The Minister's delegate approved this Conservation Advice on 15/07/2016.

Conservation Advice

Pezoporus occidentalis

night parrot

Conservation Status

Pezoporus occidentalis (night parrot) is listed as Endangered under the *Environment Protection and Biodiversity Conservation Act 1999* (Cwlth) (EPBC Act). The species is listed as prior to the commencement of the EPBC Act, it was listed as Endangered under Schedule 1 of the *Endangered Species Protection Act 1992* (Cwlth).

The night parrot is also listed as Critically Endangered under the *Territory Parks and Wildlife Conservation Act 2000* (Northern Territory), Endangered under the *Nature Conservation Act 1992* (Queensland), Endangered under the *National Parks and Wildlife Act 1972* (South Australia), Rare or Likely to Become Extinct under the *Wildlife Conservation Act 1950* (Western Australia), Presumed Extinct under the *Threatened Species Conservation Act 1995* (New South Wales), and Regionally Extinct under the *Advisory List of Threatened Vertebrate Fauna in Victoria 2003* (Victoria). The night parrot is listed under Appendix I of the *Convention on International Trade in Endangered Species of Wild Fauna and Flora* (CITES) 2006.

Description

The night parrot is a medium-sized, nocturnal, ground-feeding parrot growing 22 - 25 cm long. The only recorded weight is a trapped female that weighed 104 g (Murphy 2015a). Adults are mostly bright-green with extensive black and yellow markings, including streaks, spots and bars and a yellow belly (Higgins, 1999). The night parrot characteristically makes a '*ding-ding*' call similar to that of a bell miner (*Manorina melanophrys*), a short frog-like '*grieet*', and other three and four-note calls (Murphy 2015a, Murphy 2016).

Distribution

The current distribution of the night parrot is not known. Historic records and observations are scanty and anecdotal with few substantiated records since 1935. There are accepted historical records from remote arid and semi-arid inland regions of Western Australia, Northern Territory, South Australia and Queensland (Higgins, 1999). It is possible that the night parrot may continue to occur throughout much of this range (Garnett et al., 1993; Blyth, 1996; Garnett & Crowley, 2000; Garnett et al. 2011). Despite numerous unverified sightings, several dedicated searches and public campaigns there have been only two areas (western Queensland and the Pilbara in Western Australia) where reliable records indicate that populations may persist (Night Parrot Recovery Team, pers comm. 2016). Sometime prior to 2013, a population was located in southwestern Queensland by naturalist John Young (Koch 2013). An unknown number (suspected to be small) of individuals were detected every month during a survey between August 2013 and January 2016 (Murphy 2016). This population is thought to be part of a larger regional-scale extant population (Night Parrot Recovery Team, pers comm. 2016). The location of this area has not been identified in order to protect the species.

Relevant Biology/Ecology

Prior to 2013, most ecological information about night parrots was based on largely anecdotal observations, and these are not detailed here. Since 2013, systematic research has been undertaken on the species, with a focus on the southwestern Queensland population (Murphy 2013, 2014, 2015ab, 2016). This research corroborates previous observations and contradicts or clarifies several assumptions and speculations that arose from anecdotal reports and the records of naturalists from the 1800s.

The variation between reports and observations may be due to actual variation in the species' ecology across its range, or due to erroneous assumptions and/or from spurious observations. For example Higgins (1999) reported that the species may be nomadic, have very large home ranges, be sedentary under suitable conditions, be absent during dry seasons with little seed, be present when seed is plentiful, and move between samphire and spinifex according to seed availability but acknowledges both the lack of evidence to support these views and that the observations are inconclusive. Systematic acoustic monitoring (Murphy 2015, 2016) has shown that night parrots in southwestern Queensland regularly roosted in the same location despite exceptionally dry conditions when no *Triodia* (Spinifex) seed was available, corroborating the report that birds may remain sedentary under suitable conditions in some parts of the range.

Similarly, night parrots were recorded drinking water in northeastern South Australia and northwestern Western Australia (Higgins 1999), although Murphy (2016) suggested that night parrots may not rely on surface water, and instead may derive sufficient metabolic water from foraging on succulent plants, such as *Sclerolaena* spp. This indicates that access to water may not be required in some circumstances.

Most habitat records are of *Triodia* (Spinifex) grasslands and/or chenopod shrublands (Garnett et. al., 2011) in the arid and semi-arid zones, and Higgins (1999) listed *Astrebla* spp. (Mitchell grass), shrubby samphire and chenopod associations, scattered trees and shrubs, *Acacia aneura* (Mulga) woodland, treeless areas and bare gibber as associated with sightings of the species. S. Murphy (pers. comm.) recorded a similar range of habitats used or traversed by individuals in southwestern Queensland: Cretaceous sandstone, claystone, and siltstone residuals; either dominated by *Triodia longiceps* on slopes and margins of duricrust plateaus or with *Sclerolaena* spp., *Maireana* spp. (Saltbush spp.), *Ptilotus* spp. (Mulla Mulla spp.), and small areas of *T. longiceps*; with occasional watercourses with *Acacia cambagei* (stinking gidgee). Photographs (Murphy 2015, 2016) of roost and suspected foraging locations in these habitats show isolated Spinifex and chenopod clumps on bare gibber, and scattered *Sclerolaena* plants growing in the margins of an erosion runnel on bare gibber.

Roosting and nesting sites are consistently reported as within clumps of dense vegetation, primarily old and large Spinifex clumps, but sometimes other vegetation types (Higgins 1999, Murphy 2015).

The habitat of the southwestern Queensland population is naturally fragmented, and is unlikely to promote fire behaviour that results in most habitat in this area being burned by one fire event (Murphy 2015, pers. comm. 2016).

At one location in southwestern Queensland, Murphy (2016) regularly detected a radio-tagged night parrot flying 7.2 km from its daytime roost, which was 13.5 km from the point of capture. There were also long periods every night of the tracking session during which this bird was unable to be located. Higgins (1999) noted a range of reports that suggested that some birds may move or fly significant distances at times.

Threats

There are no known threats to this species. The causes of the assumed decline of the species "....are essentially guesswork" (Garnett et al. 2011). Blyth (1996) proposed a list of threats considered realistic in the absence of direct evidence. Threats to the species are likely to vary across its range.

Table 1 – Threats impacting the night parrot based on available evidence. Order of severity of risk is unknown.

Threat factor	Threat type and status	Evidence base
Invasive and domestic species		
Predation by feral cats *(Felis catus)*	suspected current	There are historical reports of cat – night parrot interactions: e.g. the decline of night parrots at Alice Springs and Innamincka coincided with the arrival of cats (referenced in Garnett et al 2011) "many were brought in by cats to Alice Springs Telegraph station" (Ashby 1924). Scatter of night parrot feathers possibly from feral cat attack, however no cat DNA was detected (Murphy 2014). Predation by feral cats is known to have caused declines and extinctions in small-medium sized mammals, and the ground-dwelling night parrot could be similarly affected.
Predation by foxes *(Vulpes vulpes)*	suspected current	No direct evidence (Garnett 1992a,b; Blyth 1997), but predation by foxes is known to have caused declines and extinctions in small-medium sized mammals, and the ground-dwelling night parrot could be similarly affected.
Soil disturbance, erosion and loss caused by feral herbivores	suspected current	No direct evidence. In Blyth (1997): "..degrading effects upon, critical areas of above-average nutrients and moisture in the arid zone, especially during times of drought (Morton 1990)."
Degradation of habitat around water points by livestock and feral herbivores	suspected current	No direct evidence, but seems plausible. In Blyth (1997): "degrading effect by hard-hoofed animals around watering points (e.g. Stafford-Smith and Pickup 1990), perhaps resulting in the more or less permanent loss of palatable herbage within a reasonable flying distance for the night parrot."
Competition for food by livestock or feral herbivores	suspected current	No direct evidence (Garnett 1992a,b; Blyth 1996), but seems plausible.
Soil disturbance, erosion and loss caused by livestock	suspected current	No direct evidence. It is noted in Blyth (1997): "..degrading effects upon, critical areas of above-average nutrients and moisture in the arid zone [on which night parrots may rely], especially during times of drought (Morton 1990)."
Fire		
Human-induced fire events	suspected current	Numerous references indicate that the species appears to rely on roosting/nesting in dense clumps of vegetation that are long-unburnt. (Garnett 1992a,b; Blyth 1997). Murphy (2016) analysed archived Landsat satellite and aerial imagery to show no detectable fires for at least 63 years at a site in southwestern Queensland.

Increased fire extent	suspected current	Numerous references indicate that the species appears to rely on roosting/nesting in dense clumps of vegetation that are long-unburnt. Buffel grass (*Cenchrus ciliaris*) has replaced native grasslands throughout the arid zone, and increases in fuel load are correlated with buffel grass invasion (Miller et al., 2010), leading to more intense fires that spread further.
Disease		
Infection with psittacine beak and feather disease, Avian pox, and other diseases	suspected current	All endangered Australian psittacine bird species are susceptible to, and equally likely to be infected by psittacine beak and feather disease (PBFD) (Raidal et al., 2015). Department of the Environment (2015) reports a low level of concern with (PBFD) provided sufficient control measures are imposed. Department of Environment and Heritage (2006) established hygiene and reporting protocols to assist in reducing the risk of the spread of bird diseases including PBFD.
Collection of birds or eggs		
Illegal collection of birds or eggs	suspected current	No direct evidence but general knowledge of wildlife trafficking indicates that species which are both unobtainable in the legal market place and not held in captive collections are very high value items (Department of Environment and Heritage Protection, pers comm. 2016).
Habitat loss disturbance and modifications		
Disturbance from bird watching activities	suspected current	No direct evidence, but there is potential for mass visitation to the recently-found population to be a problem.
Fences	suspected current and potential	A night parrot is likely to have died from colliding with a fence in Diamantina National Park in 2006 (Ley & Bryant 2008). They tend to fly low over the ground, thus increasing the risk of collision compared with other birds.
Reduction in water availability through over-use of waterholes by camels	suspected current	No direct evidence (Garnett 1992a). It is noted in Blyth (1996): “reduced availability of water as a result of over-use by feral camels”.
Reduction in water availability through reduced waterhole maintenance	suspected current	No direct evidence. Blyth (1996) suggests: “reduced availability of water as a result of the decline of waterholes because of reduced maintenance by Aboriginal people.”

Conservation Actions

Conservation and Management priorities

The interim conservation strategy for the night parrot is to secure the only known extant population by eliminating or minimising key local threats, improving knowledge of species

biology and ecology, identifying the most effective survey methods, and identifying and securing further populations across its former range (Night Parrot Recovery Team, pers comm. 2016).

The implementation of actions relating to the threats identified above should be targeted in the following order of priority; within known habitat, within likely habitat, within potential habitat (Night Parrot Recovery Team, pers comm. 2016).

Due to the increasing knowledge about the species, the above strategy and priority order may be revised at any time. This Conservation Advice acknowledges that it may not reflect those changes.

Invasive species

- Implement targeted cat control in area of extant population, and other areas according to priority.
- Collaborate with landholders to maintain dingoes in the landscape that encompasses the extant population in Queensland, to suppress cats and foxes.

Fire

- Manage access to land leased or managed for night parrot conservation to minimise fire ignition. Brief visitors on strategies and protocols to prevent fire ignition.
- Collaborate with landholders to minimise the risk of fire in the landscape that encompasses the extant population.
- Establish strategic mineral earth fire breaks to prevent the spread of fire on land leased or managed for night parrot conservation.
- Establish capacity to suppress fires in habitat in area of extant population.
- Suppress fires in habitat in area of extant population.
- Eradicate buffel grass on land leased or managed for night parrot conservation.
- Collaborate with landholders to manage buffel grass to meet both economic and night parrot conservation objectives in area of extant population.

Disease

- Develop and implement quarantine protocols for persons who may come into contact with night parrots.
- Adopt/develop and implement hygiene and reporting protocols for the night parrot.

Illegal collection and habitat loss disturbance and modifications

- Implement strategies to detect and prevent unauthorised access to land leased or managed for night parrot conservation.
- Establish protocols for access to land leased or managed for night parrot conservation that specify the conditions under which access is permitted.
- Establish protocols that specify the conditions under which research, survey, and observations of night parrots is considered acceptable in area of extant sub-population.
- Avoid or minimise the use of fences in areas likely to be traversed by the night parrot.
- Where fences cannot be avoided, construct in a manner that avoids or minimises risks to the night parrot.

Impacts of domestic species

- Exclude cattle grazing of the habitat used by the population in Queensland on land leased or managed for night parrot conservation, ensuring that risks to parrots are avoided or minimised.
- Collaborate with landholders to manage stock grazing to meet both economic and night parrot conservation objectives in area of extant population.
- Collaborate with landholders to manage stock water access to meet both economic and night parrot conservation objectives in the area of the extant population.

Stakeholder engagement

- Promote opportunities to undertake or participate in survey and monitoring when techniques have been established and risks to the conservation of the night parrot can be controlled.
- Identify, inform and collaborate with partners, including traditional owners, landholders, community-based organisations, and conservation management organisations associated with the area of the extant sub-population.
- Prepare and implement a communications strategy that contributes to reducing risk associated with illegal and bird watching activities, increases the effectiveness of survey and monitoring programs, and promotes collaboration.

Survey and Monitoring priorities

- Survey area of the southwestern Queensland population to establish extent of occupation. The use of acoustic listening arrays for surveying has been effective in the past.
- Survey locations of previous confirmed and unconfirmed records according to veracity.
- Monitor the effectiveness and impact of land management actions in the area of the extant population and any other population discovered in the future.

Information and research priorities

- Continue to implement research priorities identified in Night Parrot Research Plan (Murphy 2014). Revise to reflect changes in knowledge or conservation strategy as required.

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