
Peer review of
Biota Environmental Sciences'
Winu Project
Night Parrot Impact Assessment

Report to:
Rio Tinto Winu Pty Ltd

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1. Introduction

Rio Tinto Winu Pty Ltd (RTW) plans to develop a new copper-gold mine in the Great Sandy Desert bioregion of Western Australia. The location of the proposed mine and supporting infrastructure is approximately 320 km east of Port Hedland, close to the western boundary of the Great Sandy Desert bioregion.

During fauna surveys conducted as part of RTW's environmental assessments in March and April 2024, Night Parrot (*Pezoporus occidentalis*) calls were detected within the project's proposed development envelope. As a result, Biota Environmental Sciences (Biota) was commissioned to undertake targeted Night Parrot surveys and assess the species' status within the project area.

The results of those surveys have been used to inform the 'Winu Project Night Parrot Impact Assessment'. This peer review will assess that report, its methods and conclusions.

The validity of any impact assessment for Night Parrots rests on the following key considerations:

- (1) whether initial survey effort is sufficient to provide an accurate picture of Night Parrot presence within the area of interest;
- (2) if the likely presence of Night Parrots is correctly assessed, whether the appropriate impact pathways are considered given the results of that assessment; and
- (3) if the appropriate impact pathways are considered, whether the likely impacts on Night Parrots are appropriately assessed.

This peer review will consider each of these factors to draw a conclusion around the overall suitability of the impact assessment.

2. Peer review

Suitability of initial Night Parrot survey effort

Broadly, the original RTW project area consisted of three discrete areas: (1) the Mine and Infrastructure Area (MIA) which encompasses the area that will be occupied by the mine itself

and associated infrastructure; (2) the Rimfire Borefield; and (3) the Texas Borefield. The location of these areas is shown in the impact assessment at Fig. 2.2.

During initial Night Parrot surveys by Biota, Night Parrot calls were detected within the Texas Borefield. This prompted a more detailed habitat assessment by Biota which determined the extent of suitable habitat within the project area. In accordance with Department of Biodiversity, Conservation and Attractions (DBCA) guidelines (DBCA 2024) this assessment aimed to identify both suitable roosting and foraging habitat. The consideration of both is critical for assessing the likely movements of Night Parrots within the area of interest. The results of this mapping are presented in the impact assessment at Fig. 3.1, and show that almost all suitable Night Parrot habitat occurs within the Texas Borefield.

Following this habitat assessment, autonomous recording units (ARUs) were deployed throughout most of the suitable habitat identified within the Texas Borefield. In addition to these surveys, further acoustic surveys were conducted in the Lake Waukarlycarly area, approximately 40-50 km to the south of the Texas Borefield, the nearest area known to support extensive potential Night Parrot habitat.

During these acoustic surveys within the Texas Borefield, what was probably a single individual Night Parrot was detected multiple times, and at multiple locations. The pattern of detections suggest the bird was not permanently present and occasionally left the area. In addition to the detections within the Texas Borefield, there were detections of what is likely to be multiple individual Night Parrots from Lake Waukarlycarly.

The habitat mapping conducted by Biota within the RTW project area is likely to have identified all suitable roosting and foraging habitat. The acoustic survey effort conducted by Biota within the RTW project area was significant and is likely to have detected any Night Parrots that were present during the survey period. The pattern of detections supports the conclusion that the bird detected in the Texas Borefield is likely to be part of a larger population occurring in the Lake Waukarlycarly area, that apparently moves into the Texas Borefield area when conditions are suitable.

It should be noted here that in response to the detections of Night Parrot within the Texas Borefield, this borefield was removed entirely from the development envelope. This means

there is now no Night Parrot habitat within the development envelope and virtually no Night Parrot habitat in areas surrounding the development envelope. This significantly reduces the likelihood that Night Parrots will traverse the development envelope.

Consideration of potential impact pathways

Assessment of potential impact pathways should consider known environmental threats to the Night Parrot, and any known physiological or behavioural adaptations which may increase their susceptibility to novel threats within the landscape. The key environmental threats to the Night Parrot are well known, namely predation by feral carnivores, habitat loss due to pastoralism and fire, and competition with introduced herbivores (Murphy *et al.* 2018, Leseberg *et al.* 2022). Research has determined that Night Parrots are likely to have relatively poor visual acuity for a nocturnal species, probably increasing the risk of collision with unnatural and difficult-to-see objects within their environment, such as fences (Iwaniuk *et al.* 2020). Relatively recent research has also concluded that Night Parrots are likely to have particularly acute hearing, probably with very good directional capability (Shute *et al.* 2023).

Table 4.1 in the assessment lists the likely direct and indirect impact pathways for Night Parrots as a result of activity within the development envelope, with consideration of the known threats to the Night Parrot, and its physiology and behavioural adaptations. This list is comprehensive, and the subsequent detail provided against each pathway satisfactorily summarises the general risk of each potential impact pathway on the Night Parrot.

Recent research relating to the Night Parrot's probably acute hearing ability does recommend a precautionary approach when considering the impact of noise pollution. While there is no empirical data supporting an evidence-based assessment of industrial noise impacts on Night Parrots, section 4.2.3 of the assessment does comprehensively consider the impact of noise on other bird species. In this case, the conclusion that the inherent risk rating for Night Parrots is 'high' is an appropriate application of the precautionary principle.

Consideration of potential impacts on Night Parrots

Section 2.4 of the assessment correctly notes that there is very limited evidence regarding the impacts of anthropogenic disturbance on Night Parrots. To account for this uncertainty it is

stated that a conservative approach to assessing impacts is adopted. This application of the precautionary principle is a sensible approach in these circumstances.

The lead paragraphs for section 5.0 note that following the detection of Night Parrots within the Texas Borefield, that area was excluded from the development envelope. This is very important in the context of subsequent assessments of specific impact pathways; it reduces the likelihood of all direct impact pathways to at least ‘unlikely’, and possibly ‘remote’, considerably reducing the residual risk of these pathways. Due to a very small patch of marginally suitable roosting habitat adjacent to the Rimfire Borefield access track, there remains a very small chance of vehicle strike along this track. However, as operations will be restricted to daylight hours except in emergencies, the likelihood of this occurring could arguably be considered ‘remote’. A similar argument could be made that the likelihood of aircraft strike is also ‘remote’, and therefore the residual risk of these two pathways could be considered ‘low’.

Similarly, the exclusion of the Texas Borefield from the development envelope largely mitigates the risk for most indirect impacts. The proposed implementation of standard controls to limit the impact of fire, feral predators, weeds and human disturbance within the MIA and Rimfire Borefield will satisfactorily mitigate the likelihood of these impact pathways for areas where Night Parrots are likely to occur in proximity to the development envelope. The resulting assessment of residual risks is appropriate.

The impact of industrial noise on Night Parrots is less certain. The assessment notes that impacts of noise on terrestrial wildlife begin at approximately 40 dB (A) (Shannon et al. 2016), and that expected noise levels in the areas where Night Parrots are likely to occur are around 35 dB. As Night Parrots are thought to have especially acute hearing, it is possible they are more susceptible to noise pollution than other terrestrial wildlife (Shute *et al.* 2023). However, in the absence of evidence it is not possible to be definitive. The assessment has adopted the precautionary principle and classified this risk as ‘moderate’, although it correctly points out that given the small number of birds impacted, any population level impacts are likely to be minimal.

3. Conclusion

Overall, the ‘Winu Project Night Parrot Impact Assessment’ prepared by Biota Environmental Sciences satisfactorily assesses both the likely distribution of Night Parrots within the project’s original development envelope, and the resulting potential impacts on the Night Parrot population due to project activity. The residual risks of these impact pathways are assessed appropriately, the precautionary principle is applied where necessary, and the assessment’s conclusions are valid.

This assessment evaluates the likely impact of industrial noise on typical terrestrial species, but recent research suggests Night Parrots may be more sensitive due to their acute hearing. While any increased risk is expected to affect few individuals and have limited impact on the overall population, long-term monitoring in the Texas Borefield area could provide valuable empirical data on noise impacts specific to Night Parrots.

4. References

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