The Minister approved this conservation advice on 25/06/2015 and transferred this species from the Endangered to the Critically Endangered category, effective from 08/07/2015

Conservation Advice

Anthochaera phrygia

regent honeyeater

Taxonomy

The species is conventionally accepted as *Anthochaera phrygia* (regent honeyeater) Shaw, 1794. It was previously referred to as *Xanthomyza phrygia*; the change to the genus *Anthochaera phrygia* is based on molecular evidence (Christidis and Boles, 2008).

Summary of assessment

Conservation status

Critically endangered: Criterion 1 A2(a)

Anthochaera phrygia has been found to be eligible for listing under the following listing categories:
Criterion 1 A2(a): Critically Endangered
Criterion 3 C2a(ii): Endangered
Criterion 4: Vulnerable

The highest category for which *Anthochaera phrygia* is eligible to be listed is Critically Endangered.

Species/subspecies can be listed as threatened under state and territory legislation. For information on the listing status of this species under relevant state or territory legislation, see http://www.environment.gov.au/cgi-bin/sprat/public/sprat.pl

Reason for conservation assessment by the Threatened Species Scientific Committee

This advice follows assessment of new information provided to the Committee to list *Anthochaera Phrygia.*

Public Consultation

Notice of the proposed amendment and a consultation document was made available for public comment for > 30 business days between 30 October 2014 and 21 December 2014. Any comments received that were relevant to the survival of the species were considered by the Committee as part of the assessment process.

Species Information

Description

The regent honeyeater is a striking, predominantly black and yellow bird. Its head and neck are black, with warty pink or yellow skin around the eyes. The upperparts of its body are black and heavily scalloped with pale yellow. The breast and upper belly are black with a pale yellow to white v-shaped pattern, and the lower belly is a pure pale yellow. The wing and tail feathers have broad yellow edges.

Distribution

The Regent honeyeater is endemic to mainland south-eastern Australia. It has a patchy distribution which extends from south-east Queensland, through New South Wales (NSW) and the Australian Capital Territory (ACT), to central Victoria. Records are widely distributed across its range, but it is only found regularly at a few localities in NSW and Victoria where most of the sightings have been recorded. There are four known key breeding areas: three in NSW and one in Victoria (Garnett et al., 2011; Higgins et al., 2001; Ingwersen et al., 2013; Webster and Menkhorst, 1992).

The species range and numbers have contracted greatly since about the 1940s. It previously ranged from near Rockhampton in Queensland, to Wilmington in South Australia. It was last recorded in South Australia in 1977 and is now probably extinct in that state. There were reports of 'immense' numbers and 'very large flocks' in the early 20th century, but flocks of more than 30 birds are now uncommon (Higgins et al., 2001).

Relevant Biology/Ecology

The species mostly inhabits inland slopes of the Great Dividing Range, in areas of low to moderate relief with moist, fertile soils. It is most commonly associated with box-ironbark eucalypt woodland and dry sclerophyll forest, but also inhabits riparian vegetation such as sheoak (*Casuarina spp*) where it feeds on needle-leaved mistletoe and sometimes breeds (Franklin et al., 1989; Higgins et al., 2001; Oliver et al., 1998; Webster and Menkhorst, 1992). It sometimes utilises lowland coastal forest, which may act as a refuge when its usual habitat is affected by drought (Menkorst et al., 1999). It also uses a range of other habitats including remnant patches in farmland and urban areas, roadside reserves and travelling stock routes (Franklin et al., 1989; Higgins et al., 2001; Oliver and Lollback, 2010).

The Regent honeyeater's diet primarily consists of nectar, but also includes invertebrates (mostly insects) and their exudates (e.g. lerps and honeydew), and occasionally fruit. Its time spent foraging for nectar ranges from 10% to 90% depending on availability. It obtains nectar chiefly from eucalypts and mistletoe, and appears reliant on select species which provide reliable nectar flows. It prefers taller and larger diameter trees for foraging, as these typically produce more nectar (Franklin et al., 1989; Menkhorst et al., 1999; Oliver, 2000; Webster and Menkhorst, 1992).

The species' movement patterns are thought to be governed by the flowering of select eucalypt species. It is nomadic and partly migratory, with some predictable seasonal movements observed. The species is highly mobile and capable of travelling large distances, however the regularity and extent of long-distance movements are unknown (Higgins et al., 2001; Ingwersen et al., 2013; Oliver and Lollback, 2010; Webster and Menkhorst, 1992). Aggregations historically occurred at nectar sources, mostly during autumn and winter (Franklin et al., 1989; Webster and Menkhorst, 1992), but these events are now rare. The species roosts communally in small groups or large flocks, in trees with dense foliage. Foraging trees are rarely used as roosting sites (Higgins et al., 2001).

The timing of breeding varies between regions, and appears to correspond with the flowering of key eucalypt and mistletoe species (Franklin et al., 1989; Geering and French, 1998). Breeding mostly occurs during spring and summer, from August to January (Franklin et al., 1989). While there is some fidelity to nesting sites, pairs may nest 85 km from a nest site used the previous year, and some pairs change breeding sites between seasons. Re-nesting may occur after nest failure, but not necessarily in the same location (Geering and French, 1998; Ingwersen et al., 2013; Oliver et al., 1998). Breeding territories usually consists of the nest-tree and surrounding feeding areas, and may extend 5–40 m or more from the nest-tree (Higgins et al., 2001).

Regent honeyeater nests are usually placed in the canopy of mature trees with rough bark. A cup-shaped nest is constructed in which two to three eggs are laid. Nests may be near or far from food resources; one nest has been recorded 700 m from a resource tree (Geering and French, 1998). Most pairs nest solitarily, but sometimes nest in loose congregations where

distances between nests can range from 40 m to 110 m depending on location and habitat (Higgins et al., 2001). Generation time is estimated at 8.0 years (Garnett et al., 2011).

Threats

The decline of the Regent honeyeater is thought to be mainly due to the clearing, fragmentation and degradation of its habitat (Garnett et al., 2011). The species relies on a range of different food resources, and is particularly vulnerable to the removal of large mature trees which are important feeding and breeding habitat (Franklin et al., 1989; Oliver, 2000).

Woodlands have been widely cleared for agriculture and development, or replaced by silviculture, resulting in a fragmented landscape. Fragmentation exposes woodlands to increased degradation. Many remnant areas are in poor health and are continuing to be degraded by the removal of trees for timber and firewood, invasive weeds, inappropriate fire regimes, and grazing by livestock and rabbits which prevent regeneration. Eucalypt dieback (loss of eucalypts in pastoral areas caused by factors such as nutrient overload and salinity) has also resulted in habitat degradation and loss (Garnett et al., 2011; Higgins et al., 2001).

The Regent honeyeater competes with a range of nectarivorous and non-nectarivorous birds for resources, and actively defends feeding and breeding territories (Franklin et al., 1989; Geering and French, 1998; Higgins et al., 2001; Webster and Menkhorst, 1992). Competition for resources with more aggressive honeyeaters, particularly the noisy miner (*Manorina melanocephala*) and noisy friarbird (*Philemon corniculatus*) may be a factor in its decline (Ingwersen et al., 2013; Menkhorst et al., 1999). Increased predation by native nest predators, such as pied currawongs (*Strepera graculina*), may also be a threat (Fulton and Ford, 2002; Remes et al., 2012).

The rapid decline of the once large population also means that a severe loss of genetic variability is also a threat (Garnett et al., 2011).

How judged by the Committee 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%**

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.

based on any of the following:

(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

Evidence:

Eligible under Criterion 1 A2(a) for listing as Critically Endangered

The population size is difficult to assess. The species is mobile and unpredictable in its movements, and numbers recorded fluctuate greatly between years at a given site. Expert opinion suggests that there are currently 350-400 mature individuals (Ingwersen & Menkhorst, cited in Garnett et al., 2011). The population in NSW was estimated at maximum of 1000 birds in 1997, but there have been many fewer seen subsequently, with a maximum count of just 40 in 2009 (a decline of almost 95%). In north-eastern Victoria there are probably fewer than 20 mature individuals, and probably about 20-30 mature individuals in the Bundarra-Barraba region, NSW (NSW Scientific Committee, 2010). In the 19th century, the species was recorded in 'great' or 'immense' numbers, occasionally in 'thousands' or 'very large flocks' during influxes (Higgins et al., 2001). They are now usually seen singly, in twos, or in small groups, (DSEWPaC, n.d.). Based on the above and inferred from monitoring (Garnett et al., 2011), the species is thought to have undergone a past population decline of >80% over three generations (24 years). The main cause of the decline is thought to be clearance of the species' habitat.

The Committee considers that the species has undergone a very severe reduction in numbers over three generation lengths (24 years for this assessment), equivalent to at least 80 percent, and the reduction and cause of the decline have not ceased. Therefore, the species has been demonstrated to have met the relevant elements of Criterion 1 to make it eligible for listing as Critically Endangered.

Criterion 2. Geographic distribution is precarious for either extent of occurrence AND/OR area of occupancy			
	Critically Endangered Very restricted	**Endangered Restricted**	**Vulnerable Limited**
B1. Extent of occurrence (EOO)	**< 100 km²**	**< 5,000 km²**	**< 20,000 km²**
B2. Area of occupancy (AOO)	**< 10 km²**	**< 500 km²**	**< 2,000 km²**
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			

Evidence:

Not eligible

The extent of occurrence is estimated at 600 000 km^2 and the area of occupancy at 300 km^2. Both are considered to be decreasing, and the number of mature individuals is continuing to decline. However, the population is not severely fragmented and the species occurs at >10 locations. No extreme fluctuations in the population, extent of occurrence or area of occupancy have been recorded (Garnett et al., 2011).

Following assessment of the data the Committee has determined that the geographic distribution is restricted, however there are insufficient data available to judge whether there are threats operating that would make the species' geographic distribution precarious for its survival. Therefore, the species has not been demonstrated to have met this required element of this criterion.

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

Evidence:

Eligible under Criterion 3 C2(a)ii for listing as Endangered

The number of mature individuals is estimated at 350-400 (Ingwersen & Menkhorst, cited in Garnett et al., 2011) and there is an inferred continuing decline (Garnett et al., 2011), although there is no estimate as to the ongoing rate of decline. More than 95% of mature individuals occur in a single subpopulation (Garnett et al., 2011).

The Committee considers that the estimated total number of mature individuals of this species is low, and the geographic distribution is precarious for the survival of the species because more than 95% of mature individuals occur in a single subpopulation. Therefore, the species has been demonstrated to have met the relevant elements of Criterion 3 to make it eligible for listing as Endangered.

Criterion 4. Very small population			
	Critically Endangered Extremely low	**Endangered Very Low**	**Vulnerable Low**
Number of mature individuals	**< 50**	**< 250**	**< 1,000**

Evidence:

Eligible under Criterion 4 for listing as Vulnerable

The number of mature individuals is estimated at 350-400 (Ingwersen & Menkhorst, cited in Garnett et al., 2011).

The Committee considers that the total number of mature individuals is 350-400 which is low. Therefore, the species has been demonstrated to have met the relevant elements of Criterion 4 to make it eligible for listing as Vulnerable.

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:

Not eligible

Population viability analysis has not been undertaken.

Conservation Actions

Recovery Plan

The regent honeyeater *(Anthochaera Phrygia)* was listed under the *Environment Protection and Biodiversity Conservation Act (1999)* in July 2000. At the time of listing, all species were required to have a recovery plan. The decision to have a recovery plan for the regent honeyeater should remain.

Primary Conservation Objectives

1. Reverse the long-term population trend of decline and increase the numbers of regent honeyeaters to a level where there is a viable, wild breeding population, even in poor breeding years
2. Maintain key regent honeyeater habitat in a condition that maximises survival and reproductive success, and provides refugia during periods of extreme environmental fluctuation.

Conservation and Management Actions

1. Improve the extent and quality of regent honeyeater habitat.
2. Bolster the wild population with captive-bred birds until the wild population becomes self sustaining.
3. Maintain and increase community awareness, understanding and involvement in the recovery program

Monitoring priorities

1. Determine trends in the number and location of breeding birds

Information and research priorities

1. Increase understanding of the size, structure and population trend of the wild population of the regent honeyeater.
2. Increase understanding of movement patterns, particularly after breeding, and environmental correlates of sightings and absences
3. Quantify the impacts of noisy miners on the wild population
4. Develop silvicultural techniques that accelerate maturity in key food species
5. Determine genetic variability, particularly the extent to which the captive population is representative of the wild variability

Recommendations

(i) The Committee recommends that the list referred to in section 178 of the EPBC Act be amended by **transferring** from the Endangered category to the Critically Endangered category of the list:

Anthochaera phrygia

(ii) The Committee recommends that the current decision to have a recovery plan should be upheld.

Threatened Species Scientific Committee

04/03/2015

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