

# THREATENED SPECIES SCIENTIFIC COMMITTEE

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

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The Minister approved this conservation advice and retained this species in the Vulnerable category, effective from 01/02/2018

## Conservation Advice

### *Polytelis alexandrae*

princess parrot

#### **Taxonomy**

Conventionally accepted as *Polytelis alexandrae* (Gould 1863).

#### **Summary of assessment**

##### **Conservation status**

*Polytelis alexandrae* is listed as Vulnerable under the *Environmental Protection and Biodiversity Conservation Act 1999* (EPBC Act).

The princess parrot is listed as Vulnerable under Northern Territory legislation (*Territory Parks and Wildlife Conservation Act 2000*) and South Australian legislation (*National Parks and Wildlife Act 1972*), and as a 'priority fauna' under the Western Australia 'Priority Flora and Priority Fauna List'. For information on the listing status of this species under relevant state legislation, see <http://www.environment.gov.au/cgi-bin/sprat/public/sprat.pl>.

##### **Reason for conservation assessment by the Threatened Species Scientific Committee**

The princess parrot was listed as Vulnerable under the predecessor to the EPBC Act, the *Endangered Species Protection Act 1992* and transferred to the EPBC Act in July 2000.

This advice follows assessment of new information provided to the Threatened Species Scientific Committee (the Committee).

##### **Public consultation**

Notice of the proposed amendment and a consultation document was made available for public comment for 30 business days between 4 April and 19 May 2016. 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 princess parrot is a medium-sized slender parrot growing to 40–45 cm long. It has pointed backswept wings and a long tapering tail. Plumage is mostly dull olive-green, paler on the underparts, with a blue-grey cap, yellow-green shoulder patches, blue back and rump, pale blue-green upper tail and pink chin, throat and foreneck (Higgins 1999).

##### **Distribution**

The princess parrot irregularly occurs across the arid zone from near Oodnadatta in South Australia, west to near Coolgardie and the east Murchison River in Western Australia, and north to near the Fitzroy River in Western Australia and to Howell Ponds in the Northern Territory (Higgins 1999; Baxter & Henderson 2000). The species may be concentrated in the Great Sandy, Gibson, Tanami and Great Victoria Deserts, and in the central ranges (Blyth & Burbidge 1997; Higgins 1999). Heterogeneity confounds determination of any change in distribution but records from the periphery of the range, in south-west and north-west Western Australia, northern Northern Territory and northern South Australian have become less frequent since the 1950s (Blyth & Burbidge 1997).

## Relevant biology/ecology

The princess parrot is usually recorded from shrubland in swales between sand dunes, with occupied sites typically having a variety of shrubs (including *Grevillea*, *Hakea*, *Cassia* and *Eremophila* species) among scattered emergent trees, with a ground-cover of spinifex *Triodia* species. The species occurs less often in woodland, and sometimes occurs in vegetated riverine and littoral areas. The princess parrot forages on the ground and in flowering shrubs and trees (Higgins 1999; Pavey et al. 2014). The species feeds on grass seeds, *Acacia* seed pods, nectar from flowering trees and shrubs, and leaves (Higgins 1999; Pavey et al. 2014).

There is limited information regarding the biology of the princess parrot (Pavey et al. 2014). Breeding is likely to occur at any time of year following rains (Higgins 1999). Nests have been recorded in hollows of *Eucalyptus camaldulensis* (river red gum), *E. gongylocarpa* (marble gum) and *Allocasuarina decaisneana* (desert oak) (Baxter & Henderson 2000). Nests are typically in large trees, and approximately 6 m from the ground (Pavey et al. 2014). Clutch size for wild princess parrots is thought to range from 3–6 eggs (Higgins 1999), which accords with field observations that found adults typically fledged one or two young, but could fledge up to five (Pavey et al. 2014).

The princess parrot is gregarious, occurring in small groups and in flocks (Higgins 1999). The species undertakes large-scale movements (BirdLife International 2016). The species is scarce, and often not present for long periods and then large numbers of birds are seen breeding in a particular area for a short time. It is considered that rainfall events may trigger breeding events (Pavey et al. 2014).

A generation time of 7.7 years is derived from an age at first breeding of two years and a maximum longevity of 13.4 years. Both values are extrapolated from captive birds where maximum recorded longevity extends to 24 years (Garnett et al. 2011).

## Threats

There are no known current threats for the princess parrot, but the species may be adversely affected by the same habitat changes that led to the extinction of many central Australian mammals over the twentieth century (Burbidge & McKenzie 1989). It is suspected that the princess parrot is threatened by increased intensity of wildfires (Pavey 2014). The species is potentially threatened by habitat degradation from introduced weeds and herbivores, predation by introduced predators, competition with other bird species, disease and illegal collection (Garnett et al. 2011; BirdLife International 2016).

**Table 1** – Potential threats impacting the princess parrot in approximate order of severity of risk, based on available evidence.

Threat factor	Threat type and status	Evidence base
Fire		
Increased intensity of fire events	suspected present	Increased intensity of fire events, due to higher fuel loads, is suspected to threaten the princess parrot through the death of hollow bearing trees and reduced food availability (Pavey 2014). Large wildfires have been observed to cause the mortality of tree species important to the breeding of princess parrots, such as river red gums (Pavey 2014). However, the impact of larger wildfires on the princess parrot has not been directly determined.

Invasive species		
Habitat modification by buffel grass ( <i>Cenchrus ciliaris</i> )	potential present	Buffel grass is an invasive weed and is known to occur within the distribution of the princess parrot. It has the potential to invade key breeding and foraging habitat (Pavey 2014) and outcompete native grasses (Smyth et al. 2009). When established, buffel grass is known to alter fuel loads, and increase the intensity and frequency of fire events. Buffel grass may therefore be reducing the availability of nesting trees and food resources for the princess parrot. However, the level of impact has not been determined.
Habitat degradation by rabbits ( <i>Oryctolagus cuniculus</i> ) and camels ( <i>Camelus dromedarius</i> )	potential present	Habitat degradation by rabbits and camels may be reducing the quality and availability of suitable breeding and foraging habitat for the princess parrot (Garnett et al. 2011; BirdLife International 2016). However, the threat of habitat degradation by rabbits and camels on the princess parrot has not been directly demonstrated.
Predation by cats ( <i>Felis catus</i> ) and foxes ( <i>Vulpes vulpes</i> )	potential present	Cats and foxes may prey on the princess parrot (BirdLife International 2016). However, the threat of predation by cats and foxes on the princess parrot has not been demonstrated.
Domestic species		
Habitat degradation and modification by grazing of domestic stock	potential present	The grazing of domestic stock has caused habitat degradation and vegetation modification in the arid zone (Reid & Fleming 1992). Overgrazing by exotic herbivores is considered to be the principal agent causing declines in bird species within the arid zone of Australia (Reid & Fleming 1992). Past and present grazing practises may potentially threaten the princess parrot (Garnett et al. 2011; BirdLife International 2016). However, the threat of grazing on the princess parrot has not been demonstrated.
Competition with native species		
Competition for resources with other parrot species	potential present	Increased availability of water in areas grazed by domestic stock may have allowed other more water-dependent parrots to expand into the arid zone and compete with princess parrots (Garnett et al. 2011). However, the threat of competition as a result of increased water availability on the princess parrot has not been demonstrated.
Disease		
Psittacine Circoviral Disease	potential present	Psittacine Circoviral Disease also known as 'Beak and Feather Disease' (PBFD) is an infectious and potentially fatal virus that is naturally occurring and common in Australian parrots (DEH 2005). The Action Plan for Australian Birds (Garnett et al. 2011) considers Psittacine Circoviral Disease a potential threat to the species. However, the presence or extent of the disease in the princess parrot population, and its effect on mortality rates and population size, are not currently understood.

Illegal collection		
Illegal collection of birds and eggs	potential present	The Action Plan for Australian Birds (Garnett et al. 2011) considers illegal collection of princess parrots and their eggs to be a minor threat to the species. However, the impact of illegal collection on the princess parrot has not been determined.

**How judged by the Committee in relation to the EPBC Act criteria and regulations**

<b>Criterion 1. Population size reduction (reduction in total numbers)</b>			
Population reduction (measured over the longer of 10 years or 3 generations) based on any of A1 to A4			
	<b>Critically Endangered Very severe reduction</b>	<b>Endangered Severe reduction</b>	<b>Vulnerable Substantial reduction</b>
<b>A1</b>	<b>≥ 90%</b>	<b>≥ 70%</b>	<b>≥ 50%</b>
<b>A2, A3, A4</b>	<b>≥ 80%</b>	<b>≥ 50%</b>	<b>≥ 30%</b>
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"> <li>(a) direct observation [except A3]</li> <li>(b) an index of abundance appropriate to the taxon</li> <li>(c) a decline in area of occupancy, extent of occurrence and/or quality of habitat</li> <li>(d) actual or potential levels of exploitation</li> <li>(e) the effects of introduced taxa, hybridization, pathogens, pollutants, competitors or parasites</li> </ul>		

**Evidence:**

**Insufficient data to determine eligibility.**

There is limited information regarding population trends for the princess parrot, given the species' sporadic movements and the remoteness and vastness of the species' distribution. (BirdLife International 2016).

A decline in the number of records since 1950 on the periphery of the species' range suggests a range contraction over recent times (BirdLife International 2016). However, the princess parrot population is currently considered to be stable (Garnett et al. 2011; BirdLife International 2016), but with a low certainty around this estimate.

The Committee considers that there are insufficient data to demonstrate whether the princess parrot meets the requirements of Criterion 1, as population trends over time cannot be determined with any reliability.

<b>Criterion 2. Geographic distribution as indicators for either extent of occurrence AND/OR area of occupancy</b>			
	<b>Critically Endangered Very restricted</b>	<b>Endangered Restricted</b>	<b>Vulnerable Limited</b>
B1. Extent of occurrence (EOO)	< 100 km <sup>2</sup>	< 5,000 km <sup>2</sup>	< 20,000 km <sup>2</sup>
B2. Area of occupancy (AOO)	< 10 km <sup>2</sup>	< 500 km <sup>2</sup>	< 2,000 km <sup>2</sup>
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:**

**Insufficient evidence to determine eligibility.**

The extent of occurrence (EOO) for the princess parrot is estimated at 1.3 million km<sup>2</sup> and area of occupancy (AOO) is estimated as 470 km<sup>2</sup> (DOEE 2017), which could be considered as restricted. These figures are based on the mapping of point records from 1997 to 2017, obtained from state governments, museums, CSIRO and Birdlife Australia. The EOO was calculated using a minimum convex hull, and the AOO calculated using a 2x2 km grid cell method, based on the IUCN Red List Guidelines 2014 (DOEE 2017). The estimate of AOO is likely an underestimate, as while the species occurs over a very large area they are poorly surveyed within that area. Additional surveying may result in increased data points and a higher AOO. The Action Plan for Australian Birds 2010 (Garnett et al. 2011) estimates the AOO for this species at 10 000 km<sup>2</sup>, with a low reliability.

The princess parrot is considered to occur in a single, connected population spread across many locations (>10) (Garnett et al. 2011). Despite substantial historical land degradation and modification that has occurred within the species' distribution (Reid & Fleming 1992), the past and current population trend of the princess parrot remains undetermined. While princess parrots are known to congregate locally for breeding, likely triggered by local rainfall events, it is not known if their population undergoes extreme fluctuations in response to these conditions.

The Committee considers that there are insufficient data to demonstrate whether the princess parrot meets the requirements of Criterion 2. Additional population data are required to assess the distribution, number of locations and population trend of the princess parrot.

<b>Criterion 3. Population size and decline</b>			
	<b>Critically Endangered Very low</b>	<b>Endangered Low</b>	<b>Vulnerable Limited</b>
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)	<b>Very high rate 25% in 3 years or 1 generation (whichever is longer)</b>	<b>High rate 20% in 5 years or 2 generation (whichever is longer)</b>	<b>Substantial rate 10% in 10 years or 3 generations (whichever is longer)</b>
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
(a) (ii) % of mature individuals in one subpopulation =	90 – 100%	95 – 100%	100%
(b) Extreme fluctuations in the number of mature individuals			

**Evidence:**

**Insufficient data to determine eligibility.**

The princess parrot population is estimated at approximately 1200 mature individuals with low reliability (Garnett et al. 2011). The species is considered to occur in a single widespread population and undergo moderate fluctuations (BirdLife International 2016). The population may approach 1000 mature individuals in poor years (Garnett et al. 2011).

It is unknown whether the princess parrot population is experiencing continuing decline in abundance and distribution (BirdLife International 2016).

The Committee considers that there are insufficient data to demonstrate whether the princess parrot meets the requirements of Criterion 3. The evidences indicates the princess parrot population has a limited number of mature individuals but additional population data are required to assess the population trend of the species.

<b>Criterion 4. Number of mature individuals</b>			
	<b>Critically Endangered Extremely low</b>	<b>Endangered Very Low</b>	<b>Vulnerable Low</b>
Number of mature individuals	< 50	< 250	< 1,000

**Evidence:**

**Insufficient data to determine eligibility.**

There are no reliable estimates of the princess parrot population. The Action Plan for Australian Birds (Garnett et al. 2011) estimates the population at 1200 mature individuals, and states that the population may approach 1000 individuals in poor years, but these estimates were considered to have a low reliability.

The Committee considers that there are insufficient data to demonstrate whether the princess parrot meets the requirements of Criterion 4. Additional population data are required to assess the population size of the species.

<b>Criterion 5. Quantitative Analysis</b>			
	<b>Critically Endangered Immediate future</b>	<b>Endangered Near future</b>	<b>Vulnerable Medium-term future</b>
Indicating the probability of extinction in the wild to be:	<b>≥ 50% in 10 years or 3 generations, whichever is longer (100 years max.)</b>	<b>≥ 20% in 20 years or 5 generations, whichever is longer (100 years max.)</b>	<b>≥ 10% in 100 years</b>

**Evidence:**

**Insufficient data to determine eligibility.**

As a population viability analysis has not been undertaken, there are insufficient data to demonstrate if the princess parrot is eligible for listing under Criterion 5.

**Consideration for delisting**

The Bird Action Plan 2010 suggests that the princess parrot population may approach 1000 adults in poor years, which approaches eligibility as Vulnerable under Criterion 4. This, combined with there being no evidence to support a recovery since listing under the EPBC Act in July 2000 and insufficient data to adequately assess the species against several of the EPBC eligibility criteria, supports leaving the princess parrot on the List of Threatened Species.

The inclusion of the princess parrot in the Vulnerable category is contributing to the survival of the species, as the EPBC Act requires project proponents to refer a proposal for assessment if it may have a significant impact on a threatened species and because the Conservation Advice helps guide recovery efforts.

**Conservation actions**

**Recovery plan**

There is no recovery plan for the princess parrot and a recovery plan is not required. A conservation advice was approved by the Minister (or Delegate of the Minister) on 3 July 2008.

**Primary conservation actions**

The primary conservation action for the princess parrot is to maintain breeding habitat by undertaking active fire management and control of domestic and invasive species.

**Conservation and management priorities**

**Fire**

- Fires must be managed to ensure that prevailing fire regimes support the maintenance and restoration of grassland structure and the maintenance of hollow-bearing trees, that they do not disrupt the life cycle of the princess parrot, that they do not promote invasion of exotic species or lead to increased predation levels.
- Physical damage to princess parrot habitat must be avoided during and after fire operations. Fire management authorities and land managers should use suitable maps and install field markers to avoid damage to princess parrot habitat.

**Invasive species**

- Undertake a control program for weeds, including buffel grass, where they are observed to threaten, or pose a threat to, the princess parrot, using appropriate methods.
- Develop and implement a control program to reduce numbers of cats and foxes at all known princess parrot breeding and foraging sites.

### Domestic species

- Ensure introduced domestic species (e.g) do not degrade princess parrot habitat, primarily by ensuring suitable stocking regimes.

### Illegal collection

- Encourage bird watchers and other stakeholders to suppress the exact location of nests and breeding colonies.

### Stakeholder Engagement

- Engage with local communities, including indigenous land managers, to promote conservation of the princess parrot and the species' habitat across land tenures.

### Survey and monitoring priorities

- Undertake monitoring and targeted surveys to more precisely assess the princess parrot population size, population trend and distribution.
- Monitor the response of the subspecies to fire, using an appropriate measure (e.g. occupancy, abundance, mortality, ranging behaviour and breeding success) based on knowledge of the ecology of the species, and with a monitoring design that aims to improve understanding of the species' response to fire.
- Monitor the spread of weeds, particularly buffel grass, within princess parrot habitat to inform ongoing management actions. Undertake site mapping to identify high risk weed infestations within princess parrot habitat to assist planning.
- Monitor changes in habitat use of more water dependent parrots as a result of increased water availability at stock watering points, with a particular focus on detecting changes in long term distribution and any associated deleterious effects of increased competition on the princess parrot for breeding and feeding resources.
- Monitor the princess parrot population for the presence of Psittacine Circoviral Disease.
- Monitor the progress of recovery, including the effectiveness of management actions and the need to adapt them in necessary.

### Information and research priorities

- Better understand habitat use of the princess parrot, its movements, response to rainfall and threatening processes through targeted surveys and population focused studies.

### Recommendations

- (i) The Committee recommends that *Polytelis alexandrae* retain its current listing status of Vulnerable in the list referred to in section 178 of the EPBC Act as there is insufficient evidence to support transferring it to a different category and inclusion of the species in that category is likely to be having a beneficial impact on the continued survival of the species.
- (ii) The Committee recommends that the current decision to not have a recovery plan for princess parrot is maintained.

Threatened Species Scientific Committee

13/09/2017



## **References cited in the advice**

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## **Other sources cited in the advice**

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