Plan (Commonwealth of Australia 2015b).

Stakeholder engagement/community engagement

- Coordinate conservation efforts with other Kangaroo Island species affected by the 2019/2020 bushfires. Consider the possibility for a regional plan which includes all fire affected species on Kangaroo Island.
- Liaise with landholder/land managers to encourage their involvement in conservation.
- Continue to raise awareness with the public on the impacts of *P. cinnamomi* and pest animals have on native flora and fauna.
- Encourage the community in research and citizen science (e.g., submit sighting of birds and report signs of *P. cinnamomi* infection).

Survey and monitoring priorities

- Conduct surveys around the island to determine the distribution and abundance of the subspecies, with a particular focus on the fire affected areas, and the rate of recovery of both habitat and birds within these areas.
- Coordinate surveys and monitoring programs with other bushfire affected species on the island.

Information and research priorities

- Improve knowledge of the impacts wildfire have on the subspecies and their habitat, and their ability to re-colonise recently burnt areas.
- Accurately describe habitat critical to the survival for the subspecies.
- Use climate modelling techniques to investigate potential influence of climate change on breeding and foraging habitats.
- Determine Kangaroo Island Brown-headed Honeyeater's sensitivity/resilience to climate change and disturbance by extreme climate events.

Recovery plan decision

A decision about whether there should be a recovery plan for this subspecies has not yet been determined. The purpose of this consultation document is to elicit additional information to help inform this decision.

Links to relevant implementation documents

Threat Abatement Plans:

- [Threat abatement plan for predation by feral cats](#) (Commonwealth of Australia 2015b).
- [Threat abatement plan for predation, habitat degradation, competition and disease transmission by feral pigs \(*Sus scrofa*\)](#) (Commonwealth of Australia 2017b).
- [Threat abatement plan for disease in natural ecosystems caused by *Phytophthora cinnamomi*](#) (Commonwealth of Australia 2018b).

Other relevant implementation documents:

- [Australian Weeds Strategy 2017-2027](#) (Invasive Plants and Animals Committee 2016).
- [Bushfire recovery where it matters most: Impacts and actions in Key Biodiversity Areas affected by the 2019/20 Bushfire Crisis](#) (BirdLife Australia 2020)
- [Feral cat eradication on Kangaroo Island 2015-2030 PROSPECTUS](#) (Kangaroo Island Landscape Board 2015).
- [Kangaroo Island Biosecurity Strategy 2017-2027](#) (Triggs 2017).
- [Kangaroo Island Feral Cat Eradication Program](#) (Kangaroo Island Landscape Board 2020).
- [Kangaroo Island: Fire extent map and Regional Bushfire Recovery Workshop Report](#) (Department of Agriculture, Environment and Water 2020).
- [Kangaroo Island Wildlife and Habitat Recovery Planning Workshop Summary Report DRAFT](#) (National Environmental Science Program 2020)

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THREATENED SPECIES SCIENTIFIC COMMITTEE

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

The Threatened Species Scientific Committee draft assessment

Attachment A: Listing Assessment for *Melithreptus brevirostris magnirostris*

Reason for assessment

This assessment follows prioritisation of a nomination from the public/TSSC.

Assessment of eligibility for listing

This assessment uses the criteria set out in the [EPBC Regulations](#). The thresholds used correspond with those in the [IUCN Red List criteria](#) except where noted in criterion 4, sub-criterion D2. The IUCN criteria are used by Australian jurisdictions to achieve consistent listing assessments through the Common Assessment Method (CAM).

Key assessment parameters

Table 4 includes the key assessment parameters used in the assessment of eligibility for listing against the criteria.

Table 4 Key assessment parameters

Metric	Estimate used in the assessment	Minimum plausible value	Maximum plausible value	Justification
Number of mature individuals	51,000	13,000	83,000	The population estimate of Kangaroo Island Brown-headed Honeyeaters is based on densities recorded over 300 ha at Cygnet Park, Kangaroo Island in September 2018 and 2019; the area of vegetation types likely to have been occupied before the 2019/2020 fire; maps of fire severity in 2019/2020 within the pre-fire range; and initial assumptions about mortality at different fire severity classes (Paton et al. 2021).
Trend	Declined			Paton et al. (2021)
Generation time (years)	2.8	2.1	3.5	Bird et al. (2020)
Extent of occurrence	5,300 km ²	5,300 km ²	6,400 km ²	The EOO is based on all records since 1990 (Paton et al. 2021).
Trend	Stable			Paton et al. (2021)

Metric	Estimate used in the assessment	Minimum plausible value	Maximum plausible value	Justification
Area of Occupancy	1,420 km ²	252 km ²	1,940 km ²	The estimated AOO is the area of habitat thought likely to have been supporting birds immediately after the 2019/2020 fire. The minimum is the number 2x2 km squares encompassing sites at which birds have been documented since 1990 that were unburnt. The maximum is the area of suitable habitat before the fires (Paton et al. 2021). The 2019/2020 fire burnt 65 percent of all 1x 1 km squares from which birds have been recorded since 1990 (Legge et al. 2020), and an estimated and 61 percent of suitable habitat (K Hermann unpublished, cited in Paton et al. 2021).
Trend	Contracting due to effects of the 2019/2020 fires.			Paton et al. (2021)
Number of subpopulations	1	1	1	Paton et al. (2021)
Trend	Stable			Paton et al. (2021)
Basis of assessment of subpopulation number	The population on the island is assumed to be panmictic.			
No. locations	>10			Paton et al. (2021)
Trend	Not calculated			Paton et al. (2021)
Basis of assessment of location number	Not calculated: the spatial nature of the threats, although stochastic in space and time, is such that there are >10 geographically or ecologically distinct areas where a single fire could affect all individuals of the subspecies present within a period of one generation.			
Fragmentation	Not severely fragmented – no parameter was changed by an order of magnitude by the 2019/20 fire.			
Fluctuations	Not subject to extreme fluctuations in EOO, AOO, number of subpopulations, locations, or mature individuals – no parameter was changed by an order of magnitude by the 2019/2020 fire.			

Criterion 1 Population size reduction

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

Criterion 1 evidence

Eligible under Criterion 1 A2c for listing as Endangered

Kangaroo Island Brown-headed Honeyeater are endemic to Kangaroo Island, occurring widely across the island (Baxter 2015). Kangaroo Island was heavily impacted during the 2019/2020 bushfires, when around half of the island was burnt (DEW 2020; Todd & Maurer 2020). An analysis by a team from the National Environmental Science Program (NESP) Threatened Species Recovery Hub shows that a large proportion of the range of Kangaroo Island Brown-headed Honeyeater was affected by these fires: 51 percent was burnt in high to very high severity fire, and a further 11 percent was burnt in low to moderate severity fire (NESP TSR Hub 2021). It is estimated that 48 percent of the Kangaroo Island Brown-headed Honeyeater population perished in the 2019/2020 fires with a spread of estimates from 34 to 57 percent, depending on the fire-related mortality assumed under different scenarios (Paton et al. 2021). Paton et al. (2021) also reported a population decline of >50 percent in the last ten years. The extent of occurrence (EOO) for the subspecies is stable, however the area of occupancy (AOO) for the subspecies has contracted (Paton et al. 2021). The average reporting rate for the period before the fire was 0.13 (1977–1981, 1998–2018; BirdLife Australia 2020) and 0.28 in 465 lists collected from 375 sites in 2012–2014 (DC Paton unpublished, cited in Paton et al. 2021). Two months after the fire, it was 0.09 in 145 unburnt fragments within the burnt area and 0.03 in 35 plots outside it (Boulton et al. 2020).

The data presented above appear to demonstrate that the subspecies is **eligible for listing as Endangered** under this criterion. However, the purpose of this consultation document is to elicit additional information to better understand the subspecies’ status. This conclusion should

therefore be considered to be tentative at this stage, as it may be changed as a result of responses to this consultation process.

Criterion 2 Geographic distribution as indicators for either extent of occurrence AND/OR area of occupancy

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

Criterion 2 evidence

Not eligible

The EOO is estimated at 5,300 km² (range 5300–6400 km²) and the AOO estimated at 1420 km² (range 252–1940 km²) (Paton et al. 2021). The EOO is based on all records since 1990. The estimated AOO is the area of habitat thought likely to have been supporting birds immediately after the 2019/2020 fire. The minimum is the number 2x2 km squares encompassing sites at which birds have been documented since 1990 that were unburnt. The maximum is the area of suitable habitat before the fires (Paton et al. 2021). The 2019/2020 fire burnt an estimated 65 percent of all 1x1 km squares from which birds have been recorded since 1990 (Legge et al. 2020) and 61 percent of suitable habitat (K Hermann unpublished, cited in Paton et al. 2021). However, the decline is not thought to be ongoing. The EOO for the subspecies is thought to be stable, however the AOO for the subspecies has contracted (Paton et al. 2021). The subspecies is estimated to occur at more than 10 locations and is not severely fragmented. The subspecies is not subject to extreme fluctuations in EOO, AOO, number of subpopulations, locations or mature individuals. No parameter was changed by an order of magnitude by the 2019/2020 fire.

The data presented above appear to demonstrate the subspecies is not eligible for listing under this criterion. However, the purpose of this consultation document is to elicit additional information to better understand the subspecies’ status. This conclusion should therefore be considered to be tentative at this stage, as it may be changed as a result of responses to this consultation process.

Criterion 3 Population size and decline

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

Criterion 3 evidence

Not eligible

The subspecies consists of a single population (Paton et al. 2021). The number of mature individuals is estimated to be 51,000 (range 13,000–83,000) (Paton et al. 2021). The population is estimated to have declined by 34 to 57 percent due to the 2019/2020 fires on Kangaroo Island, but is unlikely to be experiencing ongoing, continuous decline. The subspecies' geographic distribution is not precarious for its survival and it is not subject to extreme fluctuations (Paton et al. 2021).

The data presented above appear to demonstrate the subspecies is not eligible for listing under this criterion. However, the purpose of this consultation document is to elicit additional information to better understand the subspecies' status. This conclusion should therefore be considered to be tentative at this stage, as it may be changed as a result of responses to this consultation process.

Criterion 4 Number of mature individuals

	Critically Endangered Extremely low	Endangered Very Low	Vulnerable Low
D. Number of mature individuals	< 50	< 250	< 1,000
D2. ¹ Only applies to the Vulnerable category Restricted area of occupancy or number of locations with a plausible future threat that could drive the species to critically endangered or Extinct in a very short time			D2. Typically: area of occupancy < 20 km ² or number of locations ≤ 5

¹ The IUCN Red List Criterion D allows for species to be listed as Vulnerable under Criterion D2. The corresponding Criterion 4 in the EPBC Regulations does not currently include the provision for listing a species under D2. As such, a species cannot currently be listed under the EPBC Act under Criterion D2 only. However, assessments may include information relevant to D2. This information will not be considered by the Committee in making its recommendation of the species’ eligibility for listing under the EPBC Act, but may assist other jurisdictions to adopt the assessment outcome under the [common assessment method](#).

Criterion 4 evidence

Not eligible

The total number of mature individuals is estimated to be 51,000 (range 13,000–83,000) which is not considered low. This estimate is based on densities recorded over 300 ha at Cygnet Park, Kangaroo Island, in September of 2018 and 2019 (0.58–0.62 birds/ha; DC Paton unpublished, cited in Paton et al. 2021); area of vegetation types likely to have been occupied before the 2019/2020 bushfires; and maps of fire severity in 2019/2020 within the pre-fire range and the assumptions about mortality at different fire severity classes (fire severity low: 10 percent; medium: 30 percent; high: 80 percent; very high: 100 percent).

The data presented above appear to demonstrate the subspecies is not eligible for listing under this criterion. However, the purpose of this consultation document is to elicit additional information to better understand the subspecies’ status. This conclusion should therefore be considered to be tentative at this stage, as it may be changed as a result of responses to this consultation process.

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

Criterion 5 evidence

Insufficient data to determine eligibility

Population viability analysis has not been undertaken. Therefore, there is insufficient information to determine the eligibility of the subspecies for listing in any category under this criterion. However, the purpose of this consultation document is to elicit additional information to better understand the subspecies' status. This conclusion should therefore be considered to be tentative at this stage, as it may be changed as a result of responses to this consultation process.

Adequacy of survey

The survey effort has been considered adequate and there is sufficient scientific evidence to support the assessment.

CONSULTATION QUESTIONS FOR *Melithreptus brevirostris magnirostris*
(Kangaroo Island Brown-headed Honeyeater)

SECTION A - GENERAL

1. Is the information used to assess the nationally threatened status of the species/subspecies robust? Have all the underlying assumptions been made explicit? Please provide justification for your response.
2. Can you provide additional data or information relevant to this assessment?
3. Have you been involved in previous state, territory or national assessments of this species/subspecies? If so, in what capacity?

PART 1 – INFORMATION TO ASSIST LISTING ASSESSMENT

SECTION B DO YOU HAVE ADDITIONAL INFORMATION ON THE ECOLOGY OR BIOLOGY OF THE SPECIES/SUBSPECIES? (If no, skip to section C)

Biological information

4. Can you provide any additional or alternative references, information or estimates on longevity, average life span and generation length?
5. Do you have any additional information on the ecology or biology of the species/subspecies not in the current advice?

SECTION C ARE YOU AWARE OF THE STATUS OF THE TOTAL NATIONAL POPULATION OF THE SPECIES/SUBSPECIES? (If no, skip to section D)

Population size

6. Has the survey effort for this taxon been adequate to determine its national adult population size? If not, please provide justification for your response.
7. Do you consider the way the population size has been derived to be appropriate? Are there any assumptions and unquantified biases in the estimates? Did the estimates measure relative or absolute abundance? Do you accept the estimate of the total population size of the species/subspecies? If not, please provide justification for your response.
8. If not, can you provide a further estimate of the current population size of mature adults of the species/subspecies (national extent)? Please provide supporting justification or other information.

If, because of uncertainty, you are unable to provide a single number, you may wish to provide an estimated range. If so, please choose one of the ranges suggested in the table below of possible species/subspecies numbers, and also choose the level of confidence you have in this estimate:

Number of mature individuals is estimated to be in the range of:

1–2500 2501–10 000 10 001–50 000 >50 000 >75 000

Level of your confidence in this estimate:

- 0–30% - low level of certainty/ a bit of a guess/ not much information to go on
- 31–50% - more than a guess, some level of supporting evidence
- 51–95% - reasonably certain, information suggests this range
- 95–100% - high level of certainty, information indicates quantity within this range
- 99–100% - very high level of certainty, data are accurate within this range

SECTION D ARE YOU AWARE OF TRENDS IN THE OVERALL POPULATION OF THE SPECIES/SUBSPECIES? (If no, skip to section E)

9. Does the current and predicted rate of decline used in the assessment seem reasonable? Do you consider that the way this estimate has been derived is appropriate? If not, please provide justification of your response.

Evidence of total population size change

10. Are you able to provide an estimate of the total population size during the early 2010s (*at or soon after the start of the most recent 10 year period*)? Please provide justification for your response.

If, because of uncertainty, you are unable to provide a single number, you may wish to provide an estimated range. If so, please choose one of the ranges suggested in the table below of possible species/subspecies numbers, and also choose the level of confidence you have in this estimate.

Number of mature individuals is estimated to be in the range of:

- 1–2500 2501–10 000 10 001–50 000 >50 000 >75 000

Level of your confidence in this estimate:

- 0–30% - low level of certainty/ a bit of a guess/ not much information to go on
- 31–50% - more than a guess, some level of supporting evidence
- 51–95% - reasonably certain, information suggests this range
- 95–100% - high level of certainty, information indicates quantity within this range
- 99–100% - very high level of certainty, data are accurate within this range

11. Are you able to comment on the extent of decline in the species/subspecies' total population size over the last approximately 10? Please provide justification for your response.

If, because of uncertainty, you are unable to provide an estimate of decline, you may wish to provide an estimated range. If so, please choose one of the ranges suggested in the table below of ranges of decline, and also choose the level of confidence you have in this estimated range.

Decline estimated to be in the range of:

- 1–30% 31–50% 51–80% 81–100% 90–100%

Level of your confidence in this estimated decline:

- 0–30% - low level of certainty/ a bit of a guess/ not much information to go on
- 31–50% - more than a guess, some level of supporting evidence
- 51–95% - reasonably certain, suggests this range of decline
- 95–100% - high level of certainty, information indicates a decline within this range
- 99–100% - very high level of certainty, data are accurate within this range

12. Please provide (if known) any additional evidence which shows the population is stable, increasing or declining.

SECTION E ARE YOU AWARE OF INFORMATION ON THE TOTAL RANGE OF THE SPECIES/SUBSPECIES? (If no, skip to section F)

Current Distribution/range/extent of occurrence, area of occupancy

13. Does the assessment consider the entire geographic extent and national extent of the species/subspecies? If not, please provide justification for your response.
14. Has the survey effort for this species/subspecies been adequate to determine its national distribution? If not, please provide justification for your response.
15. Is the distribution described in the assessment accurate? If not, please provide justification for your response and provide alternate information.
16. Do you agree that the way the current extent of occurrence and/or area of occupancy have been estimated is appropriate? Please provide justification for your response.
17. Can you provide estimates (or if you disagree with the estimates provided, alternative estimates) of the extent of occurrence and/or area of occupancy.

If, because of uncertainty, you are unable to provide an estimate of extent of occurrence, you may wish to provide an estimated range. If so, please choose one of the ranges suggested in the table below of ranges of extent of occurrence, and also choose the level of confidence you have in this estimated range.

Current extent of occurrence is estimated to be in the range of:

- <100 km² 100 – 5 000 km² 5 001 – 20 000 km² >20 000 km²

Level of your confidence in this estimated extent of occurrence

- 0–30% - low level of certainty/ a bit of a guess/ not much data to go on
- 31–50% - more than a guess, some level of supporting evidence

- 51–95% - reasonably certain, data suggests this range of decline
- 95–100% - high level of certainty, data indicates a decline within this range
- 99–100% - very high level of certainty, data is accurate within this range

If, because of uncertainty, you are unable to provide an estimate of area of occupancy, you may wish to provide an estimated range. If so, please choose one of the ranges suggested in the table below of ranges of area of occupancy, and also choose the level of confidence you have in this estimated range.

Current area of occupancy is estimated to be in the range of:

- <10 km² 11 – 500 km² 501 – 2000 km² >2000 km²

Level of your confidence in this estimated extent of occurrence:

- 0–30% - low level of certainty/ a bit of a guess/ not much data to go on
- 31–50% - more than a guess, some level of supporting evidence
- 51–95% - reasonably certain, data suggests this range of decline
- 95–100% - high level of certainty, data indicates a decline within this range
- 99–100% - very high level of certainty, data is accurate within this range

SECTION F ARE YOU AWARE OF TRENDS IN THE TOTAL RANGE OF THE SPECIES/SUBSPECIES? (If no, skip to section G)

Past Distribution/range/extent of occurrence, area of occupancy

18. Do you consider that the way the historic distribution has been estimated is appropriate? Please provide justification for your response.
19. Can you provide estimates (or if you disagree with the estimates provided, alternative estimates) of the former extent of occurrence and/or area of occupancy.

If, because of uncertainty, you are unable to provide an estimate of past extent of occurrence, you may wish to provide an estimated range. If so, please choose one of the ranges suggested in the table below of ranges of past extent of occurrence, and also choose the level of confidence you have in this estimated range.

Past extent of occurrence is estimated to be in the range of:

- <100 km² 100 – 5 000 km² 5 001 – 20 000 km² >20 000 km²

Level of your confidence in this estimated extent of occurrence

- 0–30% - low level of certainty/ a bit of a guess/ not much data to go on
- 31–50% - more than a guess, some level of supporting evidence
- 51–95% - reasonably certain, data suggests this range of decline

- 95–100% - high level of certainty, data indicates a decline within this range
- 99–100% - very high level of certainty, data is accurate within this range

If, because of uncertainty, you are unable to provide an estimate of past area of occupancy, you may wish to provide an estimated range. If so, please choose one of the ranges suggested in the table below of ranges of past area of occupancy, and also choose the level of confidence you have in this estimated range:

Past area of occupancy is estimated to be in the range of:

- <10 km² 11 – 500 km² 501 – 2000 km² >2000 km²

Level of your confidence in this estimated extent of occurrence:

- 0–30% - low level of certainty/ a bit of a guess/ not much data to go on
- 31–50% - more than a guess, some level of supporting evidence
- 51–95% - reasonably certain, data suggests this range of decline
- 95–100% -high level of certainty, data indicates a decline within this range
- 99–100% - very high level of certainty, data is accurate within this range

PART 2 – INFORMATION FOR CONSERVATION ADVICE ON THREATS AND CONSERVATION ACTIONS

SECTION G DO YOU HAVE INFORMATION ON THREATS TO THE SURVIVAL OF THE SPECIES/SUBSPECIES? (If no, skip to section H)

20. Do you consider that all major threats have been identified and described adequately?
21. To what degree are the identified threats likely to impact on the species/subspecies in the future?
22. Are the threats impacting on different populations equally, or do the threats vary across different populations?
23. Can you provide additional or alternative information on past, current or potential threats that may adversely affect the species/subspecies at any stage of its life cycle?
24. Can you provide supporting data/justification or other information for your responses to these questions about threats?

SECTION H DO YOU HAVE INFORMATION ON CURRENT OR FUTURE MANAGEMENT FOR THE RECOVERY OF THE SPECIES/SUBSPECIES? (If no, skip to section I)

25. What planning, management and recovery actions are currently in place supporting protection and recovery of the species/subspecies? To what extent have they been effective?

26. Can you recommend any additional or alternative specific threat abatement or conservation actions that would aid the protection and recovery of the species/subspecies?
27. Would you recommend translocation (outside of the species' historic range) as a viable option as a conservation actions for this species/subspecies?

SECTION I DO YOU HAVE INFORMATION ON STAKEHOLDERS IN THE RECOVERY OF THE SPECIES/SUBSPECIES?

28. Are you aware of other knowledge (e.g. traditional ecological knowledge) or individuals/groups with knowledge that may help better understand population trends/fluctuations, or critical areas of habitat?
29. Are you aware of any cultural or social importance or use that the species/subspecies has?
30. What individuals or organisations are currently, or potentially could be, involved in management and recovery of the species/subspecies?
31. How aware of this species/subspecies are land managers where the species/subspecies is found?
32. What level of awareness is there with individuals or organisations around the issues affecting the species/subspecies?
 - a. Where there is awareness, what are these interests of these individuals/organisations?
 - b. Are there populations or areas of habitat that are particularly important to the community?

PART 3 – ANY OTHER INFORMATION

33. Do you have comments on any other matters relevant to the assessment of this species/subspecies?