



Consultation Document on Listing Eligibility and Conservation Actions

Cacatua pastinator pastinator (Muir's corella)

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

- 1) the eligibility of *Cacatua pastinator pastinator* (Muir's corella) for removal from the EPBC Act threatened species list; and
- 2) the necessary conservation actions for the above subspecies to ensure removal from the list of threatened species does not negatively impact on its conservation status.

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.

Draft information for your consideration of the eligibility of this species for removal from the EPBC Act threatened species list starts at page 3 and information associated with the necessary conservation actions for the above species to ensure removal from the list of threatened species does not negatively impact on its conservation status starts at page 8. To assist with the Committee's assessment, the Committee has identified a series of specific questions on which it seeks your guidance at page 9.

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

or by mail to:

The Director
Marine and Freshwater Species Conservation Section
Wildlife, Heritage and Marine Division
Department of the Environment
PO Box 787
Canberra ACT 2601

Responses are required to be submitted by 22 January 2016.

Contents of this information package	Page
General background information about listing threatened species	2
Information about this consultation process	2
Draft information about the Muir's corella and its eligibility for listing	3
Conservation actions for the subspecies	8
References cited	9
Collective list of questions – your views	9

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/biodiversity/threatened/pubs/guidelines-species.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>.

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.

Cacatua pastinator pastinator

Muir's Corella

Taxonomy

Conventionally accepted as *Cacatua pastinator pastinator* (Gould, 1841).

Subspecies Information

Description

Muir's corella is a medium-sized and stocky cockatoo between 43 to 48 cm in length. It has a wingspan of about 90 cm and a mass that ranges from 560 to 815 g (Carter 1912; Higgins 1999; Johnstone & Storr 1998). It is mostly white in colour, but has a prominent orange-red wash over the lores, a strong yellow wash on the undersides of the wings and tail, a ring of blue-grey skin around each eye, a pale-grey to off-white bill, and grey legs and feet. In addition, the feathers of the head, neck and breast have orange-red bases that, although normally hidden, can be exposed during preening or if ruffled by the wind. The male and female appear alike. Juvenile birds are very similar to adult birds, but they can be distinguished, when viewed at close range, on the basis of the smooth (rather than flaky) texture of the bill, the faint yellow wash over the ear-coverts, upperparts and underbody, the shorter upper mandible, and the paler and less pronounced ring of skin around each eye (Higgins 1999). Muir's corella occurs in pairs, small flocks, and large flocks of up to 1000 birds (Carter 1912, 1924; Chapman & Cale 2006; Massam & Long 1992; Storr 1991).

Distribution

Muir's corella formerly occurred from the Swan River and Avon River, west to the Vasse River and Augusta, east to Broomehill, the Pallinup River and the Stirling and Porongurup Ranges, and south to Albany (Carter 1912; Garnett 1993; Schodde & Mason 1997; Storr 1991). The subspecies now has a restricted distribution of approximately 12 000km² in the Tone Bridge, Rocky Gully, Frankland River and Lake Muir area (Department of Parks & Wildlife 2015).

Relevant Biology/Ecology

Muir's corella lives in woodland on the drier, eastern side of the main forest block in south-western Australia. Though the subspecies mainly digs for corms of native and introduced plants, its diet includes grain from agricultural crops (Smith & Moore 1991; Mawson & Johnstone 1997). Nesting is in large hollows in eucalypts of an estimated minimum age of 160 years (Mawson & Long, 1994). Clutch size of the northern subspecies averages 2.3, with a range of 1 to 4 (Higgins 1999).

Threats

Due to its habit of eating agricultural grain, Muir's corella was considered an agricultural pest, and farmers shot and poisoned large numbers during the first 20 years of the 20th century (Carter 1912; Saunders et al., 1985). By 1940 it was estimated that only 100 birds remained. Prohibition of poisoning and shooting has allowed a recovery in numbers (Massam & Long 1992) to the extent that it is now estimated there are approximately 20,000 birds, of which 40 percent are thought to be mature adults (Department of Parks & Wildlife 2015).

Nevertheless, some birds are still killed illegally, especially at sites where grain is fed to livestock (Garnett & Crowley 2000). Alluvial flats in its favoured agricultural habitats are also being converted to unsuitable Blue Gum (*Eucalyptus globulus*) plantations and vegetable crops, thus reducing natural foraging and nesting sites (Garnett & Crowley 2000). Eventually a lack of nest hollows may limit abundance, through nest trees being lost through clearance for agriculture and plantations, damage by stock, salinisation of the soil and competition from introduced European Honeybees (*Apis mellifera*) (Smith 1991; Mawson & Long 1994; DEC 2009).

Assessment of available information in relation to the EPBC Act Criteria and Regulations

Criterion 1. Population size reduction (reduction in total numbers)			
Population reduction (measured over the longer of 10 years or 3 generations) based on any of A1 to A4			
	Critically Endangered Very severe reduction	Endangered Severe reduction	Vulnerable Substantial reduction
A1	≥ 90%	≥ 70%	≥ 50%
A2, A3, A4	≥ 80%	≥ 50%	≥ 30%
<div> <div> 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. </div> <div> based on any of the following </div> <div> (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 </div> </div>			

Evidence:

The number of Muir's corellas is thought to be gradually increasing, from a low of only about 100 birds in the 1940s. The population size over recent decades has been estimated at about 1000 birds in 1978 (Smith 1991; Saunders et al., 1985), 1500 in 1991 (Massam & Long 1992), 3000 in 1997 (Johnstone 1997), 2360 in 1999 (P. Mawson in litt. in Garnett & Crowley 2000), 9350 in an unknown fraction of its range in 2007 (DEC 2007, 2009; SWCC 2008) and 15 000-16 000 in 2011, of which about 20 percent were thought to be mature breeding birds (Department of Parks & Wildlife 2015). Total population is now thought to be approximately 20 000 individuals, of which about 40 percent are thought to be mature adults (Department of Parks & Wildlife 2015).

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 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			

Evidence:

The most recent estimate of the distribution of Muir's corella is thought to be approximately 12 000 km² (Department of Parks and Wildlife 2015), which is considered limited under B1. This estimate is considerably larger than the estimate in the Bird Action Plan 2000 of 3000 km² for the extent of occurrence and 500 km² for the area of occupancy (Garnett & Crowley 2000) which, if still accurate, would mean the range of the subspecies was restricted. However, it has been noted that over the last ten years the subspecies' range has expanded as the population has increased. The subspecies is now found as far east as Frankland River town site, between Mount Barker and Denmark, north east of Boyup Brook and between Boyup Brook and Bridgetown. There have also been reports of the Muir's corella expanding its range towards Kojonup (Barton, pers comm., 2015). The population is not considered to be suffering, nor likely to suffer, continuing decline nor extreme fluctuations.

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			

Evidence:

Muir's corella was considered a pest subspecies early in the 20th century as it damaged grain crops and ate grain fed to livestock. As a result, it was extensively poisoned and shot, to the extent that only 100 individuals were thought to remain by the 1940s. Due to bans on killing, numbers have steadily risen since (Department of Parks & Wildlife 2015). Recent estimates of Muir's corella suggest that there were approximately 1000 individuals in 1978 (Smith 1991; Saunders et al., 1985); 1500 individuals in 1991 (Massam & Long 1992); 3000 in 1997 (Johnstone 1997); 2360 individuals in 1999 (P. Mawson in litt. in Garnett & Crowley 2000); 9350 in an unknown fraction of its range in 2007 (DEC 2007, 2009; SWCC 2008); 15 000-16 000 in 2011 (Department of Parks & Wildlife 2015); and now approximately 20 000 individuals in 2015, of which about 40 percent are thought to be mature adults (Department of Parks & Wildlife 2015).

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
Number of mature individuals	< 50	< 250	< 1,000

Evidence:

Recent estimates suggest there are approximately 20 000 individuals, of which about 40 percent are thought to be mature adults (Department of Parks & Wildlife 2015).

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

Evidence:

Population viability analysis has not been undertaken for this subspecies, so it cannot be assessed 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.

Consideration for delisting

This draft advice indicates that there has been a demonstrable recovery in the Muir's corella population between the 1940s and 2015. This may indicate the subspecies no longer meets the requirements for listing as Vulnerable under the EPBC Act. If information elicited from this consultation process supports the information in this assessment that the subspecies does not satisfy the listing criteria in any category then it may qualify for delisting. If delisted, the Muir's corella will not be considered during the assessment of referrals under the EPBC Act, and proponents will not be required to implement specific measures to mitigate against impacts on the subspecies as part of the EPBC referrals process. However, proponents will still need to operate within the confines of the Western Australian Department of Parks and Wildlife Management Plan (Department of Parks & Wildlife 2015) which places controls on any actions undertaken to manage the subspecies.

In Western Australia the Muir's corella is now listed as a 'conservation dependent fauna'. It was listed as a 'threatened fauna' under the Wildlife Conservation Act 1950 but was transferred from their threatened species list in 2012 due to an increase in the number of mature adults. In November 2015 Muir's corella was transferred to the conservation dependent category. This category maintains a high level of protection under the Western Australian Wildlife Conservation Act and recognises the importance of maintaining an effective conservation management program. A Wildlife Management Plan has been developed for this subspecies by the Western Australian Department of Parks and Wildlife (Department of Parks & Wildlife 2015).

If the subspecies is delisted there is the potential for some stakeholders impacted by Muir's corella to seek a damage licence (a permit to take a specific action issued by the Western Australian Department of Parks and Wildlife) to not only disturb or scare the birds but to also destroy birds where there is significant impact on their farming enterprise and/or lifestyle. The Wildlife Management Plan addresses the issue of balancing the potential need for pest control and ensuring the subspecies' population does not decrease to such an extent that it again meets the criteria for listing as a threatened species.

Conservation Actions

Recovery Plan

The subspecies currently has a recovery plan. The recovery plan's objective is 'to stop any further decline in the distribution and abundance of Muir's Corella in the south-west of Western Australia' and the criteria for success is that the 'extent of occurrence is not less than 8 000 km² and the number of birds counted in ground surveys is not less than 1000'. Both of these criteria have been met, largely by stopping the widespread shooting and poisoning that occurred in the early part of the 20th Century.

If the subspecies was to be removed from the EPBC list of threatened species, then it would no longer require – or be eligible – for a recovery plan. However, while the evidence strongly suggests the Muir's corella has undergone a genuine recovery, as indicated by the objectives and success criteria outlined in the recovery plan being met, careful management of the subspecies is required in order to ensure the subspecies does not again become threatened.

The management goals outlined in the draft Western Australian Wildlife Management Plan are that the subspecies maintains a population of at least 10 000 mature birds, as this would meet the IUCN criteria for a non-threatened population. Current estimates are that there are about 8000 mature adults. The draft management plan recommends a range of measures to ensure the population is effectively managed, and that the adult population remains over 10 000. The draft management plan also requires a range of research actions to detect any changes in the population and to better determine appropriate rates of lethal take, if required.

A decision about whether there should still 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.

Conservation and Management Priorities

The Western Australian draft management plan identifies a range of conservation and management priorities to ensure Muir's corella does not become threatened again as a result of being removed from the Western Australian list of threatened species. These actions include:

- *Monitoring* - Comprehensive five yearly counts will be done in conjunction with local community, BirdLife Australia and the local Council. There will also be more targeted monitoring when permits for lethal take are issued.
- *Community engagement* – Ongoing engagement with the local community and BirdLife Australia will be undertaken to ensure information is disseminated and the local community is actively engaged in managing the population.
- *Non-lethal take* – It will remain illegal to 'take' Muir's corella without an appropriate 'damage licence'; with 'take' including any activity that modifies the birds' behaviour, including the use of scare devices. Prior to any damage licence being issued, regional wildlife officers will inspect the property and recommend non-lethal methods to manage the impacts. Non lethal techniques may include laser and strobe lights, gas guns, bird scaring devices, vehicles and shot gun blanks and 'birdfrite'.
- *Lethal take* – To be used as a last resort and managed to ensure the adult population remains above 10 000 individuals. All applications for lethal take will be assessed by the Western Australian Department of Parks and Wildlife.
- *Vegetation modification* - Removal of roost trees from around homesteads and town sites may be a method of reducing the impact of the birds on households and community lifestyles. This strategy will need to be considered against other potential impacts (loss of

shade, visual amenity, hydrological impacts, stock shelter etc.). Native vegetation clearing approvals under the *Environmental Protection Act 1986* may also be required.

Collective list of questions – your views

1. Do you agree with the current taxonomic position of the Australian Faunal Directory and Birdlife Australia for this subspecies (as identified in the draft conservation advice)?
2. Can you provide any additional references, information or estimates on longevity, age of maturity, average life span and generation length?
3. Has the survey effort for this subspecies been adequate to determine its national distribution and adult population size?
4. Do you accept the estimate provided in the nomination for the current population size of the subspecies?
5. For any population with which you are familiar, do you agree with the population estimate provided? If not, are you able to provide a plausible estimate based on your own knowledge? If so, please provide in the form:
Lower bound (estimated minimum):
Upper bound (estimated maximum):
Best Estimate:
Estimated level of Confidence: %
6. Is the distribution as described in the nomination valid? Can you provide an estimate of the current geographic distribution (extent of occurrence or area of occupancy in km²) of this subspecies?
7. To what degree are the identified threats likely to impact on the subspecies in the future?
8. Can you provide additional or alternative information on threats, past, current or potential, that may adversely affect this subspecies at any stage of its life cycle?
9. Do you agree that the subspecies is eligible for removal from the threatened species list, as proposed by the nomination?
10. Do you have reason to believe that removing this subspecies from the threatened species list would remove protections (such as funding for protective fencing or invasive species management) that would result in the subspecies potentially being eligible for re-listing in the future?
11. Is there evidence to suggest the subspecies' recovery, and hence its consideration for possible delisting, due to protective actions that would not have occurred if the subspecies was not listed?
12. Can you provide additional data or information relevant to this assessment?
13. Can you advise as to whether this subspecies is of cultural significance to Indigenous Australians?

References cited in the advice

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