

6 July 2018

Our Reference: 14279-17-BILR-2Rev0_180706

Melinda Brand
Principal Advisor Environmental Approvals
Rio Tinto Iron Ore
Central Park, 152-158 St Georges Terrace
Perth WA 6000

Dear Melinda,

Re: Mesa H – Targeted Night Parrot Fauna Assessment, September 2017

1 Introduction

Rio Tinto Iron Ore Pty Ltd (Rio Tinto), on behalf of Robe River Mining Co. Pty. Ltd, is evaluating the potential development of the Mesa H deposit (survey area) located adjacent to the Mesa J Operation and approximately 13 km to the south-west of Pannawonica. Key components of the pre-feasibility and feasibility studies being undertaken are environmental surveys which are required to inform the environmental assessment process for the potential development of the Mesa H deposit. Due to the recent publication of the *Interim guideline for preliminary surveys of Night Parrot (Pezoporus occidentalis)* (Department of Parks and Wildlife 2017) and to ensure all fauna surveys meet current guidelines, Astron was commissioned to undertake a targeted Night Parrot fauna survey in the survey area (Figure A.1, Attachment A).

The possible occurrence of this Matters of National Environmental Significance species within the survey area presents a potential management issue to ground disturbance activities for the development of the Mesa H deposit. In order to gain a comprehensive understanding of Night Parrot occurrence, habitat utilisation and resident population estimates, a more intensive survey was required within the survey area.

2 Scope of Work

The scope of work was to conduct a targeted Night Parrot fauna survey within the survey area in accordance with the scope of works provided by Rio Tinto (dated 17/07/2017), regulatory guidelines (Department of Parks and Wildlife 2017) and industry best practice. Specifically, the following was undertaken:

- a desktop literature review to assess the potential occurrence of the Night Parrot within the local and regional vicinity of the survey area
- a systematic field survey to:
 - verify the results of the desktop study and previous Night Parrot records
 - record potential Night Parrot observations or records and assess the potential for the survey area to support a resident population of this species.

This report details the findings of the desktop and field studies.

3 Night Parrot (*Pezoporus occidentalis*)

3.1 Distribution and Conservation Status

The Night Parrot is listed as Endangered under the *Environmental Protection and Biodiversity Conservation Act 1999* (EPBC Act) and Critically Endangered (Scheduled 1) under the *Wildlife Conservation Act 1950*. Conservation category listings are detailed in Table B.1 and B.2 (Attachment B). The Night Parrot has long been thought extinct in Australia, with only sporadic and sometimes unconfirmed sightings recorded. However the focus on this species has amplified due to a recent sighting near Wiluna in Western Australia (Jones 2017) and from the rediscovery of this species in Queensland near the Pullen Pullen Reserve and at Goneaway and Diamantina National Parks (Palaszczuk and Miles 2017).

The Night Parrot has long been elusive and due to its highly cryptic behaviour has largely gone unnoticed and undetected. Now with the release of the vocal calls made by this species from Queensland, a more informed and targeted survey effort can be undertaken.

3.2 Ecology

Little is known on the ecological requirements of the Night Parrot due to the cryptic behaviour this species has previously shown. With the recent sightings of the Night Parrot and records from certain areas, ecologists have been able to better understand the species' habitat requirements.

Roosting habitat is thought to be long unburnt stands of spinifex hummocks (*Triodia* spp.) particularly large hummocks that are ring forming that would form a certain level of protection from predators. The hummocks that are < 50 cm in height and collapsed are thought not likely to provide enough shelter and/or protection from predators (Department of Parks and Wildlife 2017). Some systematic acoustic monitoring from Murphy (2015, 2016) has shown that Night Parrots in south-western Queensland regularly roosted in the same location even despite exceptionally dry conditions when no *Triodia* seed was available. However, Higgins (1999) reported that the species may be nomadic, have very large home ranges and may only be sedentary under suitable conditions, such as during mass times of seeding and flowering of *Triodia* seed.

Foraging habitat requirements are also largely unknown; however, some favoured sites, particularly in Western Australia, seem to be in close association of chenopod communities, principally the succulents of *Sclerolaena*. These succulents are possibly a source of moisture for the Night Parrot given their preference for the arid regions of Australia and the probable lack of free standing water. 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*. This indicates that access to water may not be required in some circumstances. It is also assumed that *Triodia* spp. would provide foraging potential particularly during times of mass seeding and flowering (Department of Parks and Wildlife 2017).

It is evident that Night Parrots have a preference for highly selective habitat and this probably explains the low level of records to date.

4 Methodology

The field survey was completed according to the relevant state and federal survey guidelines, particularly the guidelines set out by the state Environmental Protection Authority (EPA) and Parks and Wildlife Service of the Department of Biodiversity, Conservation and Attractions (DBCA):

- EPA Position Statement No. 3, Terrestrial Biological Surveys as an Element of Biodiversity Protection (Environmental Protection Authority 2002)
- Survey Guidelines for Australia's Threatened Birds: Guidelines for Detecting Birds Listed as Threatened Under the EPBC Act (Department of Environment 2010).
- Technical Guidance - Sampling Methods for Terrestrial Fauna (Environmental Protection Authority 2016a)
- Technical Guidance - Terrestrial Fauna Surveys (Environmental Protection Authority 2016b)
- Interim Guideline for Preliminary Surveys of Night Parrot (*Pezoporus occidentalis*) in Western Australia, May 2017 (Department of Parks and Wildlife 2017).

4.1 Desktop Literature Review

Prior to the field assessment a review of publically available databases was conducted. In particular, the desktop review included an examination of the previous Night Parrot records on DBCA's *NatureMap* database. The review focussed on the locations of recent survey records to help obtain an understanding on the distribution of this species from the current literature available.

4.2 Targeted Field Survey

The targeted field survey was conducted by Astron Zoologists Matthew Love and John Trainer on the 14 and 18 September 2017. Matthew and John both have over five years of experience conducting Level 2 vertebrate fauna surveys. The survey was conducted under a "Licence to Take Fauna for Scientific Purposes" (Permit 08-000566-2).

Weather conditions were hot during the survey period. Maximum temperatures recorded at Pannawonica (approximately 13 km north-east of the survey area) ranged from 37.0°C to 39.4°C with minimum temperatures in the mid to upper twenties. As a result of low rainfall prior to the survey, no surface water was present in the vicinity of the survey area, except where dewatering from the Mesa J mine site was occurring.

Conditions were considered to be dry with no seeding spinifex and very little seed remaining in the seed-heads of spinifex and other grasses, indicating that it had been many months since grasses had flowered. No rain-fed surface water was observed within the Robe River and in the immediate vicinity of the survey area. Yerra Bluff (located on the western margin of the survey area), a permanent water pool of the Robe River, was full and was likely to be the only natural source of water in the area at the time of the survey.

Rainfall received (based on Pannawonica weather station 005069) in three months preceding the survey was 0.3 mm, 58.9 mm less than the mean rainfall for the same three months (Bureau of Meteorology 2018). Rainfall was received earlier in the year, with a total of 602.7 mm of rainfall received in the nine months preceding the survey, 208.7 mm more than the mean rainfall for the same nine months (Bureau of Meteorology 2018). These factors are not optimal for Night Parrot occurrence, however, they are not considered to be a major limitation given that:

- this species is generally accepted as an arid and semi-arid specialist and would be adapted to long periods of drought
- habitat assessment is a critical component of a survey, as no available survey technique can irrefutably demonstrate that Night Parrots are absent from a site (Department of Parks and Wildlife 2017).

4.2.1 Habitat Assessment

Previously, Astron conducted a flora, vegetation and fauna assessment within the survey area (Astron Environmental Services 2016a, 2016b). The fauna survey conducted in November 2016 (Astron Environmental Services 2016a) mapped the fauna habitats of the survey area that helped refine the survey effort for potential Night Parrot habitat.

Two fauna habitat assessments were conducted within the survey area (Table C.1, Attachment C). The locations are shown in Figure A.2 (Attachment A) and the following information was collected at each site:

- location – coordinates measured using a handheld GPS (GDA94)
- recorder and date – personnel involved in undertaking the fauna habitat assessment and the survey date
- vegetation type – a broad description of vegetation type and structure
- soils – a brief description of soil type
- microhabitat pertinent to the Night Parrot – potential roosting habitat such as the presence of primarily old large spinifex hummocks (>50 cm), especially hummocks that are ring forming or presence of foraging habitat such as the presence of samphire communities and/or seeding spinifex hummocks, and the presence of permanent or semi-permanent water
- condition – habitat condition was assessed based on the presence of anthropogenic (human-induced) disturbances, and using the condition ratings suggested by Thompson and Thompson (2010) (Table B.3, Attachment B)
- fire age – recorded as either recent (<2 years); young (2 to 5 years); moderate (5 to 10 years); old (>10 years); very old (>50 years)
- disturbance – any disturbance such as clearing, weeds, flooding, vehicular, machinery, tracks or grazing
- photographs – a representative photograph was taken of each habitat assessment site.

The information derived from the fauna habitat assessments, as well as the previous fauna habitat mapping (Astron Environmental Services 2016a) and vegetation mapping (Astron Environmental Services 2016b) from within the survey area, was used to assess the suitability of habitat for the Night Parrot. The habitat was ranked according to the criteria listed in Table 1 and the likelihood of occurrence in the survey area utilising the criteria in Table B.4 (Attachment B).

Table 1: Suitability of habitat ranking criteria for the Night Parrot (*Pezoporus occidentalis*) within the survey area.

| Species | Potential shelter and foraging habitat (a) | Suitable foraging and dispersal habitat (b) | Limited foraging and dispersal habitat (c) |
|--|---|---|--|
| Night Parrot (<i>Pezoporus occidentalis</i>) | Isolated habitat not subjected to predation pressure, fire pressure, and altered habitat from pastoralism and mining activities. Generally roosting habitat that contains old and large spinifex clumps (>50 years unburnt), particularly ring-forming hummocks OR Areas highly suitable for foraging in close association (<10 km) to potential roosting habitat, including Triodia (particularly at times of mass flowering and seeding) and chenopod communities dominated by Sclerolaena | Very little is known on the foraging requirements of the Night Parrot. Habitat within 40 km of potential roosting and nesting sites, potentially important for foraging, including chenopod communities (particularly those dominated by Sclerolaena), Triodia and areas rich in herbs, including forbs, grasses and grass-like plants. | Habitat that has limited roosting and foraging potential for the Night Parrot. |

4.2.2 Autonomous Recording Units

Autonomous Recording Units (ARUs) were used to record the potential presence of the Night Parrot by recording the species' vocal call. Two acoustic recording devices (Song Meter 2, SM2BAT+) were positioned in four locations (Figure A.2, Attachment A and Table C.1, Attachment C). The detectors were set for three nights, resulting in a total of 12 recording nights. The ARUs were set to record from 1 hour pre-sunset to 1 hour post-dawn. The recordings were recorded at 44.1 k bits and covered the frequency range 100 kHz to 21,000 kHz that brackets the Night Parrot call frequency range of 1,500 kHz to 3,500 kHz.

The data collected on the SM2BAT+ detectors in the field were analysed by Robert Bullen (Bat Call WA 2017). The reference calls for the Night Parrot were available from Bat Call WA's library and compared against any potential calls made from the survey area (Bat Call WA 2017).

4.2.3 Motion Sensitive Cameras

Two motion sensitive cameras were used during the survey (Moultrie, Reconyx). Cameras were set for four nights each with a combined trapping effort of eight camera trap nights (Figure A.2, Attachment A and Table C.1, Attachment C). The cameras were placed in prospective/suitable habitat aimed at targeting potential foraging Night Parrots in or near prospective roosting habitat.

4.2.4 Aural Listening Surveys/Nocturnal Searching

Two nights (12 person hours) of targeted nocturnal searching was conducted within the survey area. This included six locations of aural listening surveys (Figure A.2, Attachment A and Table C.1, Attachment C). The fauna team targeted the search effort in long unburnt spinifex hummocks and sat and listened for the distinct audio call of the Night Parrot. It is thought that the species' peak calling period is two hours after sunset and two hours before sunrise (Department of Parks and Wildlife 2017). Due to concerns with health, safety and fatigue only the post-sunset calling period was targeted during the fauna assessment.

5 Results

5.1 Desktop Assessment

A review of the DBCA *NatureMap* database in October 2017 for previous records of the Night Parrot reported 15 records within Western Australia. Of these, five records were made within the Interim Biogeographic Regionalisation for Australia Pilbara bioregion and only one record was reported recently or post-2000.

In April 2005 three individuals of the Night Parrot were recorded at the onset of dusk near standing water at Minga Well adjacent to the Fortescue Marsh (Davis and Metcalf 2008). Minga Well is 320 km to the east of the survey area, situated on Mulga Downs pastoral station. Two birds were observed moving towards the water's edge and then drinking; the third bird was only seen briefly and was not resighted (Davis and Metcalf 2008). No vocalisations or noises from their wings were recorded when the individuals departed the site (Davis and Metcalf 2008). The habitat was described as a pastoral bore; however, Minga Well is situated 2 km from the edge of the Fortescue Marsh (a known priority ecological community) where succulents such as *Sclerolaena* are found.

5.2 Targeted Field Survey

No individual sightings, vocal calls or any other signs of the Night Parrot were recorded during the current targeted survey. The Night Parrot was not detected from the 12 nights of ARU recordings (Attachment D). No Night Parrots were recorded on any of the motion sensitive cameras from the combined trapping effort of eight camera trap nights.

Two habitat assessments in the survey area determined the fire ages to range from young (2 to 5 years) to moderate (5 to 10 years) (Attachment C).

6 Discussion

The survey area is located in the western extent of the Pilbara region of Western Australia, located within an area deemed as 'species or species habitat may occur' by the Department of the Environment and Energy (Department of the Environment and Energy 2017). No individual sightings and/or vocal calls were recorded, nor any prospective calls made on the ARUs set within the survey area. Astron is of the belief that the survey area is not suitable for the Night Parrot as there is limited preferred habitat present and the impacts of regular fire would be too great. The current knowledge of habitat preference of the Night Parrot is limited, with some sources believing a matrix of long unburnt spinifex stands (>50 years) in close association with chenopod communities (samphire) is a key habitat preference. The only recent discovery of the Night Parrot within the Pilbara region was in 2005 in which three individuals were sighted at a pastoral bore close to the Fortescue Marsh, supporting the theory that samphire is of some importance (Davis and Metcalf 2008). Recently the Night Parrot was discovered in March 2017 in the arid region of the Mid-west in which the habitat was also described as long unburnt spinifex in association with a chenopod community (Jones 2017). Given these habitats do not occur in the survey area, the likely predation pressure from cats and dingos (sighted during the survey) and the proximity to active mining infrastructure, the chance of this species being present is considered very low.

This report was prepared by Senior Scientist Matthew Love and technically reviewed by Senior Scientist Dr Jessica Johnston. Should you have any further queries regarding this information, please do not hesitate to contact Melissa Ford (Project Coordinator) on 9421 9600.

Yours sincerely
ASTRON ENVIRONMENTAL SERVICES



Dr Robert Archibald
Principal Scientist

Attachments

Attachment A: Figures

Attachment B: Conservation Fauna Categories, Habitat Condition Scales and Likelihood Criteria

Attachment C: Survey Sampling Locations

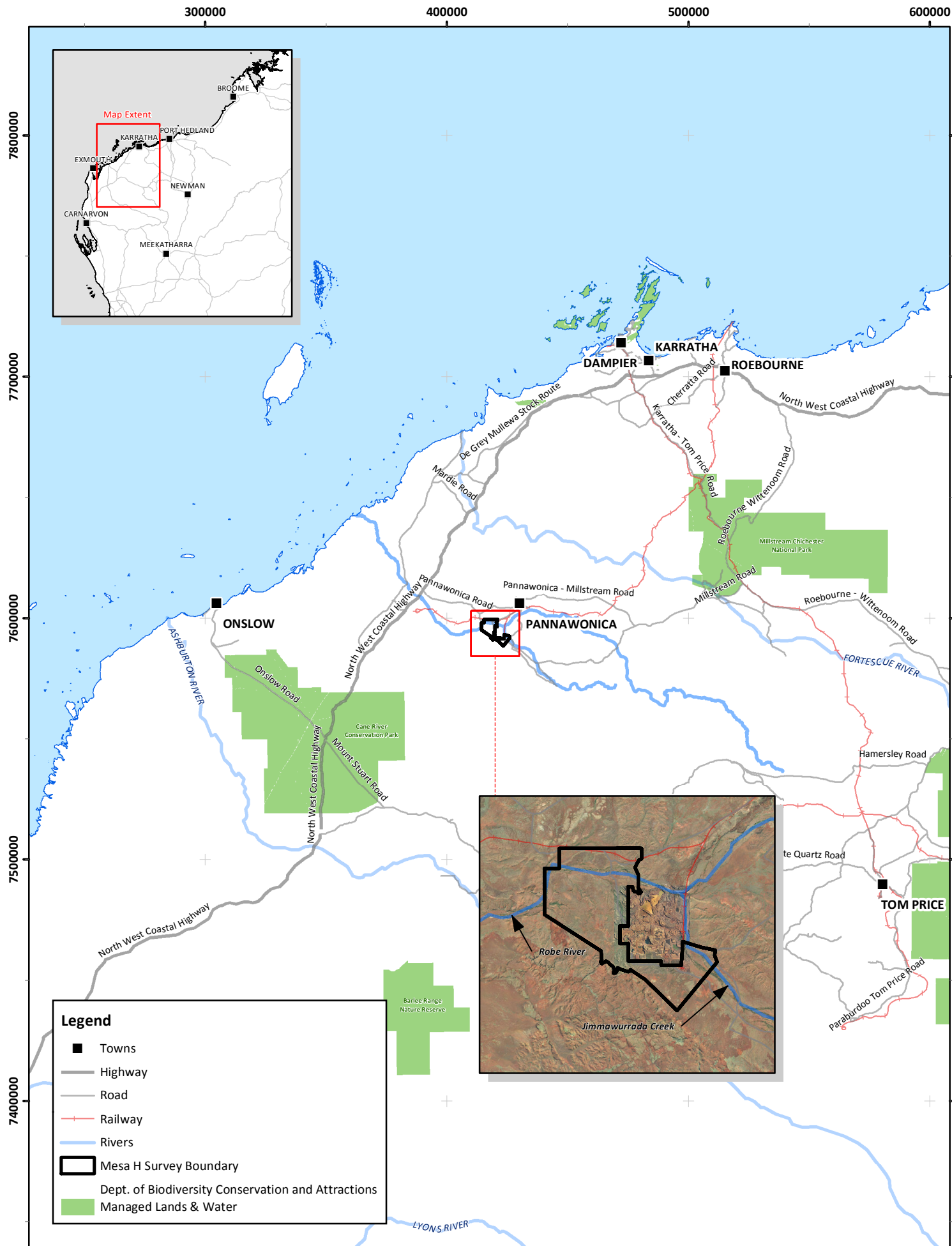
Attachment D: Bat Call WA Pty Ltd Report

References

- Astron Environmental Services 2016a, *Mesa H Level 2 Fauna Assessment*, unpublished report in preparation for Robe River Mining Co. Pty Ltd.
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- Thompson, SA & Thompson, GG 2010, *Terrestrial Vertebrate Fauna Assessments for Ecological Impact Assessment*, Terrestrial Ecosystems, Mt Claremont.

Attachment 1: Figures

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Rio Tinto Iron Ore Pty Ltd
Mesa H – Targeted Night Parrot Fauna Assessment, September 2017



Figure A.1: Location Figure

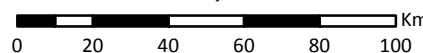
Author: M. Love

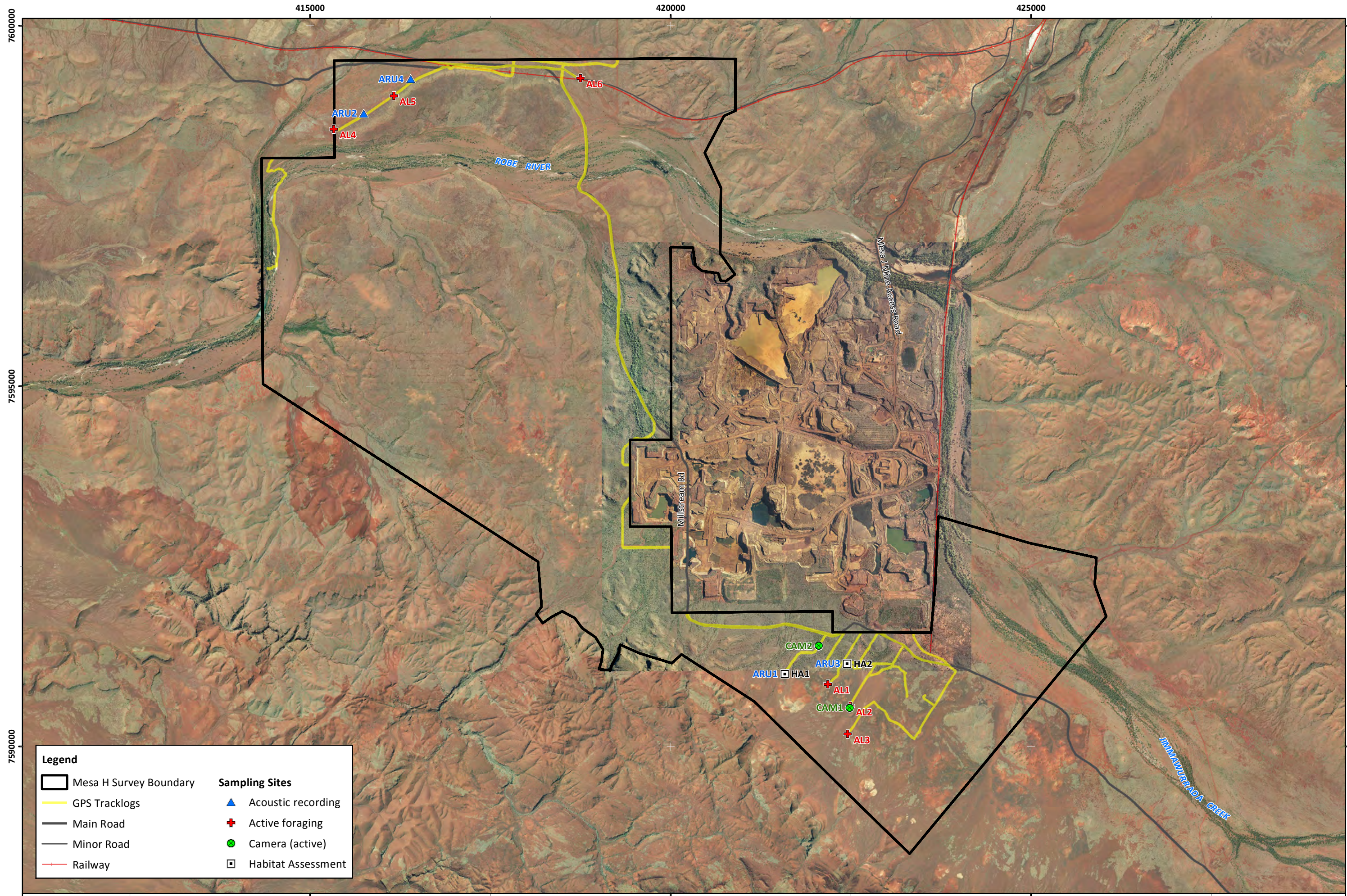
Date: 10-11-2017

Drawn: C. Dyde

Figure Ref: 14279-17-BIDR-1RevA_171110_FigA1_MesaH_Locn

Datum: GDA 1994 - Projection: MGA Zone 50





Rio Tinto Iron Ore Pty Ltd
Mesa H – Targeted Night Parrot Fauna Assessment, September 2017

Figure A.2: Survey Effort Figure

Author: M. Love

Drawn: C. Dyde

Date: 10-11-2017

Figure Ref: 14279-17-BIDR-1RevA_171110_FigA2_MesaH_SurvEff

Attachment B: Conservation Fauna Categories, Habitat Condition Scales and Likelihood Criteria

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Table B.1: Categories and definitions for EPBC Act listed fauna species.

| Conservation category | Definition |
|------------------------------------|--|
| Extinct | Taxa with no reasonable doubt that the last member of the species has died. |
| Extinct in the wild | Taxa known to survive only in cultivation, in captivity or as a naturalized population well outside its past range; or it has not been recorded in its known and/or expected habitat, at appropriated seasons, anywhere in its past range, despite exhaustive surveys over a time frame appropriate to its life cycle and form. |
| Critically endangered (CR) | Taxa facing an extremely high risk of extinction in the wild in the immediate future, as determined in accordance with the prescribed criteria. |
| Endangered (E) | Taxa are not critically endangered; and are facing a very high risk of extinction in the wild in the near future, as determined in accordance with the prescribed criteria. |
| Vulnerable (V) | Taxa are not critically endangered or endangered; and are facing a high risk of extinction in the wild in the medium-term future, as determined in accordance with the prescribed criteria. |
| Conservation dependent (CD) | <p>Taxa are the focus of a specific conservation program the cessation of which would result in the species becoming vulnerable, endangered or critically endangered; or the following subparagraphs are satisfied:</p> <ul style="list-style-type: none"> i) the taxa is a species of fish; ii) the taxa is the focus of a management plan that provides management actions necessary to stop the decline of, and support the recovery of, the taxa so that its chances of long term survival in nature are maximized; iii) the management plan is in force under a law of the Commonwealth or of a State or Territory; iv) Cessation of the management plan would adversely affect the conservation status of the taxa <p>Fish includes all taxa of bony fish, sharks, rays, crustaceans, molluscs and other marine organisms, but does not include marine mammals/reptiles.</p> |

Table B.2: Conservation codes for Western Australian fauna (Department of Parks and Wildlife 2015).

| Code | Conservation category | Definition |
|-----------|--|---|
| CR | Schedule 1 of the Wildlife Conservation (Specially Protected Fauna) Notice under the Wildlife Conservation Act 1950. | Fauna that is rare or likely to become extinct, as critically endangered fauna. |
| EN | Schedule 2 of the Wildlife Conservation (Specially Protected Fauna) Notice under the Wildlife Conservation Act 1950. | Fauna that is rare or likely to become extinct, as endangered fauna. |
| VU | Schedule 3 of the Wildlife Conservation (Specially Protected Fauna) Notice under the Wildlife Conservation Act 1950. | Fauna that is rare or likely to become extinct, as vulnerable fauna. |
| EX | Schedule 4 of the Wildlife Conservation (Specially Protected Fauna) Notice under the Wildlife Conservation Act 1950. | Fauna that is presumed to be extinct. |
| IA | Schedule 5 of the Wildlife Conservation (Specially Protected Fauna) Notice under the Wildlife Conservation Act 1950. | Birds that are subject to international agreements relating to the protection of migratory birds. |
| CD | Schedule 6 of the Wildlife Conservation (Specially Protected Fauna) Notice under the Wildlife Conservation Act 1950. | Fauna that are of special conservation need being species dependent on ongoing conservation intervention. |
| OS | Schedule 7 of the Wildlife Conservation (Specially Protected Fauna) Notice under the Wildlife Conservation Act 1950. | Declared to be fauna that is in need of special protection, otherwise than for the reasons mentioned. |

Reference: Department of Parks and Wildlife 2015, *Conservation Codes For Western Australian flora and fauna*, The Government of Western Australia.

Table B.3: Fauna habitat condition scale (Thompson and Thompson 2010).

| Habitat condition | Condition description |
|--|--|
| High Quality Fauna Habitat (1.0) | These areas closely approximate the vegetation mix and quality that would have been in the area prior to any human induced disturbance. The habitat has connectivity with other habitats and is likely to support the most natural vertebrate fauna assemblage. |
| Very Good Fauna Habitat (0.8) | These areas show minimal signs of human induced disturbance (e.g. grazing, clearing, fragmentation, weeds) and retain almost all of the characteristics of the habitat had it not been disturbed. The habitat has connectivity with other habitats, and fauna assemblages in these areas are likely to be minimally effected by disturbance. |
| Good Fauna Habitat (0.6) | These areas show signs of human induced disturbance (e.g. grazing, clearing, fragmentation, weeds) but generally retain many of the characteristics of the habitat had it not been disturbed. The habitat still retains some connectivity with other habitats but fauna assemblages in these areas are likely to be affected by disturbance. Fauna assemblages in these areas are likely to be similar to what might be expected in this habitat. |
| Disturbed Fauna Habitat (0.4) | These areas show signs of human induced significant disturbance (e.g. mining, clearing, tracks and roads). Many of the trees, shrubs and undergrowth have died or have been cleared. These areas may be in the early succession and regeneration stages. Areas may show signs of significant grazing, contain an abundance of weeds or have been damaged by vehicles or machinery. Habitats are fragmented or have limited connectivity with other fauna habitats. Fauna assemblages in these areas are likely to differ significantly from what might be expected in the area had the disturbance not occurred. |
| Highly Degraded Fauna Habitat (<0.2) | These areas often have a significant human induced loss of vegetation, and / or a large number of vehicle tracks and / or have been completely cleared, and / or areas have been heavily grazed or farmed. There is limited or no fauna habitat connectivity. Fauna assemblages in these areas are likely to differ significantly from what existed prior to the disturbance, and are often depleted compared to what existed prior to the disturbance. |

Reference: Thompson, SA & Thompson, GG 2010, *Terrestrial Vertebrate Fauna Assessments for Ecological Impact Assessment*, Terrestrial Ecosystems, Mt Claremont.


Table B.4: Criteria used to define likelihood occurrence of conservation significant fauna species.


| Likelihood of occurrence | Pre-survey | Post-survey |
|--------------------------|--|---|
| Recorded | N/A | Species or evidence of species recorded during survey. |
| High | Species has been recorded within the survey area or within 20 km of the survey area and preferred habitat appears to be present. | Core or preferred habitats present in the survey area which are abundant and/or high quality condition. OR Species is known to be cryptic and may not have been detected despite adequate survey effort and suitable habitat present within the survey area. OR Species or evidence of species recorded within the survey area however doubt remains over the taxonomic identification, validity of record. |
| Moderate | Species has not been recorded from within the survey area, however species has been recorded within 20 km of the survey area and suitable habitat appears to be present. | Core or highly suitable habitats present in the survey area, however, non-cryptic species that was not detected despite adequate survey effort. OR Core or preferred habitats present in the survey area are mainly in poor or modified condition. |
| Low | Species recorded within 20 km of the survey area but suitable habitat does not appear to be present. | Species has not been recorded in the survey area despite adequate survey effort. OR Species dependent on specific habitats that do not occur in the survey area. OR Species considered locally extinct. |

Attachment C: Survey Sampling Locations

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Table C.1: Astron fauna sampling locations.

| Site ID | MGA Zone 50K | | Sampling method | Date | Habitat | Condition | Disturbance | Microhabitats important to Night Parrot | Photo |
|---------|--------------|---------------|------------------------------------|-----------------------|----------------------|-----------|--|--|---|
| | Easting (mE) | Northing (mN) | | | | | | | |
| ARU1 | 421585 | 7591008 | Audio Recording Unit | 14/09/2017-18/09/2017 | Low hills and slopes | 0.8 | Drill tracks | N/A | No photo |
| ARU2 | 415745 | 7598784 | Audio Recording Unit | 18/09/2017-21/09/2017 | Loamy/stony plain | 1.0 | None | N/A | No photo |
| ARU3 | 422451 | 7591151 | Audio Recording Unit | 14/09/2017-18/09/2017 | Loamy/stony plain | 0.8 | Grazing | N/A | No photo |
| ARU4 | 416396 | 7599262 | Audio Recording Unit | 18/09/2017-21/09/2017 | Loamy/stony plain | 1.0 | None | N/A | No photo |
| AL1 | 422179 | 7590867 | Aural Listening Survey | 14/09/2017 | Low hills and slopes | 0.8 | Grazing | N/A | No photo |
| AL2 | 422491 | 7590563 | Aural Listening Survey | 14/09/2017 | Loamy/stony plain | 1.0 | None | N/A | No photo |
| AL3 | 422457 | 7590176 | Aural Listening Survey | 14/09/2017 | Loamy/stony plain | 1.0 | None | N/A | No photo |
| AL4 | 415328 | 7598566 | Aural Listening Survey | 18/09/2017 | Loamy/stony plain | 0.8 | Grazing | N/A | No photo |
| AL5 | 416163 | 7599030 | Aural Listening Survey | 18/09/2017 | Loamy/stony plain | 1.0 | None | N/A | No photo |
| AL6 | 418749 | 7599276 | Aural Listening Survey | 18/09/2017 | Loamy/stony plain | 1.0 | None | N/A | No photo |
| CAM1 | 422485 | 7590539 | Motion Sensitive Camera Recordings | 14/09/2017-18/09/2017 | Loamy/stony plain | 0.8 | Grazing | N/A | No photo |
| CAM2 | 422058 | 7591396 | Motion Sensitive Camera Recordings | 14/09/2017-18/09/2017 | Loamy/stony plain | 1.0 | None | N/A | No photo |
| HA1 | 421585 | 7591008 | Habitat Assessment | 14/09/2017 | Low hills and slopes | 0.8 | Clearing for drilling; mineral exploration | Moderately sized <i>Triodia</i> hummocks <40 cm; no chenopod communities; no refuge from fire; fire age approx. 2 to 5 years |  |

| Site ID | MGA Zone 50K | | Sampling method | Date | Habitat | Condition | Disturbance | Microhabitats important to Night Parrot | Photo |
|---------|--------------|---------------|--------------------|------------|-------------------|-----------|--|---|---|
| | Easting (mE) | Northing (mN) | | | | | | | |
| HA2 | 422450 | 7591151 | Habitat Assessment | 14/09/2017 | Loamy/stony plain | 0.8 | Clearing for drilling; mineral exploration | Moderately sized <i>Triodia</i> hummocks <40 cm; no chenopod communities; no refuge from fire; fire age approx. 5 to 10 years |  |

Condition
1.0 (Excellent)
0.8 (Very Good)
0.6 (Good)
0.4 (Poor)
0.2 (Very Poor)

Attachment D: Bat Call WA Pty Ltd Report

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10 October 2017

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Rio Tinto Mesa A and H targeted Night Parrot survey

Astron Environmental Services has provided Bat Call with a series of audio recordings made at Mesa A and Mesa H in September 2017. These recordings were made at eight locations, four at each mesa, and targeted Night Parrot (*Pezoporus occidentalis*) presence. They were made using Songmeter SM2 audio detectors fitted with SMX-II microphones. Reference calls for the Night Parrot for comparison were available from Bat Call's library.

The recording data and results for each site are summarised in the following tables.

| Mesa A | Date | Recording Time & SM2 unit | Easting | Northing | Night Parrot presence detected |
|---------------|-----------------------|--|----------------|-----------------|---|
| SM002468A | 13 to 16 September | Detector failed to record | 381293 | 7599064 | No |
| SM002468B | 17 to 20 September | Detector failed to record | 381262 | 7599212 | No |
| SM007982A | 13 to 16 September | Four overnight recordings using SM2 SN 7982 | 380088 | 7608911 | No |
| SM007982B | 17 to 19 September | Three overnight recordings using SM2 SN 7982 | 391731 | 7602261 | No |

Mesa A-H targeted Night Parrot survey – September 2017

| Mesa H | Date | Recording Time & SM2 unit | Easting | Northing | Night Parrot presence detected |
|-----------|-----------------------|--|---------|----------|--------------------------------------|
| SM004685A | 15 to 17 September | Three overnight recordings using SM2 SN 4685 | 421585 | 7591008 | No |
| SM004685B | 18 to 20 September | Three overnight recordings using SM2 SN 4685 | 415745 | 7598784 | No |
| SM004698A | 15 to 17 September | Three overnight recordings using SM2 SN 4698 | 422451 | 7591151 | No |
| SM004698B | 18 to 20 September | Three overnight recordings using SM2 SN 4698 | 416396 | 7599262 | No |

Yours sincerely



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