

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

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Part A: Criteria for listing species¹ in the Critically Endangered, Endangered or Vulnerable categories

Under 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 are documented (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 indicative thresholds ([Part B](#)) based on the internationally recognised standard established by the International Union for Conservation of Nature (IUCN), as outlined in the IUCN Red List Categories and Criteria Version 3.1.

In Australia, the IUCN thresholds for the Critically Endangered, Endangered and Vulnerable categories have been formally adopted under the [Intergovernmental memorandum of understanding – Agreement on a common assessment method for listing of threatened species and threatened ecological communities](#). The common assessment method is a nationally agreed approach for the assessment of threatened species, whereby the Commonwealth and States and Territories that sign the memorandum agree to apply the IUCN criteria and thresholds. This means that assessments undertaken by one jurisdiction can be adopted by other jurisdictions. In time, the threat category of nationally threatened species will be the same across all relevant jurisdictions. More information on the common assessment method is available at: <http://www.environment.gov.au/biodiversity/threatened/cam>

¹ Under the EPBC Act, a 'species' is a group of biological entities that (a) interbreed to produce fertile offspring, or (b) possess common characteristics derived from a common gene pool; and includes subspecies and distinct populations of species determined by the Minister to be a 'species' for the purposes of the EPBC Act.

Part B: 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 in considering the information provided to it in the nomination form, or from the States or Territories under the common assessment method, in the context of the species' biology and relevant ecological factors. The Committee also has regard to the degree of complexity and uncertainty associated with that context and the information provided.

The Committee refers to the latest version of the [Guidelines for using the IUCN Red List categories and criteria](#) for guidance on how to apply the criteria to determine a species' eligibility for inclusion in a category and for explanations and definitions of the terms used in the criteria.

Threatened Species Scientific Committee's thresholds

Used to judge the subjective terms in the EPBC Regulations for assessment of eligibility for listing as Critically Endangered, Endangered or Vulnerable

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	Population reduction observed, estimated, inferred or suspected in the past and the causes of the reduction are clearly reversible AND understood AND ceased.		
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.		
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]		
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.		
	<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 		

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 (EEO)	< 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
(a) (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 that the IUCN Red List Criterion D allows for species to be listed as Vulnerable under Criterion D2 (below). The corresponding Criterion 4 in the EPBC Regulations **does not currently include** the provision for listing a species under D2, however it may be considered in state or territory listings. At this time, a species cannot be nominated for listing under the EPBC Act under Criterion D2 **only**. However, nominations of species that are eligible under other criteria (above) may include information relevant to D2. This information will not be considered by the Committee in making its assessment 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.

	Critically Endangered Immediate future	Endangered Near future	Vulnerable Medium-term future
D2. 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

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

Part C: Eligibility for listing species in the Extinct, Extinct in the wild, or conservation dependent categories

Under section 179 of the EPBC Act, a native species is eligible for inclusion in the Extinct, Extinct in the Wild or Conservation Dependant category, if it meets the requirements for listing in that category as defined in the EPBC Act (see further information below). The Committee uses an evidentiary approach and considers each species on a case-by-case basis to assess its eligibility for inclusion in these categories.

The requirements for listing as Extinct and Extinct in the Wild are consistent with the IUCN approach (and the common assessment method). The Committee refers to the [Guidelines for using the IUCN Red List categories and criteria](#) for guidance in determining a species' eligibility for inclusion in these categories.

Conservation Dependent is not an IUCN category and is applied in accordance with the requirements of the EPBC Act. While the Conservation Dependent category is provided for in the common assessment method, this only applies to species of fish in accordance with section 179(6)(b) of the EPBC Act (see below).

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.

Species that are listed as Extinct are not considered 'matters of national environmental significance' under the EPBC Act and are afforded no protection. In recommending listing as Extinct, the Committee must therefore be confident that there is no reasonable possibility that the species may still be extant. If an Extinct species is rediscovered in nature it can be transferred from the Extinct category to the Critically Endangered, Endangered or Vulnerable category (as appropriate).

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.

Conservation Dependent (section 179(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.

Note: the conservation dependent category is included in the common assessment method for the purposes of section 179(6)(b) of the EPBC Act. Species determined to be eligible for listing under section 179(6)(a) of the EPBC Act may be listed under the Act, however the assessment cannot be adopted by other jurisdictions under the common assessment method.

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

For guidance on calculating Area of occupancy and Extent of Occurrence the Committee recommends using the detailed guidance provided by the IUCN in [Guidelines for using the IUCN Red List categories and criteria](#).

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 IUCN Red List, the EPBC Act does not provide for listing in a Data Deficient category. Species assessed by the Committee where insufficient data (evidence) are available to allow the species to be placed in a threat 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 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.

Acknowledging that the species is Data Deficient does not imply that the species is not threatened.

Examples of species that could be assessed and found to be Data Deficient include wide ranging species where information is only available on impacts and populations across part of their range. In some cases, the available information cannot easily be extrapolated across the entire range and therefore it is hard to determine, for example, 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 against the listing criteria is difficult.

Note that under IUCN Red List, a species can be listed as Data Deficient where it 'is known, but there is no direct or indirect information about its current status or possible threats' or 'If the data is so uncertain that both critically endangered and least concern are plausible categories, the [species] can be listed as Data Deficient [on the IUCN Red List]'.

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: they may remain in areas where they are able to tolerate or adapt to conditions; move to more suitable habitats where possible (refugia); 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.

The [Guidelines for using the IUCN Red List categories and criteria](#) outline key factors for determining whether the threat posed by climate change has had, is having, or will be important to a species' across its national extent, and whether it will increase the species' vulnerability to extinction in the immediate to medium term (i.e. 10 to 50 years). When considering if climate change is a threat to a species, some key factors to consider include time horizons for the impact, number of locations where the species occurs, and the impact of climate change 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 it is important that you 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 years). The relevant timeframe should be linked to the species' generation length.

References:

- Hobday AJ, Okey TA, Poloczanska ES, Kunz TJ, and Richardson AJ (eds) (2006). Impacts of climate change on Australian marine life. Report to the Australian Greenhouse Office, Canberra, Australia. <http://www.coastaladaptationresources.org/PDF-files/1053-Impacts-of-Climate-Change-on-Australian-Marine-Life-PartA-1.pdf>
- IUCN 2019. Guidelines for Using the IUCN Red List Categories and Criteria. Version 14. Prepared by the Standards and Petitions Committee of the IUCN Species Survival Commission. Downloadable from <http://cmsdocs.s3.amazonaws.com/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. <https://www.environment.gov.au/system/files/resources/eab369d6-76f9-46c8-beb4-aaae8ece112e/files/biodiversity-technical-synthesis.pdf>