

Threatened Species Assessment

Pezoporus wallicus Ground Parrot

Taxonomy

Pezoporus wallicus (Kerr, 1792)

Current conservation status

Listed as threatened under the *Flora and Fauna Guarantee Act 1988* (SAC 1992).

Categorised as Endangered in the 2013 Advisory list of threatened vertebrate fauna in Victoria (DSE 2013).

Proposed conservation status

Endangered in Victoria

Criterion C2a(ii)

Species Information

Description and Life History

The Ground Parrot is bright green in colour and is barred and spotted with yellow and black. It has black streaks on its crown and forehead. It also has a red frons and its long green tail is barred with yellow. The parrot is approximately 30cm in length and has a distinctive bell-like voice (SAC 1992). Ground Parrots forage in dense vegetation, taking food either from the ground or by standing on plant stems (often sedges) and forcing seed-heads to the ground (Emison et al. 1987). It nests on the ground, usually in a dry, well-drained site such as a low ridge, slope or slight rise and sheltered by low, dense vegetation such as sedges, rushes, ferns and shrubs including *Xanthorrhoea*, *Banksia*, *Empodisma* and *Leptospermum* spp. (Higgins 1999; McFarland 1991b; McFarland 2005, pers. comm.). The nest is a depression scratched in sand or earth and lined with leaves and stems (Higgins 1999). The eggs are white, glossy and round to oval or elliptical in shape.

Meredith et al. (1984) provide more detail on the species ecology. Chan et al. (2008) noted that the Ground Parrot has a low level of genetic diversity, comparable with species that are classified as endangered. Higgins (1999) provides a detailed description and further ecology on the species.

Generation Length

The generation length of the Ground Parrot is estimated to be 9 to 10 years, as per Garnett et al. (2011, p. 260) and BirdLife International (2019). Garnett et al. (2011) noted that this figure is estimated '...from an age at first breeding of 2.0 years and a maximum longevity in the wild of 17.4 years, both extrapolated from other Psittacidae.'

Distribution

The Ground Parrot is endemic to Australia, with the eastern subspecies found in coastal southeastern and eastern Australia (Higgins 1999). Ground Parrots once occurred extensively across the Victorian coast and, particularly, round Port Phillip Bay and Western Port (Emison et al. 1987). The species is now largely restricted to certain coastal locations in the Croajingolong, Gippsland Lakes and Wilsons Promontory areas.

Habitat

Ground Parrots inhabit treeless wet heaths and dense sedgelands near the coast in East Gippsland Plains and on Wilsons Promontory, with smaller resident populations in the Otway Ranges and near Nelson (Emison et al. 1987).

Pezoporus wallicus

Ground Parrot

The coastal heathland is more important as it comprises 93% of the Victorian habitat. The taxon is restricted to these heathlands and sedgeland types that combine two important characteristics of very dense cover (projective foliage cover > 80%) and a high density of the birds' food plants such as seeding sedges in the families Cyperaceae and Restionaceae. The Ground Parrot is dependent on particular fire regimes to maintain habitat suitability. The taxon is commonly found in heathlands that are 3-10 years old. Numbers decline after the heath ages past 10 years and in many cases the bird is absent in heaths older than 20 years (SAC 1992).

Threats

Baker et al. (2010) concluded that inappropriate fire is the main threat to the taxon, viz. 'We recommend that, in south-eastern Australia, fire should not be used to manipulate the ecological functioning of habitat for the persistence of Ground Parrot populations and conclude that there should be area-specific adaptive management plans that specify how the important elements of the biodiversity will be conserved and how this will be measured.'

Garnett et al. (2011, p. 260) notes the following key threats to the taxon: 'The most important current threat is extensive and intense fires that temporarily remove habitat and can extirpate isolated subpopulations. Historically much habitat has been lost through clearing for agriculture and residential development but this is no longer a direct threat and almost all remaining birds are on protected areas. The relatively high rate of hatching failure in the subpopulation in south-east Queensland may be related to a particularly low rate of genetic variability.'

IUCN Criteria

Criterion A. Population size reduction. Population reduction (measured over the longer of 10 years or 3 generations) based on any of A1 to A4			
	Critically Endangered	Endangered	Vulnerable
A1	≥ 90%	≥ 70%	≥ 50%
A2, A3, A4	≥ 80%	≥ 50%	≥ 30%

<p>A1 Population reduction observed, estimated, inferred or suspected in the past and the causes of the reduction are clearly reversible AND understood AND ceased.</p> <p>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.</p> <p>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]</p> <p>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.</p>	<p>based on any of the following:</p>	<p>(a) direct observation [except A3]</p> <p>(b) an index of abundance appropriate to the taxon</p> <p>(c) a decline in area of occupancy, extent of occurrence and/or quality of habitat</p> <p>(d) actual or potential levels of exploitation</p> <p>(e) the effects of introduced taxa, hybridization, pathogens, pollutants, competitors or parasites</p>
--	---------------------------------------	---

Evidence:

Eligible under Criterion A3 as Vulnerable

The population reduction over the next 27 to 30 years is projected to be 10 to 40% (midpoint 20%), based on (b) and (c) above.

Pezoporus wallicus Ground Parrot

Inappropriate fire regimes are the major threat to the taxon, and under climate change, it is expected that there will be increased drying, warming and more frequent and intense bushfires, leading to an ongoing reduction in numbers.

Eligible under Criterion A4 as Vulnerable

The population reduction over any 27 to 30 year period, including both past and future, is projected to be 20 to 30%, based on (b) and (c) above.

Garnett et al. (2011) noted that the loss of this species from the Otways has probably occurred within the last 3 generations and monitoring is at best patchy and has not been compiled and analysed across all sites. Most of the population in East Gippsland have been impacted by the 2019/2020 bushfires. The fires are believed to have impacted more than 33% of the taxon's modelled habitat, although the degree of damage is yet to be determined.

The causes of reduction may not have ceased, be understood or be reversible.

Criterion B. Geographic range in the form of either B1 (extent of occurrence) and/or B2 (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:			
(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:

Eligible under Criterion B as Vulnerable

The Area of Occupancy (AoO) is estimated to be 730 km², based on 2 x 2 km grids derived from accepted, post-1970 records in the Victorian Biodiversity Atlas (VBA).

The taxon is inferred to be severely fragmented. There are several small isolated subpopulations that are all at risk from wildfire, such that there is increased extinction risk and little or no probability of recolonisation should subpopulations become extinct.

It is estimated to have 3 locations, as each of the three subpopulations could be severely impacted by a bushfire.

It has a continuing decline in (i), (ii), (iii), (iv) and (v) above.

Pezoporus wallicus Ground Parrot

Criterion C. Small Population size and decline				
		Critically Endangered	Endangered	Vulnerable
Number of mature individuals		< 250	< 2,500	< 10,000
AND at least one of C1 or C2				
C1	An observed, estimated or projected continuing decline of at least (up to a max. of 100 years in future):	25% in 3 years or 1 generation (whichever is longer)	20% in 5 years or 2 generations (whichever is longer)	10% in 10 years or 3 generations (whichever is longer)
C2	An observed, estimated, projected or inferred continuing decline AND 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 C2 as Endangered

It is estimated that there are 300 to 550 mature individuals. The Victorian population was estimated at 600-700 birds in 1979-80, including approximately 400 in Croajingalong National Park, fewer than 100 in the Bemm River-Marlo region, fewer than 100 in Wilsons Promontory National Park and approximately 60 at Long Swamp (Meredith and Isles 1980). Numbers are considered to have declined since then.

The number of mature individuals is estimated to continue to decline. Outlying populations have disappeared from the Otways and far south-west. Bluff (2016) found that for East Gippsland populations, time since fire and the species-distribution model were significantly associated with the probability of Ground Parrots occupying a site, and this model provided indirect evidence of decline in Ground Parrot occupancy in recent decades. Landscape modelling of the expected total area occupied by Ground Parrots between 1979 and 2013 suggested a strong peak would have occurred in the late 1990s; suitability of habitat over much of the landscape is now declining.

The percentage of mature individuals in one subpopulation is 95-100 %.

Criterion D. Very small or restricted population [⊠]			
⊠	Critically Endangered [⊠]	Endangered [⊠]	Vulnerable [⊠]
Number of mature individuals (observed or estimated) [⊠]	< 50 [⊠]	< 250 [⊠]	< 1,000 [⊠]
D2. Only applies to the VU 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: [¶] AoO < 20 km ² or number of locations ≤ 5 [⊠]

Evidence:

Eligible under Criterion D as Vulnerable

It is estimated that there are 300 to 550 mature individuals.

Criterion E (Quantitative Analysis) was not addressed as the taxon does not have a detailed Population Viability Analysis.

References

- Baker, J., Whelan, R.J., Evans, L., Moore, S. and Norton, M. (2010) Managing the Ground Parrot in its fiery habitat in south-eastern Australia. *Emu - Austral Ornithology* 110 (4):279-284.
- BirdLife International (2019) *Species factsheet: Pezoporus wallicus*. (downloaded from <http://www.birdlife.org> on 26/02/2019)
- Bluff, L.A. (2016) Ground Parrots and fire in east Gippsland, Victoria: habitat occupancy modelling from automated sound recordings. *Emu* 116: 402-410.
- Chan, K., Glover, D.R., Ramage, C.M. and Harrison, D.K. (2008) Low Genetic Diversity in the Ground Parrot (*Pezoporus wallicus*) Revealed by Randomly Amplified DNA Fingerprinting. *Annales Zoologici Fennici* 45(3): 211-217.
- Collar, N. and Boesman, P. (2019) Ground Parrot (*Pezoporus wallicus*). In: del Hoyo, J., Elliott, A., Sargatal, J., Christie, D.A. and de Juana, E. (eds.). *Handbook of the Birds of the World Alive*. Lynx Edicions, Barcelona. (downloaded from <https://www.hbw.com/node/54532> on 27 February 2019).
- DSE (2013) *Advisory List of Threatened Vertebrate Fauna in Victoria 2013*. Department of Sustainability and Environment, Melbourne
- Emison, W.B., Beardsell, C.M., Norman, F.I. and Loyn, R.H. and Bennett, S.C. (1987) *Atlas of Victorian Birds*. p. 150. Department of Conservation, Forests and Lands, Royal Australasian Ornithologists Union, Melbourne.
- Garnett, S.T., Szabo, J.K. and Dutson, G. (2011) *The Action Plan for Australian Birds 2010*. pp: 259-260. CSIRO Publishing, Collingwood.
- Higgins, P.J. (ed.) (1999) *Handbook of Australian, New Zealand and Antarctic Birds. Volume 4 - Parrots to Dollarbird*. pp: 592-606. Oxford University Press, Melbourne.
- Meredith, C.W., Gilmore, A.M. and Isles, A.C. (1984) The ground parrot (*Pezoporus wallicus* Kerr) in south eastern Australia: a fire adapted species? *Australian Journal of Ecology* 9: 367-380.
- Meredith, C.W. and A.C. Isles (1980). A Study of the Ground Parrot (*Pezoporus wallicus*) in Victoria. Ministry of Conservation Environmental Studies Division, Victoria
- SAC (1992) *Final Recommendation on a Nomination for Listing: Pezoporus wallicus Ground Parrot* (Nomination No. 259). Flora and Fauna Guarantee Scientific Advisory Committee. Department of Conservation and Environment, Melbourne.