
Eramurra Solar Salt Project
Results of revised acoustic surveys for
Night Parrot (*Pezoporus occidentalis*)

Report to:
Leichhardt Salt Pty. Ltd

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1. Background

The Eramurra Solar Salt Project is located within the Pilbara bioregion of Western Australia, on the Pilbara coast approximately 60 km southwest of Karratha. The environmental assessment for the project required Night Parrots to be considered, as the project area occurs within the possible range of the species.

Although Night Parrots are known from the Pilbara bioregion both historically and recently, the majority of reports, including all high veracity reports, are from inland areas of the Pilbara. The closest contemporary records are from the Fortescue Marsh, approximately 350 km southeast of the project area (Leseberg *et al.* 2021). There are some historical reports from the coast, including a 1966 report from Yarraloola Station, approximately 50 km southwest of the project area, but these reports are unverified and may not be records of Night Parrot. Given there are so few historical records from coastal areas when compared with the areas further inland, and that these coastal areas are likely to have been relatively well travelled, it is possible that these areas have never represented critical Night Parrot habitat.

A report into the vegetation associations that occur within the project area suggested there was only limited suitable habitat available in the development envelope (Phoenix Environmental Services 2022). Some acoustic surveys were conducted in potential habitat, but limitations with the initial habitat assessment and equipment malfunctions did not allow robust conclusions around the presence of Night Parrots in the wider project area (Leseberg 2022).

In 2024 a revised desktop assessment of potential Night Parrot habitat was conducted with the explicit purpose of identifying any Night Parrot habitat that exists within the project area (Leseberg 2024a). This report concluded that although there are significant amounts of possible foraging habitat available, there is only very limited potential roosting habitat present within the project area. A revised acoustic sampling program was developed to survey this roosting habitat to determine whether Night Parrots occur at that site (Leseberg 2024b). This sampling program was conducted in October and November 2024, and the results are reported here.

2. Survey effort and analysis

Likelihood of detection is influenced by the type of ARU being used. In calm conditions, a Song Meter 4 (Wildlife Acoustics, MA, USA), which was the ARU type used for these surveys,

is known to be capable of reliably detecting 95% of Night Parrot calls out to a range of around 205 m (Leseberg et al. 2022).

Sampling occurred at four sites in the project area and recorded a total of 53 nights of data (Table 1). The minimum recommended period for Night Parrot surveys, from 25 minutes after sunset, until 25 minutes before sunrise was achieved at all four sites. All ARUs recorded for a minimum of eight nights, and recording conditions were good on most nights, allowing robust conclusions about the presence of Night Parrots in the immediate vicinity at the time of the surveys.

Table 1. Bioacoustic recordings analysed from the October-November 2024 survey.

Site name	Recording start date (PM)	Recording end date (AM)	Total recording nights
VENP-001	19-Oct-24	6-Nov-24	18
VENP-002	19-Oct-24	6-Nov-24	18
VENP-003	19-Oct-24	28-Oct-24	9
VENP-004	19-Oct-24	27-Oct-24	8

ANRM received the raw acoustic data in ‘.wav’ and ‘.w4v’ format. After ‘.w4v’ files were converted to ‘.wav’ format, all files were scanned using the software Kaleidoscope Pro v5.6.6, targeting the frequency range of 1500 – 3500 Hz, within which all known Night Parrot calls are distributed (Leseberg *et al.* 2019). These parameters have been tested on a random selection of 250 Night Parrot call examples manually detected from both Great Sandy Desert and East Murchison datasets, of which 205 (82.0%) were automatically detected. Calls not detected were typically extremely faint. The probability of non-detection of a true-positive call was 18.0%; two true-positive calls was 3.2%; three true-positive calls was 0.6%; etc. Of the data tested, the median number of consecutive (spaced at < 5 minutes apart) calls in a sequence when Night Parrots were recorded was five (1–34, $n = 29$). The probability of at least one call being detected within a sequence of median length, assuming there was variation in the location of the source of the call, was > 99.9%.

The resulting ‘detections’ were then compared to a reference library comprising several thousand Night Parrot calls from Western Australia and Queensland. This library consists of

calls recorded at sites where Night Parrots have been confirmed using visual means and is therefore considered of high reliability. The library also comprises multiple examples of all known call types from Western Australia and Queensland (Leseberg *et al.* 2019).

3. Survey results

A total of 59,443 Kaleidoscope detections were manually assessed for Night Parrot vocalisations. No calls attributable to Night Parrots were detected during the analysis. No other species of conservation significance were detected.

4. Conclusion

An assessment of historical records of the Night Parrot and of the habitat within the project area suggests it is unlikely Night Parrots occur there. There are no high veracity historical records of Night Parrot from the region, and although this does not mean Night Parrots never occurred in the area, it is possible the area was never a stronghold for the species.

All sites where Night Parrots have been found in the last decade are notable for the availability of significant amounts of suitable roosting and foraging habitat at the landscape scale. Although there are significant amounts of foraging habitat available, an analysis of potential roosting habitat suggests it is of very limited extent within the project area. It is unlikely this small area of roosting habitat is critical to supporting a population of Night Parrots at the landscape scale. Acoustic surveys have confirmed that there are unlikely to be Night Parrots currently resident in that small area of potential roosting habitat.

If a population of Night Parrots does exist in the wider landscape, it is possible that the foraging habitat within the project area is used occasionally by this population. Previous examination of available imagery suggests that similar foraging habitat as occurs within the project area is widespread at the landscape scale, and that the expected disturbance of such habitat within the project area will not significantly impact the availability of foraging habitat at the landscape scale.

The results of all work to determine whether Night Parrots could occur within the project area suggest that the project area does not support a population of Night Parrots, and that any

disturbance within the project area is unlikely to adversely affect any population of Night Parrots that may occur within the wider landscape.

5. References

- Leseberg, N.P. 2022. Results of acoustic surveys conducted for the Night Parrot (*Pezoporus occidentalis*) and assessment of possible presence in project area. Report to Leichhardt Salt Pty Ltd. Adaptive NRM, Malanda, QLD.
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