Notice of Preliminary Determination

The NSW Threatened Species Scientific Committee, established under the *Biodiversity Conservation Act 2016* (the Act), has made a Preliminary Determination to support a proposal to list the bird, Lord Howe pied currawong *Strepera graculina crissalis* Sharp (1877) as an ENDANGERED SPECIES in Part 2 of Schedule 1 of the Act and, as a consequence, to omit reference to Lord Howe pied currawong *Strepera graculina crissalis* Sharp (1877) from Part 3 of Schedule 1 (Vulnerable species) of the Act.

How to make a submission

The NSW TSSC welcomes public involvement in the assessment process and places preliminary determinations on public exhibition on the NSW TSSC pages on the Department of Planning, Industry and Environment (DPIE) website. This public exhibition provides an opportunity for the public to comment on this preliminary determination as well as provide any additional information that is relevant to the assessment.

Postal submissions regarding this Preliminary Determination may be sent to:

Secretariat
NSW Threatened Species Scientific Committee
Locked Bag 5022
Parramatta NSW 1481.

Email submissions in Microsoft Word or PDF formats may be sent to:

scientific.committee@environment.nsw.gov.au

Submissions close 21st April 2022.

What happens next?

After considering any submissions received during the public exhibition period the NSW TSSC will make a Final Determination and a notice will be placed on the DPIE website to announce the outcome of the assessment. If the Final Determination is to support a listing, then it will be added to the Schedules of the Act when the Final Determination is published on the legislation website. www.legislation.nsw.gov.au.

Privacy information

The information you provide in your submission may be used by the NSW TSSC in the assessment to determine the conservation status and listing or delisting of threatened or extinct species, threatened populations and threatened or collapsed ecological communities or to assess key threatening processes.

The NSW TSSC may be asked to share information on assessments with NSW Government agencies, the Commonwealth Government and other State and Territory governments to collaborate on national threatened species assessments using a common assessment method and to assist in the management of species and ecological communities.

If your submission contains information relevant to the assessment it may be provided to state and territory government agencies and scientific committees as part of this collaboration.

If you wish your identity and personal information in your submission to be treated as confidential you must:

- ***request your name be treated as confidential***, and
- ***not include any of your personal information in the main text of the submission or attachments so that it can be easily removed.***

Dr Anne Kerle
Chairperson
NSW Threatened Species Scientific Committee

Public Exhibition period: 21/01/2022 – 21/04/2022

Preliminary Determination

The NSW Threatened Species Scientific Committee, established under the *Biodiversity Conservation Act 2016* (the Act), has made a Preliminary Determination to support a proposal to list the bird, Lord Howe pied currawong *Strepera graculina crissalis* Sharp (1877) as an ENDANGERED SPECIES in Part 2 of Schedule 1 of the Act and, as a consequence, to omit reference to Lord Howe pied currawong *Strepera graculina crissalis* Sharp (1877) from Part 3 of Schedule 1 (Vulnerable species) of the Act. Listing of Endangered species is provided for by Part 4 of the Act.

Summary of Conservation Assessment

The Lord Howe pied currawong *Strepera graculina crissalis* was found to be Endangered in accordance with the following provisions in the *Biodiversity Conservation Regulation 2017*: Clause 4.5 (b), because the population of mature individuals is very low.

The NSW Threatened Species Scientific Committee has found that:

1. The Lord Howe pied currawong *Strepera graculina crissalis* Sharp (1877), is a sub-species (endemic to Lord Howe Island) of the pied currawong *Strepera graculina.* There are an additional five recognised sub-species of pied currawong that occur on mainland Australia. SPRAT (2021) describes the Lord Howe pied currawong as "a large bird about 46 cm in length (Hutton 1991). It is mostly glossy black, but has bright orange irides, a small patch of white on each wing (at the base of the primary feathers), a large patch of white around the undertail coverts, a small patch of white at the base of the tail, and a white tip to the tail (Carlile 2007, pers. comm.; Higgins *et al.* 2006; Hutton 1991). The sexes are alike, but females are slightly smaller than males (Higgins *et al.* 2006; Schodde and Mason 1999). Juvenile and immature birds are similar to the adults, but they have a duller and (especially in juveniles) browner plumage, and juvenile birds also exhibit pale markings on the head, neck, upperbody, breast and wings, and have a yellow gape and, for the first eight months, a yellow tip on the bill (Carlile 2007, pers. comm.; Higgins *et al.* 2006)."

2. This species is restricted to Lord Howe Island (and nearby islets), to which it is endemic (Carlile *et al.* 2021; SPRAT 2021). Lord Howe Island (1455 ha, 31.54°S, 159.08°E), is located in the Tasman Sea, 585 km East of Port Macquarie (NSW) and 1550 km North-west of Auckland (New Zealand) (Segal *et al.* 2021). The island is an eroded volcanic remnant, 3 km wide by 11 km long, reaching a maximum height of 875 m (McDougall *et al.* 1981). Land cover is predominantly native vegetation, 75% of the Island is reserved for conservation and the Island is UNESCO world heritage listed (DECC 2007). Lord Howe pied currawongs occur across the Island, with aggregations of birds occurring at lower elevations in autumn and winter (Hutton 1991). Currawongs nest preferentially in close proximity to low elevation gullies in forested areas (Segal *et al.* 2021).

3. A high proportion (60%) of the islands' currawongs are banded with colour bands (Carlile *et al.* 2021; Segal *et al.* 2021), which has allowed detailed estimates of abundance to be made. The extent of the island and topography impose a limitation on the number of breeding territories, and the number of modelled territories is 84 (Segal *et al.* 2021). In 2006, the population was estimated using mark–recapture methods using 169 banded birds to be 215±11 birds of which 42 juveniles (Carlile and Priddel 2007). As part of a muroid rodent eradication program, over 200 currawongs were captured and banded in 2019. A subset (129 currawongs) was held as a captive insurance program during the eradication program and subsequently released. Survival of the >70 wild birds during the eradication program was 65-85% (Carlile *et al.* 2021). The total population appears to have been relatively stable between 2006 and the present (Carlile *et al.* 2021). Previous estimates, from the 1970s and 1980s of <100 birds (Recher and Clark 1974; Fullagar *et al.* 1974; Knight 1987; McFarland 1994) have been assessed as the likely result of counting inaccuracy by Carlile *et al.* (2021), rather than recent population growth. Carlile *et al.* (2021) state the population is stable, the number of mature individuals is 235 (range 188-282) and there is one sub-population.

4. Carlile *et al.* (2021, in Garnett and Baker 2021) provide a maximum, minimum and best estimate of extent of occurrence (EOO) and area of occupancy (AOO) as well as an indication of reliability. The EOO was estimated to be 26 (24-27) km^2 with a high reliability. The EOO is based on a minimum convex polygon enclosing all known mapped occurrences of the species, the method of assessment recommended by IUCN (2019). AOO was estimated to be 16 (12-17) km^2 with a high reliability, based on the species' occupying four 2 km x 2 km grid cells, the spatial scale of assessment recommended by IUCN (2019). Both AOO and EOO are stable (Carlile *et al.* 2021).

5. This species occurs in all habitat types of Lord Howe Island, although nesting is confined to forested areas, typically tall rainforests and palm forests, near creeklines below ~120 m above sea level (SPRAT 2021; Segal *et al.* 2021). The nest is cup-shaped and constructed from sticks and twigs, with the occasional inclusion of vines and is found from 3 to 25 m off the ground under a high canopy and within an open vegetation structure of palms (*Howea* spp.) and *Pandanus forsteri* (Forky Tree) (SPRAT 2021; Segal *et al.* 2021). Nest trees reported by Segal *et al.* (2021) included *Cryptocarya triplinervis* (Blackbutt), *Drypetes deplanchei* (Greybark), *Syzygium fullagarii* (Scalybark), *Olea paniculata* (Maulwood) and *Ficus macrophylla columnaris* (Banyan). Nesting occurs in various vegetation communities including Greybark and Blackbutt rainforest, and Scalybark, Curly Palm (*Howea belmoreana*), Greybark, Cedar (*Guioa coriacea*), Maulwood and Forky Tree lowland mixed forest (Segal *et al.* 2021). Two to three eggs, which are light-brown to rufous-brown in colour, with darker spots and blotches of brown and grey are laid in the nest and nestling are fed by both parents (Hindwood 1940; Hutton 1991; Carlile *et al.* 2021). Incubation period is 21 days and the young stay with the parents for about two months after fledging (SPRAT 2021; Segal *et al*. 2021). Breeding success was measured in the 2005-2006 breeding season, when five of twelve clutches observed produced at least one fledgling, and one pair successfully reared two broods (a total of five fledgelings)

(Carlile 2007, pers. comm. cited in SPRAT 2021). Generation length is estimated as 6.3 (range: 4.7 - 7.9) years (Bird *et al.* 2020; Carlile *et al.* 2021). Life expectancy and the age of maturity are unknown however the species is likely capable of living to more than 20 years of age (Higgins *et al.* 2006; SPRAT 2021). Breeding has been recorded from October to December (Hindwood 1940; McAllan *et al.* 2004; McFarland 1994; Mills undated; SPRAT 2021) but possibly commences in in September (McAllan *et al.* 2004) or, even as early as July (Hull 1909).

6. This species is omnivorous and eats a variety of food items including fruits and seeds, insects and other invertebrates, small vertebrates, domestic poultry and the chicks of land and sea birds (Auld *et al* 2010; Carlile and Priddel 2015; SPRAT 2021). Invertebrates comprise 65% of diet, and vertebrates 21%, with the introduced skink *Lampropholis delicata* the most common vertebrate prey item (Carlile and Priddel 2007; Carlile *et al.* 2021). This species is sedentary and breeding pairs defend a territory year-round, with occasional excursions outside of forested habitats to forage in areas across the island, such as orchards, seabird colonies and at bird feeders (Higgins *et al.* 2006; Segal *et al.* 2021). Average territory size ranges between 2.48 ha and 5.23 ha (Segal *et al.* 2021).

7. Carlile *et al.* (2021) identified there are no plausible existential threats but noted the restricted area of occupancy makes the subspecies susceptible to catastrophes, such as the introduction of another predator or disease. The risk is of such catastrophes was assessed by Carlile *et al.* (2021) as low, owing to quarantine procedures that minimise the probability of alien invasions. Historically (until the 1980s) local residents persecuted currawongs for attacking poultry, white terns and woodhens but this is now a rare occurrence (Carlile and Priddel 2015; McAllan and Hutton 2020). Introduced species including black rats *Rattus rattus* (introduced in 1918), and masked owls *Tyto novaehollandiae*, introduced in the 1920s (Hindwood 1940; McAllan *et al.* 2004), have had no impact on this species and have now been eradicated or are being actively managed Carlile *et al.* (2021).

8. The Lord Howe pied currawong *Strepera graculina crissalis* Sharp (1877) is not eligible to be listed as a Critically endangered species.

9. The Lord Howe pied currawong *Strepera graculina crissalis* Sharp (1877) is eligible to be listed as an Endangered species as, in the opinion of the NSW Threatened Species Scientific Committee, it is facing a very high risk of extinction in Australia in the near future as determined in accordance with the following criteria as prescribed by the *Biodiversity Conservation Regulation 2017*:

Assessment against *Biodiversity Conservation Regulation 2017* criteria
Overall Assessment Outcome:
The clauses used are listed below for reference.

Overall Assessment Outcome: Endangered under Clause 4.5 (b).

Clause 4.2 – Reduction in population size of species
(Equivalent to IUCN criterion A)
Assessment Outcome: Not met

(1) - The species has undergone or is likely to undergo within a time frame appropriate to the life cycle and habitat characteristics of the taxon:			
	(a)	for critically endangered species	a very large reduction in population size, or
	(b)	for endangered species	a large reduction in population size, or
	(c)	for vulnerable species	a moderate reduction in population size.
(2) - The determination of that criteria is to be based on any of the following:			
	(a)	direct observation,	
	(b)	an index of abundance appropriate to the taxon,	
	(c)	a decline in the geographic distribution or habitat quality,	
	(d)	the actual or potential levels of exploitation of the species,	
	(e)	the effects of introduced taxa, hybridisation, pathogens, pollutants, competitors or parasites.	

Clause 4.3 - Restricted geographic distribution of species and other conditions
(Equivalent to IUCN criterion B)
Assessment Outcome: Not met

The geographic distribution of the species is:			
	(a)	for critically endangered species	very highly restricted, or
	(b)	for endangered species	highly restricted, or
	(c)	for vulnerable species	moderately restricted,
and at least 2 of the following 3 conditions apply:			
	(d)	the population or habitat of the species is severely fragmented or nearly all the mature individuals of the species occur within a small number of locations,	
	(e)	there is a projected or continuing decline in any of the following:	
		(i)	an index of abundance appropriate to the taxon,
		(ii)	the geographic distribution of the species,
		(iii)	habitat area, extent or quality,
		(iv)	the number of locations in which the species occurs or of populations of the species,
	(f)	extreme fluctuations occur in any of the following:	
		(i)	an index of abundance appropriate to the taxon,

		(ii)	the geographic distribution of the species,
		(iii)	the number of locations in which the species occur or of populations of the species.

Clause 4.4 - Low numbers of mature individuals of species and other conditions
(Equivalent to IUCN criterion C)
Assessment Outcome: Not met

The estimated total number of mature individuals of the species is:						
	(a)	for critically endangered species			very low, or	
	(b)	for endangered species			low, or	
	(c)	for vulnerable species			moderately low,	
and either of the following 2 conditions apply:						
	(d)	a continuing decline in the number of mature individuals that is (according to an index of abundance appropriate to the species):				
		(i)	for critically endangered species		very large, or	
		(ii)	for endangered species		large, or	
		(iii)	for vulnerable species		moderate,	
	(e)	both of the following apply:				
		(i)	a continuing decline in the number of mature individuals (according to an index of abundance appropriate to the species), and			
		(ii)	at least one of the following applies:			
			(A)	the number of individuals in each population of the species is:		
				(I)	for critically endangered species	extremely low, or
				(II)	for endangered species	very low, or
				(III)	for vulnerable species	low,
			(B)	all or nearly all mature individuals of the species occur within one population,		
			(C)	extreme fluctuations occur in an index of abundance appropriate to the species.		

Clause 4.5 - Low total numbers of mature individuals of species
(Equivalent to IUCN criterion D)
Assessment Outcome: Endangered

The total number of mature individuals of the species is:			
	(a)	for critically endangered species	extremely low, or
	(b)	for endangered species	very low, or
	(c)	for vulnerable species	low.

Clause 4.6 - Quantitative analysis of extinction probability
(Equivalent to IUCN criterion E)
Assessment Outcome: Data deficient

The probability of extinction of the species is estimated to be:			
	(a)	for critically endangered species	extremely high, or
	(b)	for endangered species	very high, or
	(c)	for vulnerable species	high.

Clause 4.7 - Very highly restricted geographic distribution of species– vulnerable species
(Equivalent to IUCN criterion D2)
Assessment Outcome: Not met

For vulnerable species,	the geographic distribution of the species or the number of locations of the species is very highly restricted such that the species is prone to the effects of human activities or stochastic events within a very short time period.

Dr Anne Kerle
Chairperson
NSW Threatened Species Scientific Committee

Supporting Documentation:

Hope B (2021) Conservation Assessment of Lord Howe pied currawong *Strepera graculina crissalis* Sharp (1877) (Artamidae). NSW Threatened Species Scientific Committee.

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