BHP Billiton Iron Ore Pilbara Strategic Proposal

Flora and Vertebrate Fauna Screening Assessment

26 February 2016

Abbreviations

Abbreviation	Meaning
DEC	Department of Environment and Conservation (former name for DPaW)
DoE	Federal Department of the Environment
DPaW	Western Australian Department of Parks and Wildlife
DRF	Declared Rare Flora
EIA	Environmental Impact Assessment
EP Act	*Environmental Protection Act 1986* (State)
EPA	Western Australian Environmental Protection Authority
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999* (Federal)
FDS	Full Development Scenario
IUCN	International Union for Conservation of Nature
MNES	Matters of National Environmental Significance
PDB	Project Definition Boundary
PERSP	Public Environmental Review – Strategic Proposal
SEA	Strategic Environmental Assessment
SP	Strategic Proposal
TEC	Threatened Ecological Community
WC Act	*Wildlife Conservation Act 1950* (State)

Glossary

Term	Definition
30% Conceptual Development Scenario	This scenario represents the extent of cumulative direct disturbance within the Project Definition Boundary at a future point when 30% of BHP Billiton Iron Ore's identified operations are operating concurrently (a reasonably foreseeable level of operation). In addition to BHP Billiton Iron Ore's developments, the scenario includes reasonably foreseeable third-party iron ore mines. It also includes the Existing Development Scenario.
Conservation Significant Species	Species that are either: • Listed under the EPBC Act as Critically Endangered, Endangered, Vulnerable or Migratory; • Listed under the WC Act under Schedules 1-7; or • Listed by DPaW as Priority Species. • Listed by the IUCN as Critically Endangered, Endangered, Vulnerable, or Near Threatened.

Full Conceptual Development Scenario	This scenario is based on the production rate associated with full development of BHP Billiton Iron Ore's future identified projects being in concurrent operation. It builds on the 30% Conceptual Development Scenario, so it includes the Existing Development Scenario and reasonably foreseeable third-party iron ore mines; however, it does not include future long-term predictions about third-party iron ore mines or other land uses as this information is not publically available.
Public Environmental Review Strategic Proposal (PERSP)	The document that outlines the potential impacts of the Strategic Proposal on factors and management strategies to address potential impacts. The PERSP is assessed by the EPA in considering whether the Strategic Proposal is environmentally acceptable.
Species[1]	A group of biological organisms consisting of individuals who are either: • Capable of interbreeding to produce fertile offspring; or • Possess common characteristics derived from a common gene pool.
Strategic Proposal	The proposal for future developments (State level).
Strategic Environmental Assessment (SEA)	The overall process for the State Strategic Proposal and Federal Strategic Assessment.

[1] We acknowledge the wide and varied scientific and philosophical discussion around the definition of species. The definition used here is based on the definition in the EPBC Act and centres on a 'common gene pool'.

Contents

1 Introduction

BHP Billiton Iron Ore Pty Ltd (BHP Billiton Iron Ore) currently operates five iron ore mines in the Pilbara region of Western Australia: Yandi, Mining Area C, Mount Whaleback, Eastern Ridge and Jimblebar. To meet future iron ore demand, BHP Billiton Iron Ore is proposing new developments to their operations, known as the Strategic Proposal. This expansion will include a number of new mines, rail lines and infrastructure facilities. To simplify future approvals, BHP Billiton Iron Ore has decided to undertake a Strategic Environmental Assessment (SEA).

This approach to approvals and environmental assessment is supported by both the State and Federal governments as well as the Western Australian Environmental Protection Authority (EPA). One component of the Strategic Proposal involves an impact assessment to assess the degree of impacts on conservation significant species. This report defines the process and methods by which BHP Billiton Iron Ore has identified the risk of potential impact to conservation significant fauna species at different levels (stages) of the future development of the Strategic Proposal. Those species that have been identified during this screening assessment to be at higher risk of impact from the implementation of the Strategic Proposal are discussed in the Public Environmental Review Strategic Proposal (PERSP) (BHP Billiton Iron Ore 2016).

1.1 Strategic Proposal

BHP Billiton is among the world's largest producers of major commodities, including coal, copper, iron ore, nickel and uranium, and has substantial interests in oil and gas. BHP Billiton Iron Ore, one of BHP Billiton's businesses, has been developing mines and infrastructure in the Pilbara region since the 1960s, and proposes to continue to do so over the long term. This long-term development plan, the Strategic Proposal, looks at the Life of Asset, for all of BHP Billiton's current and future Pilbara tenements, and includes:

- New greenfield mining operations at Caramulla, Mudlark, Coondiner, Munjina / Upper Marillana, Gurinbiddy, Ophthalmia / Prairie Downs, Jinidi, Rocklea, Marillana, Roy Hill, Mindy, Ministers North and Tandanya (Figure 1);
- Future expansions to existing mining operations at Jimblebar, Newman, Mining Area C and Yandi;
- Associated infrastructure, including, but not limited to, power lines, pipelines, accommodation camps, access roads, conveyors and airports;
- Rail spurs (connecting the new mining operations to existing rail infrastructure);
- Rail loops (within each mining operation to enable ore loading); and
- Potential expanded rail capacity of the Newman to Port Hedland rail line.

It does not include existing BHP Billiton Iron Ore operations and infrastructure, future development of operations at Yarrie, Goldsworthy and South Flank, or current and future operations at Port Hedland.

The Environmental Protection Authority's (EPA's) Strategic and Derived Proposal mechanisms are considered by both the EPA and BHP Billiton to be appropriate methods for assessing the Strategic Proposal and for achieving acceptable environmental outcomes (EPA 2012a). In comparison to the traditional mine-by-mine approval approach used in Western Australia, the assessment of the Strategic Proposal allows for a more cumulative, integrated and regional consideration of environmental impacts.

For the purposes of the assessment, an estimated area of influence (referred to as the Project Definition Boundary) has been determined to be a 50 km buffer around existing BHP Billiton Iron Ore mining tenements covered by the

Strategic Proposal. The rail corridor to Port Hedland with a 10 km buffer is included. A precautionary approach has been applied in determining the Project Definition Boundary (Figure 2).

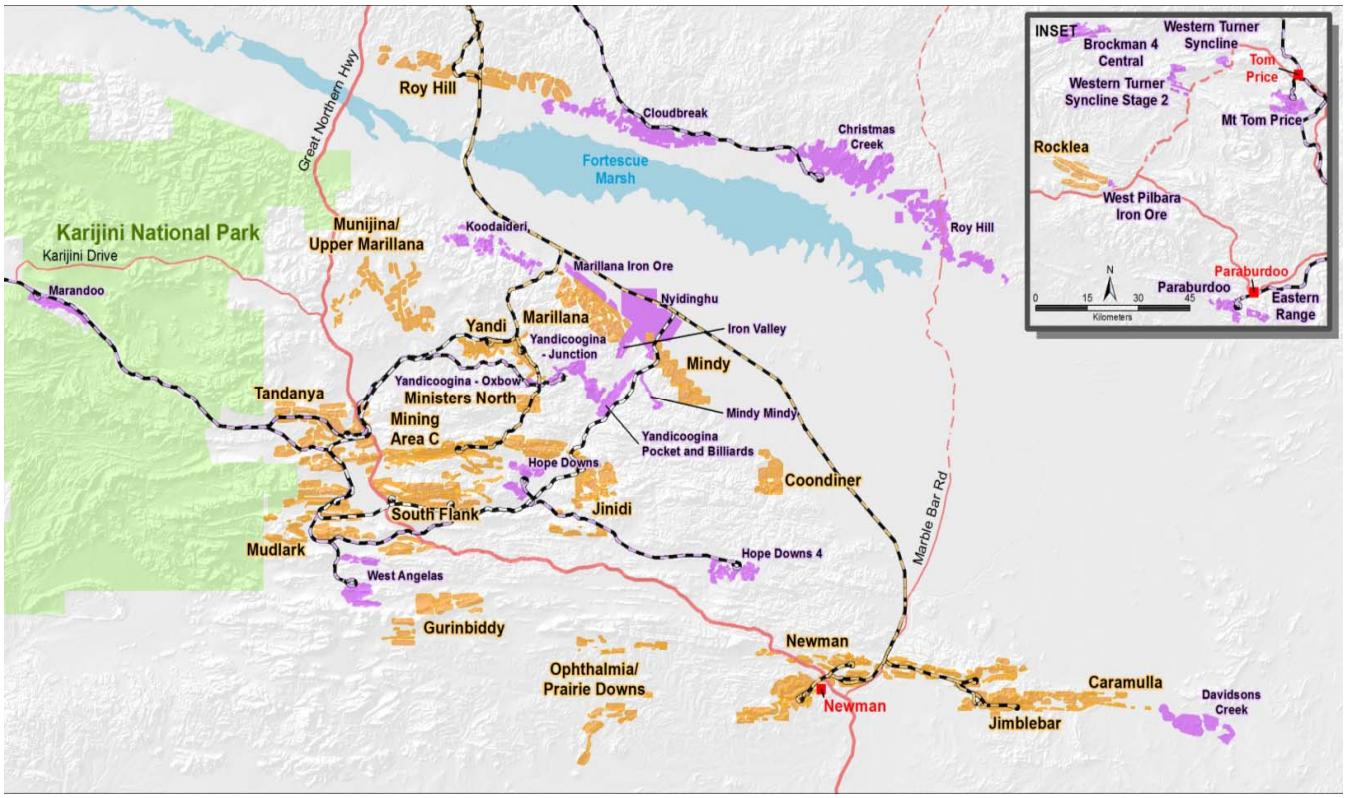

Figure 1: Current and future proposed iron ore mining operations in the Pilbara

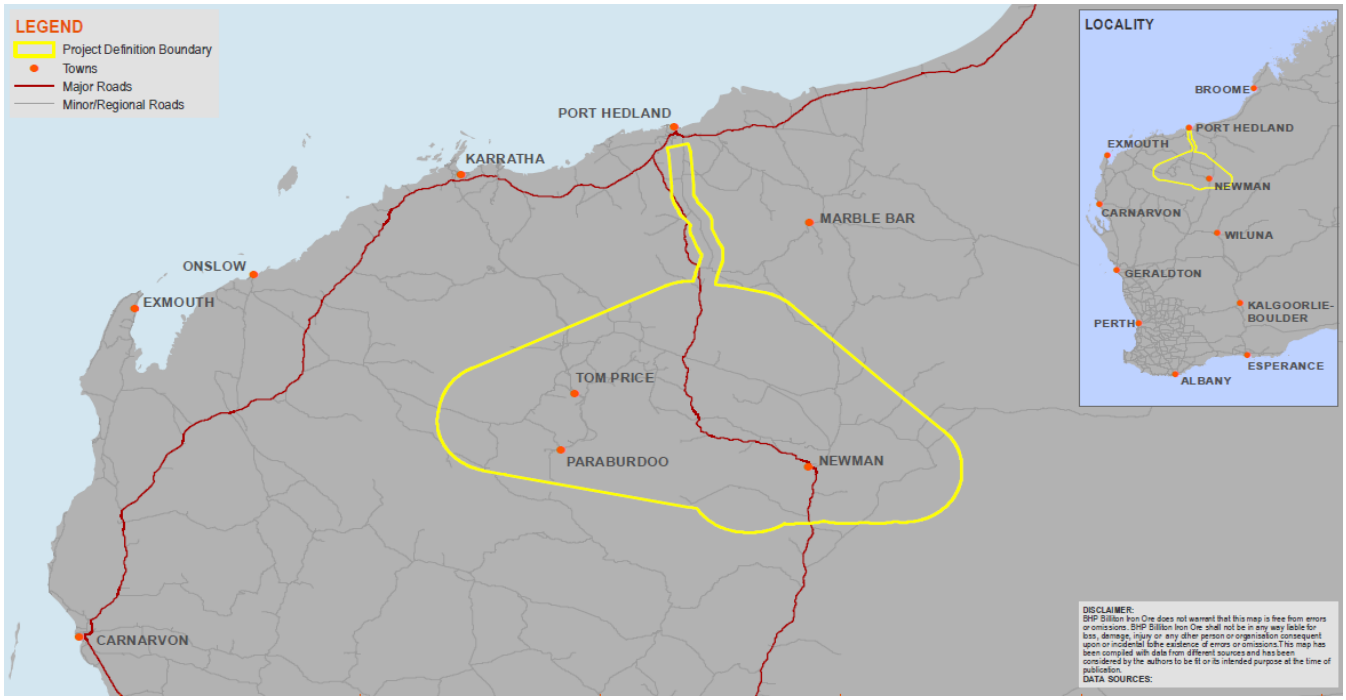

Figure 2: Project Definition Boundary

2 Methods

The purpose of this assessment is to identify conservation significant species with the highest potential for impact from implementation of BHP Billiton Iron Ore's Strategic Proposal and Third Party projects under 30% implementation and Full Development scenarios (discussed further in Section 2.1). This assessment is reliant on biodiversity data retained in BHP Billiton Iron Ore's corporate database, and data available from state and national government and non-government databases (see Section 2.3.1). The assessment only considers direct impacts (i.e. clearing) to recorded locations for conservation significant species. It does not consider indirect impacts, such as the introduction or spread of weeds.

2.1 Impact footprint scenarios

The potential impacts to conservation significant species have been estimated by taking into account existing mining and non-mining impacts in the Pilbara bioregion of Western Australia as well as two potential future development scenarios:

1. The BHP Billiton Iron Ore 30% Conceptual Development Scenario; and
2. The BHP Billiton Iron Ore Full Conceptual Development Scenario.

The 30% Conceptual Development Scenario provides a snapshot of BHP Billiton Iron Ore's potential Strategic Proposal based upon conceptual development of up to 30% of BHP Billiton's current assets. The disturbance from reasonably foreseeable future third party mines has been included under this scenario, and was estimated from publicly available data for projects referred to the EPA prior to June 2012. This includes projects that are already approved but not yet implemented.

The Full Conceptual Development Scenario is based on the production rate associated with full development of BHP Billiton Iron Ore's future identified projects being in concurrent operation. It builds on the 30% Conceptual Development Scenario, so it includes the Existing Development Scenario and reasonably foreseeable third-party iron ore mines; however, it does not include future long-term predictions about third-party iron ore mines or other land uses as this information is not publically available. Third party projects included in the 30% Conceptual Development Scenario are also included in the Full Conceptual Development Scenario. No additional third party disturbance areas (post June 2012) are included in the Full Conceptual Development Scenario as this level of information was not publicly available when development scenario footprints were developed.

Non-mining impacts (such as roads and human settlements) are less well defined and less predictable, but generally of less consequence at the scale of this assessment. The impacts to flora and vegetation and fauna at a regional scale, from these sparse developments in the Pilbara is not considered to be significant. Therefore, non-mining impacts have not been included in the existing, 30% Conceptual Development or Full Conceptual Development scenarios.

The direct disturbance footprint totals used as a baseline for the application of impacts are summarised in Table 1.

Table 1: Conceptual footprint areas for each development scenario

	Disturbance Footprints (ha)*		
Land User	Existing Development Scenario	30% Conceptual Development Scenario	Full Conceptual Development Scenario
BHP Billiton Iron Ore Mines	18,194	48,394	124,666

	Disturbance Footprints (ha)*		
Land User	Existing Development Scenario	30% Conceptual Development Scenario	Full Conceptual Development Scenario
Third Party Iron Ore Mines	21,258	68,546	68,546
Other (Non-Mining)	34,534	34,534	34,534
Cumulative	***73,985***	***151,474***	***227,746***

Further information detailing how these numbers were derived is discussed in more detail in sections 2.1.1 to 2.1.5.

2.1.1 Disturbance Data for Existing BHP Billiton Iron Ore Operations

The disturbance data for existing BHP Billiton Iron Ore disturbance footprints was derived from analysis of aerial imagery by BHP Billiton Iron Ore and was current as of December 2013. The layer includes disturbance associated with the Area C, Jimblebar, Whaleback, Eastern Ridge and Yandi mining operations. Some non-process infrastructure was excluded, such as power lines and accommodation camps.

2.1.2 Disturbance Data for Existing Third Party Iron Ore Operations

The disturbance data for existing third party disturbance was derived by BHP Billiton Iron Ore from analysis of aerial imagery (as of September 2013) and includes disturbance associated with:

- Rio Tinto's (including joint ventures with Hamersley Iron, Hamersley HMS and Robe River Mining Co.) Brockman Syncline 4, Hope Downs 1, Hope Downs 4, Koodaideri, Marandoo, West Angelas, Western Turner Syncline, Western Turner Syncline Stage 2, Yandicoogina (Junction SE, Junction SW and Oxbow, Pocket and Billiard South);
- Fortescue Metal Group's Cloudbreak (expansion), Christmas Creek (expansion), Mindy Mindy and Nyidinghu;
- Atlas Iron's Davidson's Creek;
- Australian Premium Iron Management's Hardey;
- Iron Ore Holdings' Iron Valley;
- Brockman Resources' Marillana; and
- Hancock Prospecting's Roy Hill Stage 1 and Roy Hill Stage 2.

Note that FMG's Solomon Iron Ore Mine expansions were not included as an input in the Cumulative 30% Development Case as the expansions are located more than 50 km away from BHP Billiton Iron Ore mining tenures and were not considered likely to contribute to potential cumulative impacts from BHP Billiton Iron Ore's operations.

Third party operations considered for the existing disturbance footprint were those that occur within the Project Definition Boundary and had been approved and were underway as at September 2014. Haul roads, rail and accommodation camps were not included in the footprints.

2.1.3 Disturbance Data for the Strategic Proposal

Disturbance for the Strategic Proposal was categorised into pits, OSAs, infrastructure areas and rail corridors. The disturbance area for pits and OSAs was informed by available resource information and the predicted volume of mining at each time period. For infrastructure, a nominal 1,500 ha of disturbance was allocated for each Strategic Proposal operation. Haul roads and accommodation camps were excluded.

Detailed engineering design has not yet been undertaken for all elements of the Strategic Proposal, thus the location and timing of mining operations may change in the future in response to newly identified resources, as a result of technology advances or to avoid environmental impacts. This is not considered likely to significantly impact the outcomes of this screening assessment, which provides a regional-scale assessment of potential impacts in the long-term.

Strategic Proposal operations included in the 30% Conceptual Development Scenario are Mining Area C, Jimblebar, Jinidi (partial development), Marillana, Mudlark, Munjina / Upper Marillana, Eastern Ridge, South Flank and Yandi mining operations.

Strategic Proposal operations included in the Full Conceptual Development Scenario, in addition to those listed above for the 30% Conceptual Development Scenario, are Caramulla, Coondiner, Gurinbiddy, Jinidi (full development), Mindy, Ministers North, Ophthalmia / Prairie Downs, Rocklea, Roy Hill, and Tandanya mining operations.

2.1.4 Disturbance Data for Reasonably Foreseeable Future Third Party Iron Ore Operations

The disturbance data for reasonably foreseeable future third party iron ore mining operations was derived from publicly available data for projects already approved but not yet implemented, and projects referred to the EPA as of September 2014. These data do not take into account any further expansions that third party operators may propose to undertake in the future.

The disturbance data for reasonably foreseeable future third party iron ore mining operations include disturbance associated with:

- Rio Tinto's (including joint ventures with Hamersley Iron, Hamersley HMS and Robe River Mining Co.) Brockman Syncline 4, Hope Downs 1, Hope Downs 4, Koodaideri, Marandoo, West Angelas, Western Turner Syncline, Western Turner Syncline Stage 2, Yandicoogina (Junction SE, Junction SW and Oxbow, Pocket and Billiard South);
- Fortescue Metal Group's Cloudbreak (expansion), Christmas Creek (expansion), Mindy Mindy and Nyidinghu;
- Atlas Iron's Davidson's Creek;
- Australian Premium Iron Management's Hardey;
- Iron Ore Holdings' Iron Valley;
- Brockman Resources' Marillana; and
- Hancock Prospecting's Roy Hill Stage 1 and Roy Hill Stage 2.

Consideration of future third party projects was limited to those within 50 km of a Strategic Proposal mining operation. The exception was the Roy Hill Iron Ore Mine (Roy Hill Iron Ore Holdings Pty Ltd), which was included because of its close proximity to Fortescue Marsh.

Note that FMG's Solomon Iron Ore Mine expansions were not included as an input in the Cumulative 30% Development Case as the expansions are located more than 50 km away from BHP Billiton Iron Ore mining tenures and were not considered likely to contribute to potential cumulative impacts from BHP Billiton Iron Ore's operations.

2.2 Determining Conservation Significance

To identify conservation significant species that may be at risk of being impacted as a result of direct impacts as a result of the Strategic Proposal an examination of legislative frameworks and available data within the state and specifically the Pilbara region was undertaken.

2.2.1 Current Legislation and Frameworks

Conservation significance of species was determined by the species' listing under the following national or state legislature, or government conservation lists:

- Species listed as Critically Endangered, Endangered, Vulnerable or Migratory under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).
- Species listed under Schedules 1 to 7 of the *Wildlife Conservation Act 1950* (WC Act), as listed in the 2015 Wildlife Conservation (Specially Protected Fauna) Notice for Threatened Fauna and Wildlife Conservation (Rare Flora) Notice for Threatened Flora.
- Department of Parks and Wildlife Priority species lists.
- Species listed as Critically Endangered, Endangered, Vulnerable or Near Threatened under the International Union for Conservation of Nature (IUCN) Red List.

For the purposes of this document, these species collectively are referred to as 'conservation significant.'

A description of the conservation rankings is provided in Appendix 1.

2.3 Data Analysis

2.3.1 Data Sources

A list of all conservation significant flora and vertebrate fauna species was developed using data from the following sources:

- BHP Billiton Iron Ore – BHP Billiton Iron Ore's corporate geographical information system (GIS) database, which houses all the data obtained from biological surveys undertaken or commissioned by BHP Billiton Iron Ore. It contains more than 125,000 records for flora, and almost 28,000 records for vertebrate fauna. Data current as of December 2015 (flora) and January 2016 (fauna). This data is largely restricted to BHP Billiton Iron Ore's Pilbara tenements.
- Department of Parks and Wildlife:
    - The WA Herbarium's (WAHerb) specimens database for all of Western Australia and current as at 15 November 2015;
    - The Department of Parks and Wildlife's Threatened and Priority Flora List database, which contains all rare and priority flora records, for the Pilbara bioregion and current as at 16 December 2015;
    - The Department of Parks and Wildlife's Fauna Survey (threatened and priority fauna) database, which are records from the Department's Threatened and Priority Fauna database and the Fauna Survey Returns System database), for the Pilbara bioregion and current as at 16 December 2015.
- Western Australian Museum – the Western Australian Museum's collection database for mammals, birds, reptiles and amphibians, provided 8 January 2016.
- BirdLife Australia – an extract for all records of species that occur within the Pilbara was obtained from BirdLife Australia's Atlas Database, provided 7 January 2016.

Additional data for selected vertebrate fauna species identified from the Pilbara were obtained from the following sources:

- Atlas of Living Australia - The Atlas of Living Australia is a collaborative, national project that aggregates biodiversity data from multiple sources and makes it available and usable online (ALA 2016). Data for 48 species was obtained in January 2016.
- Additional fauna species records outside the Pilbara were provided by the DPaW for 13 species in February 2016.

2.3.2 Analysis of Flora Data

A geodatabase of all conservation significant flora data was developed by merging the three datasets (BHPBIO corporate data, WAHerb's specimen database and DPaW's Threatened and Priority Flora List database) into one dataset. Species taxonomy was reviewed to ensure consistency of naming and that current taxonomy and conservation status was allocated. Duplicate records were identified (i.e. where the same species had been recorded in multiple datasets from the same location) and deleted. This included repeat sampling of a species from the same location (i.e. the same species recorded from the same location on multiple occasions, e.g. during monitoring).

This dataset was intersected with the Project Definition Boundary to determine the conservation significant species of interest (i.e. those species with records within the Project Definition Boundary). The remaining species were removed from the dataset. An impact analysis was then undertaken on the identified species of interest to determine the number of records for each species that occurred in the Pilbara area (defined by the 250k Geoscience Australia Mainland boundary and the bounding box of 115.08E 24.23S, 121.561E 19.787S (see Figure 3)) and within the footprints produced for each development scenario (described in Section 2.1).

The outputs were used to inform a qualitative assessment of the likely risk of cumulative impact from the Strategic Proposal, using specialist knowledge of each species' ecology and distribution.

2.3.3 Analysis of Fauna Data

A geodatabase of all conservation significant vertebrate fauna data was developed by merging the four datasets (BHPBIO corporate data, DPaW's Fauna Survey (threatened and priority fauna) database, the Western Australian Museum's collection database for mammals, birds, reptiles and amphibians and Birdlife Australia's Atlas database) into one dataset. Species taxonomy was reviewed to ensure consistency of naming and that current taxonomy (based on the WA Museum's latest fauna checklist (Government of Western Australia, 2015)). Conservation status was allocated according to declared / gazetted species conservation status current as at February 2016 (see Section 2.2). Duplicate records were identified (i.e. where the same species had been recorded in multiple datasets from the same location) and deleted. This included repeat sampling of a species from the same location (i.e. the same species recorded from the same location on multiple occasions, e.g. during monitoring).

This dataset was intersected with the Project Definition Boundary to determine the conservation significant species of interest. The remaining species were removed from analysis. Additional records for these species of interest were obtained from the Atlas of Living Australia and DPaW and merged with the conservation significant fauna database.

An impact analysis was undertaken to determine the number of records for each species that occurred in the Pilbara area (defined by the 250k Geoscience Australia Mainland boundary and the bounding box of 115.08E 24.23S, 121.561E 19.787S (see Figure 3)) and within the footprints produced for each development scenario (described in Section 2.1).

There were a number of obviously erroneous records in the government supplied databases that were removed from the analysis as follows:

- Records for the southern giant petrel (*Macronectes giganteus*) in the vicinity of Weeli Wolli Creek are in fact records for the ghost bat (*Macroderma gigas*) recorded on behalf of BHP Billiton Iron Ore and appear to be a transcription error when loading data into the fauna returns database.

- Records for the crest-tailed mulgara (*Dasycercus cristicauda*) in the Pilbara are considered to belong to the brush-tailed mulgara (*D. blythi*) following a recent review by Woolley *et al.* (2013). Records of *D. cristicauda* within the Pilbara area, Strategic Assessment Boundary and development scenarios were merged with the *D. blythi* dataset.
- Records for the black-flanked rock-wallaby (*Petrogale lateralis lateralis*) approximately 10 km north of BHP Billiton Iron Ore's tenure in the East Ophthalmia Range are from 1975. There are no records from the Ophthalmia Range despite more than 40 vertebrate fauna surveys having been undertaken in this area. These records are considered to either belong to the Rothschild's rock wallaby (*Petrogale rothschildi*) which is commonly recorded in the region, or the black-flanked rock-wallabies located in this area are now locally extinct. No records for this species were identified in any of the development scenarios.
- There are two records for princess parrot (*Polytelis alexandrae*) within the southern boundary of the Fortescue Marsh. The source of these records is Birdlife Australia. There are no other records for princess parrot in the Pilbara with the nearest records being approximately 250 km to the south and 270 km to the east, which are aligned with this species documented distribution. This records were considered to be a mis-identification and were removed from the dataset.
- Records of the Lake Disappointment gecko (*Diplodactylus fulleri*) north-west of the Fortescue Marsh within the Fortescue River valley are considered to be incorrect, as this species is considered to be endemic to the Lake Disappointment area. These records are from the Fauna Licence Returns Database. There are no records for this species from the Fortescue Marsh area within the WA Museum database.
- Records of the unpatterned robust slider (*Lerista macropisthopus remota*) in the vicinity of BHP Billiton Iron Ore's Mt Whaleback operations. These records were mis-identified by the Australian Museum and were later confirmed to be *Lerista neander* by Brad Maryan of the WA Museum.

Feedback regarding these records has been provided to the DPaW.

The outputs were used to inform a qualitative assessment of the likely risk of cumulative impact from the Strategic Proposal, using specialist knowledge of each species' ecology and distribution.

2.3.4 Selection of Species for Further Assessment

A nominal threshold has been used to screen those species with the highest risk of potential for impact from the proposed implementation of the Strategic Proposal. Whilst a number of national and state references denote 30% and 10% of original extent of vegetation as threshold threat levels (The National Objectives and Targets for Biodiversity conservation 2001-2005 report (Department of Environment and Heritage [DEH] 2001), EPA Position Statement No. 2 (EPA 2000), EPA Guidance Statement No. 10 (EPA 2006), Guide to the assessment of applications to clear native vegetation by the Department of Environment Regulation (DER 2014)), there is no similar consistent threshold applied at a species level.

For this assessment, flora 'Species of Interest' (i.e. those with the highest risk of potential impact (without mitigation) were considered to be those species where more than 10% of known West Australian records occur within the development scenario footprints. A more conservative level was set for fauna (than for flora) as many of these species are highly mobile or transient, so there is a higher potential for species that may occur in an area to not be recorded during field surveys. Fauna 'Species of Interest' were identified as those species where more than 5% of known West Australian records occur within the Project Definition Boundary.

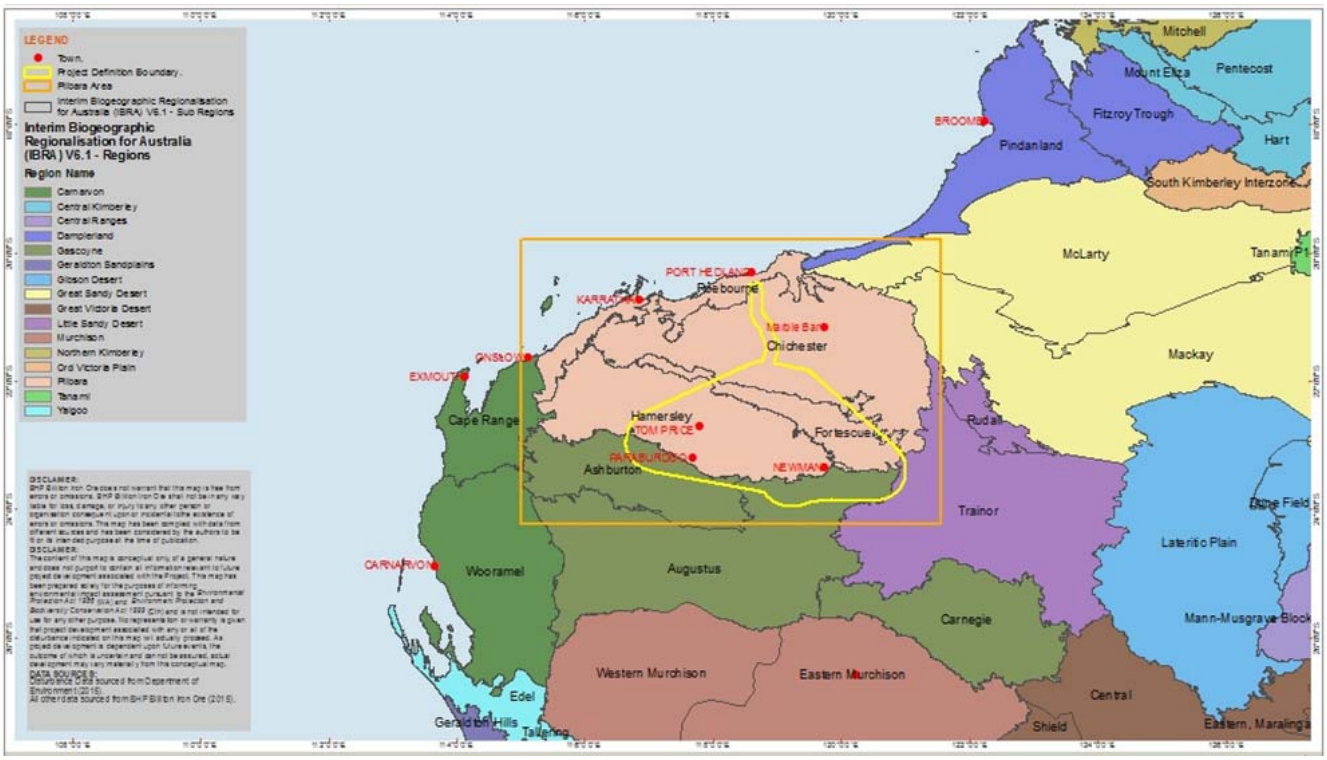

Figure 3: Location of 'Pilbara Area' in relation to the Project Definition Boundary

3 Results and Discussion

3.1 Flora Impact Assessment

A total of 128 conservation significant flora species were identified within the Project Definition Boundary. These species, along with details of the total number of records within the combined databases, the total number of records with the 'Pilbara Area' (Figure 3) and the total number of records within the Project Definition Boundary are shown in Table 1. The risk of potential impacts to each species is determined by the number of West Australian records that fall within footprints under the 30% and Full Conceptual Development Scenarios (explained in Section 2.1). The number of records that fall within currently approved disturbance footprints are also shown (Existing Impact for BHP Billiton Iron Ore and Third Party columns in Table 1).

To determine flora species that have a higher potential to be impacted by the Strategic Proposal, the following criteria were applied to the 128 conservation-significant flora species occurring within the Project Definition Boundary.

- Known flora records potentially impacted by more than 10% from the development scenarios; or
- Known flora records that only occur within the Project Definition Boundary.

Note that due to the spatial extent of some of the data utilised for this project and a sampling bias from data collected by BHP Billiton Iron Ore, the proportion of records within development footprints is likely to be overestimated.

A total of 51 conservation significant flora species were considered to be species of interest for more detailed assessment in the PERSP (identified as a Species of Interest in Table 1)..Of these, two were determined to have a higher risk of potential to be impacted by the Strategic Proposal. The potential impacts to these species and the likely significance of impacts are described in Table 1.

One species listed under the EPBC Act was identified by the analysis, *Lepidium catapycnon*, which has recently been delisted from the WC Act, and at a state level is considered a Priority 4 species. For the purposes of this document, L. catapycnon is considered a Priority 4 species. The species' conservation significance at a national level is concurrently being assessed under the EPBC Act.

Table 2: Species description and distribution for conservation-significant flora species within the Project Definition Boundary

Species (sorted as per highest conservation ranking)	Records			Number of records within conceptual development scenarios[1]				Risk of Significance of Impact from the 30% and/or Full Conceptual Development Scenarios	Species of interest?[2]
	Total WA	Pilbara Area	Project Definition Boundary	Existing	Reasonably foreseeable third party	30% Conceptual	Full Conceptual		
TIER 1 – Threatened Species									
Aluta quadrata WC Act: Schedule 2 Endangered DPaW Threatened	21	21	20	0	0	0	0	*Aluta quadrata* is a small shrub that occurs along the edge of creek beds, at the base of cliffs, in rocky crevices, or near the crest of ridges. It has a very small restricted range within the vicinity of Paraburdoo. Rio Tinto (2011) state that there are 495 records from Rio Tinto commissioned surveys. Only 21 records are housed in government databases, and whilst most of these records occur within the Project Definition Boundary, none have been identified as occurring within project footprints. It is difficult to determine likely impacts to this species until all records are made publicly available; however this species has not been recorded on BHP Billiton Iron tenure to date so the risk from the proposal is considered low.	No
Thryptomene wittweri EPBC Act Vulnerable WC Act: Schedule 3 Vulnerable DPaW Threatened	10	6	6	0	0	0	0	Occurs in the Gascoyne, Little Sandy Desert and Pilbara regions of WA, and also in the central NT. Pilbara records occur within Karijini National Park and it also occurs in Mount Augustus National Park in the Gascoyne region. It typically inhabits steep slopes, rock scree and breakaways near the summits of prominent hills. No records occur in the Full Conceptual Development Scenario footprints despite extensive surveys for this species in suitable habitat. Risk considered very low.	No

Species (sorted as per highest conservation ranking)	Records			Number of records within conceptual development scenarios[1]				Risk of Significance of Impact from the 30% and/or Full Conceptual Development Scenarios	Species of interest?[2]
	Total WA	Pilbara Area	Project Definition Boundary	Existing	Reasonably foreseeable third party	30% Conceptual	Full Conceptual		
TIER 2 – Priority Species									
Abutilon sp. Pritzelianum (S. van Leeuwen 5095) DPaW Priority 1	55	48	16	1	0	1	1	Predominantly occurring around Port Hedland, with current distribution extending south along the West Australian coast to Shark Bay. Recorded along BHPBIOs Mainline Rail. Majority of locations occur outside the Full Conceptual Development Scenario footprints. Risk considered low.	No
Acacia sp. East Fortescue (J. Bull & D. Roberts ONS A 27.01) DPaW Priority 1	97	97	97	0	0	0	0	A new taxon recorded within an area of approximately 8 ha adjacent to the north-west boundary of BHP Billiton Iron Ore's Orebody 31 tenement. Recent targeted surveys have failed to locate additional populations. Considered to be at high risk, noting that the current design and management at Orebody 31 will ensure no plants are disturbed.	Yes. All WA records from within PDB.
Barbula ehrenbergii DPaW Priority 1	4	4	4	0	0	0	0	Restricted to the central Pilbara but not previously recorded within the Full Conceptual Development Scenario footprints. Records occur within Karijini National Park. Risk considered low.	Yes. All WA records from within PDB.
Bothriochloa decipiens var. *cloncurrensis* DPaW Priority 1	3	2	1	0	0	0	0	Occurs across the northern region of Australia, in the Pilbara, Northern Territory and Queensland. Few records from WA, and it is also considered uncommon in the NT. Considered useful as a fodder grass, so may be preferentially grazed by cattle. Risk considered low due to wide distribution outside WA.	No

Species (sorted as per highest conservation ranking)	Records			Number of records within conceptual development scenarios[1]				Risk of Significance of Impact from the 30% and/or Full Conceptual Development Scenarios	Species of interest?[2]
	Total WA	Pilbara Area	Project Definition Boundary	Existing	Reasonably foreseeable third party	30% Conceptual	Full Conceptual		
Calotis squamigera DPaW Priority 1	4	4	4	0	1	1	1	Restricted to the South-East Pilbara including one third party tenement. Not previously recorded from BHP Billiton Iron Ore tenure. Risk considered low.	Yes. All WA records from within PDB and 25% of known WA records within 30% and FDS.
Cochlospermum macnamarae DPaW Priority 1	7	7	4	0	0	0	0	Recently discovered species (2011) that has a restricted distribution south of Port Hedland, where it is known to grow on granite outcrops. No records from within 30% or Full Conceptual Development Scenario footprints. Risk is considered low.	No
Dicrastylis mitchellii DPaW Priority 1	3	1	1	0	0	0	0	Known from two locations in the Pilbara and Murchison regions of Western Australia. Grows on sand or clay soils around dunes. Risk considered low due to preferred habitat type and inferred range south of the Pilbara.	No
Dipteracanthus chichesterensis DPaW Priority 1	7	7	3	0	0	0	0	A recently described species that is restricted to the Chichester subregion of the Pilbara. Risk considered low.	No
Eragrostis sp. Mt Robinson (S. van Leeuwen 4109) DPaW Priority 1	10	10	10	0	0	0	0	Restricted to upper slopes of Mt Robinson where it occurs with a suite of other significant flora. The upper slopes of Mt Robinson are not included within BHP Billiton Iron Ore's Full Conceptual Development Scenario footprint and therefore risk to this species is considered low.	Yes. All WA records from within PDB.

Species (sorted as per highest conservation ranking)	Records			Number of records within conceptual development scenarios[1]				Risk of Significance of Impact from the 30% and/or Full Conceptual Development Scenarios	Species of interest?[2]
	Total WA	Pilbara Area	Project Definition Boundary	Existing	Reasonably foreseeable third party	30% Conceptual	Full Conceptual		
Eremophila appressa DPaW Priority 1	7	1	1	0	0	0	0	Known from two locations in the Gascoyne (Augustus subregion) and Pilbara (Hamersley subregion) where it occurs on ridge slopes. Risk considered low.	No
Eremophila pilosa DPaW Priority 1	9	9	9	0	0	0	0	Restricted to a small area in the Fortescue subregion of the Pilbara where it has been recorded growing on red-brown clays of sandy plains. Risk considered low.	Yes. All WA records from within PDB.
Eremophila sp. Hamersley Range (K. Walker KW 136) DPaW Priority 1	6	6	6	0	0	2	2	Restricted to the south-east Pilbara and extending into the northern fringe of the Gascoyne bioregion where it grows on open rocky slopes, gullies and rock faces associated with large hills and cliffs. Six records from the Pilbara with two occurring within the 30% Development Scenario and Full Conceptual Development Scenario. Risk considered moderate.	Yes. All WA records from within PDB and 33% of known WA records within 30% and FDS.
Eremophila sp. Jigalong (B. Buirchell BB 204) DPaW Priority 1	1	1	1	0	0	0	0	Restricted to the North-East Gascoyne (just outside boundary of the South-East Pilbara). Not within the Full Conceptual Development Scenario. Risk determined to be low.	Yes. All WA records from within PDB.
Eremophila sp. Snowy Mountain (S. van Leeuwen 3737) DPaW Priority 1	1	1	1	0	0	0	0	Restricted to one location on the southern fringe of the Pilbara bioregion where it was observed growing at the summit of a hill in skeletal soil. Not within the Full Conceptual Development Scenario. Risk determined to be low.	Yes. All WA records from within PDB.

Species (sorted as per highest conservation ranking)	Records			Number of records within conceptual development scenarios[1]				Risk of Significance of Impact from the 30% and/or Full Conceptual Development Scenarios	Species of interest?[2]
	Total WA	Pilbara Area	Project Definition Boundary	Existing	Reasonably foreseeable third party	30% Conceptual	Full Conceptual		
Eremophila sp. West Angelas (S. van Leeuwen 4068) DPaW Priority 1	7	7	7	0	0	0	0	Within BHP Billiton Iron Ore tenure it is restricted to the upper slopes of Mt Robinson, but also occurs within a small range extending to the southwest on Rio Tinto tenure, and southeast towards Newman. No records within the Full Conceptual Development Scenario footprints. Risk considered low.	Yes. All WA records from within PDB.
Eremophila spongiocarpa DPaW Priority 1	415	415	415	257	0	257	257	Endemic to the Fortescue Marsh but occurring extensively across the entire marsh area. Recorded along BHP Billiton Iron Ore's mainline rail, as well as from surrounding tenements on Fortescue Marsh held by BHP Billiton Iron Ore and FMG (Christmas Creek, Cloud Break). Extensive habitat available for this species within the marsh area. Records within Full Conceptual Development Scenario footprints are associated with already approved projects. Risk considered low.	Yes. All WA records from within PDB and 62% of known WA records within 30% and FDS.
Eucalyptus lucens DPaW Priority 1	4	3	3	0	0	0	0	Occurs in WA, the NT and NSW; but it is only considered a conservation significant species in WA where it is restricted to the Hamersley subregion and known from few records. Habitat is described as higher altitude shallow soils, usually on quartzites. Risk considered low.	No
Euphorbia inappendiculata var. *queenslandica* DPaW Priority 1	8	7	4	1	0	1	1	Commonly recorded across the arid zones of the NT, Queensland, South Australia and NSW, but uncommon in WA where it is known from two areas in the Hamersley subregion of the Pilbara, and west of Halls Creek in the Kimberley. Risk considered low.	Yes. 12.5% of known WA records within 30% and FDS.

Species (sorted as per highest conservation ranking)	Records			Number of records within conceptual development scenarios[1]				Risk of Significance of Impact from the 30% and/or Full Conceptual Development Scenarios	Species of interest?[2]
	Total WA	Pilbara Area	Project Definition Boundary	Existing	Reasonably foreseeable third party	30% Conceptual	Full Conceptual		
Goodenia pedicellata DPaW Priority 1	4	4	2	0	0	0	0	Restricted to the Pilbara region, but known from two widely distributed populations. Habitat described as rocky slopes and crests of small hills. Risk considered low due to distance between populations and likely number of additional populations within this range. No records occur within the Full Conceptual Development Scenario footprints.	No
Helichrysum oligochaetum DPaW Priority 1	11	11	7	0	0	0	0	Known from a number of populations within the Pilbara (Fortescue, Hamersley, Roebourne subregions) and Gascoyne (Ashburton subregion) bioregions. Occurs on depressions and floodplains in clay soils. Risk considered low.	No
Heliotropium muticum DPaW Priority 1	272	272	234	0	0	0	0	Distributed from Port Hedland south into the central Pilbara. Previously recorded from a number of locations in the vicinity of BHP Billiton Iron Ore's Mainline Rail. Risk considered low.	No
Hibiscus sp. Canga (P.J.H. Hurter & J. Naaykens 11013) DPaW Priority 1	4	4	4	0	0	0	0	Restricted to the southern fringe of the Pilbara bioregion in the vicinity of Paraburdoo, where it often grows in association with the Canga detrital formations. Not records within the Full Conceptual Development Scenario footprints. Risk determined to currently be low. It is noted that a large number of WA *Hibiscus* specimens are still over east and until they are returned the taxonomy of *Hibiscus* is problematic.	Yes. All WA records from within PDB.
Hibiscus sp. Mt Brockman (E. Thoma ET 1354) DPaW Priority 1	5	5	5	0	0	0	0	Restricted to the central southern sector of the Pilbara bioregion in the vicinity of West Turner syncline where it occurs in sheltered or rocky drainage lines below cliff lines or rocky ridges. No records within the Full Conceptual Development Scenario footprints. Risk considered low.	Yes. All WA records from within PDB.

Species (sorted as per highest conservation ranking)	Records			Number of records within conceptual development scenarios[1]				Risk of Significance of Impact from the 30% and/or Full Conceptual Development Scenarios	Species of interest?[2]
	Total WA	Pilbara Area	Project Definition Boundary	Existing	Reasonably foreseeable third party	30% Conceptual	Full Conceptual		
Josephinia sp. Marandoo (M.E. Trudgen 1554) DPaW Priority 1	17	17	16	1	3	5	5	Known from the Central and South-East Pilbara where it occurs on clay soils. Within BHP Billiton tenure it has been recorded within the Tandanya and South Jimblebar tenements. A number of records occur within 30% Development and Full Conceptual Development Scenarios. The risk is considered moderate.	Yes. 29% of known WA records within 30% and FDS.
Myriocephalus scalpellus DPaW Priority 1	3	3	3	0	0	0	0	Known from a single locality between Munjina and Roy Hill outside BHP Billiton Iron Ore tenure where it occurs within sandy loam or clay soils near clay pans. No records within the Full Conceptual Development Scenario footprints. Risk considered low.	Yes. All WA records from within PDB
Nicotiana heterantha DPaW Priority 1	37	25	22	0	0	0	0	Occurs between Broome and Karratha and south to the Fortescue Valley region of the Pilbara, where it occurs on seasonally wet flats. Large proportion of records within Project Definition Boundary likely due to survey effort. Risk considered low.	No
Rhodanthe ascendens DPaW Priority 1	5	2	2	0	0	0	0	Known from three locations, two within the Carnarvon bioregion and one within the Hamersley subregion of the Pilbara, where they have been observed growing on clay. Risk considered low.	No
Rothia indica subsp. *australis* DPaW Priority 1	18	15	2	0	0	0	0	Occurs across northern Australia in WA, the NT and Queensland. Within WA it is known from the Pilbara (Chichester and Roeburne subregions), Dampierland and Great Sandy Desert bioregions. Habitat described as sand hills and sandy flats. Risk considered low.	No

Species (sorted as per highest conservation ranking)	Records			Number of records within conceptual development scenarios[1]				Risk of Significance of Impact from the 30% and/or Full Conceptual Development Scenarios	Species of interest?[2]
	Total WA	Pilbara Area	Project Definition Boundary	Existing	Reasonably foreseeable third party	30% Conceptual	Full Conceptual		
Senna sp. Millstream (E. Leyland s.n. 30/8/1990) DPaW Priority 1	3	3	1	0	0	0	0	Known from two locations in the Pilbara which are known only from the Fortescue subregion. No records fall within footprints under the Full Conceptual Development Scenario so risk considered low.	No
Sida sp. Hamersley Range (K. Newbey 10692) DPaW Priority 1	30	30	25	2	2	2	5	Restricted to the Hamersley Range of the Pilbara, predominantly in the vicinity of Tom Price. Records within the 30% Development Scenario are from currently approved 3rd party projects, with an additional three records occurring within the Full Conceptual Development Scenario footprints. Risk is considered low.	Yes. 17% of known WA records within FDS.
Stemodia sp. Battle Hill (A.L. Payne 1006) DPaW Priority 1	4	4	2	0	0	0	0	Known from the Chichester and Fortescue subregions of the Pilbara where it has been recorded growing on cracking clay on a floodplain. Risk considered low.	No
Synostemon hamersleyensis DPaW Priority 1	5	5	5	0	0	1	4	Restricted to the South-East Pilbara including Rio Tinto's Koodaideri tenements and BHP Billiton Iron Ore's Marillana tenement. Majority of records occur within the Full Conceptual Development Scenario footprints. Records available from BHP Billiton Iron Ore's and government databases do not reflect current knowledge of species distribution and numbers (discussed further in text of PERSP document). Risk considered high.	Yes. All WA records from within PDB and 80% of known WA records within FDS.
Tecticornia globulifera DPaW Priority 1	14	14	9	0	0	0	0	Recorded in the Pilbara and Gascoyne regions of WA. Does not occur in the Full Conceptual Development Scenario footprints. Risk considered low.	No

Species (sorted as per highest conservation ranking)	Records			Number of records within conceptual development scenarios[1]				Risk of Significance of Impact from the 30% and/or Full Conceptual Development Scenarios	Species of interest?[2]
	Total WA	Pilbara Area	Project Definition Boundary	Existing	Reasonably foreseeable third party	30% Conceptual	Full Conceptual		
Tecticornia sp. Christmas Creek (K.A. Shepherd & T. Colmer et al. KS 1063) DPaW Priority 1	28	23	23	0	0	0	0	Distribution includes Fortescue Marsh as well as salt lakes situated midway between Newman and Wiluna in the Little Sandy Desert subregion. Recorded from BHP Billiton Iron Ore and FMG tenements adjacent to and within Fortescue Marsh, but has wide distribution across this landform. No records within the Full Conceptual Development Scenario footprints. Risk considered low.	No
Tephrosia rosea var. Port Hedland (A.S. George 1114) DPaW Priority 1	984	984	3	1	0	1	1	Distribution centred around Port Hedland but extending south into central Pilbara and east to north-east fringe of Pilbara bioregion. Existing record occurs within a generally disturbed area adjacent to BHP Billiton Iron Ore's Mainline Rail south of Port Hedland. Any impact within the Full Conceptual Development scenario will be restricted to north rail links into Port Hedland. Risk considered low.	No
Tetratheca fordiana DPaW Priority 1	7	7	7	0	0	0	0	Recorded from only a small area in the southern Hamersley subregion of the Pilbara. Occurs in shale pockets amongst ironstone. No records within in the Full Conceptual Development Scenario footprints. Risk considered low.	Yes. All WA records from within PDB.
Teucrium pilbaranum DPaW Priority 1	98	98	96	0	0	1	1	Previously recorded extending up to 400 km north-west from Newman where it has been recorded on crabhole plains and calcrete tables. Risk considered low.	No

Species (sorted as per highest conservation ranking)	Records			Number of records within conceptual development scenarios[1]				Risk of Significance of Impact from the 30% and/or Full Conceptual Development Scenarios	Species of interest?[2]
	Total WA	Pilbara Area	Project Definition Boundary	Existing	Reasonably foreseeable third party	30% Conceptual	Full Conceptual		
Triodia sp. Karijini (S. van Leeuwen 4111) DPaW Priority 1	21	21	21	0	0	0	0	Restricted distribution, with known records occurring around and within Karijini National Park approximately 150 km northwest of Newman. Has been recorded within BHP Billiton Iron Ore's Tandanya and Mudlark (on upper slopes of Mt Robinson) tenements. No records within the Full Conceptual Development Scenario footprints. Risk considered low.	Yes. All WA records from within PDB.
Vittadinia sp. Coondewanna Flats (S. van Leeuwen 4684) DPaW Priority 1	16	16	16	0	0	1	1	Restricted distribution east of Karijini National Park within and around the Coondewanna Flats. Infrequently recorded on BHP Billiton Iron Ore leases (Tandanya and Area C), possibly due to seasonality. Habitat described as clay soil in association with low woodlands, often with mulga. Risk considered low.	Yes. All WA records from within PDB.
Adiantum capillus-veneris DPaW Priority 2	21	20	20	0	0	0	0	Relatively common across the NT, Queensland, South Australia, Victoria and NSW, but uncommon in WA where it is known only from a few areas in the Hamersley and Fortescue subregions of the Pilbara. Prefers moist, sheltered sites in gorges and on cliff walls. Risk considered very low due to extensive distribution outside of WA.	No

Species (sorted as per highest conservation ranking)	Records			Number of records within conceptual development scenarios[1]				Risk of Significance of Impact from the 30% and/or Full Conceptual Development Scenarios	Species of interest?[2]
	Total WA	Pilbara Area	Project Definition Boundary	Existing	Reasonably foreseeable third party	30% Conceptual	Full Conceptual		
Aristida lazaridis DPaW Priority 2	203	203	203	1	0	68	83	Occurs in the Pilbara and Kimberly regions of Western Australia and in the Northern Territory and Queensland. Recorded from a number of locations within BHP Billiton Iron Ore's Area C, Tandanya and Mudlark tenements in the Central Pilbara and 5 km north of Newman. This species is also known to occur in Karijini National Park. In one of these locations it was the dominant ground cover. Apparently confined to sandy or loamy soils. A number of records occur within the 30% and Full Conceptual Development Scenario footprints (all restricted to BHP Billiton Iron Ore tenure), but this is likely an artefact of sampling. Risk considered low due to extent of distribution and presence within Karijini National Park.	Yes. All WA records from within PDB, 33% of known WA records within 30%, and 41% of known WA records within FDS.
Cladium procerum DPaW Priority 2	12	11	7	0	0	0	0	Commonly recorded along the coastline of the NT, Queensland, NSW, Victoria and South Australia. Within WA it is restricted to the Pilbara region, No records within the Full Conceptual Development Scenario footprints. Risk considered low.	No
Dicladanthera glabra DPaW Priority 2	11	11	11	0	0	0	0	Recorded from only a small area in the Hamersley and Fortescue subregions of the Pilbara. Occurs in alluvium soils along watercourses and near rock pools. No records from the Full Conceptual Development Scenario footprints; however all currently known records are restricted to the Project Definition Boundary. Risk considered low.	Yes. All WA records from within PDB.

Species (sorted as per highest conservation ranking)	Records			Number of records within conceptual development scenarios[1]				Risk of Significance of Impact from the 30% and/or Full Conceptual Development Scenarios	Species of interest?[2]
	Total WA	Pilbara Area	Project Definition Boundary	Existing	Reasonably foreseeable third party	30% Conceptual	Full Conceptual		
Eremophila forrestii subsp. Pingandy (M.E. Trudgen 2662) DPaW Priority 2	10	10	10	0	0	0	1	Known from the central southern sector of the Pilbara bioregion, but not previously recorded from BHP Billiton Iron Ore tenure. A single record from within the Full Conceptual Development Scenario footprints. Risk considered low.	Yes. All WA records from within PDB and 10% of known WA records within FDS.
Euphorbia australis var. *glabra* DPaW Priority 2	10	10	9	0	0	0	0	Restricted to the Pilbara region of WA but distributed across the Chichester, Fortescue and Hamersley subregions. No records within the Full Conceptual Development Scenario footprints. Risk considered low.	No
Euphorbia clementii DPaW Priority 2	51	51	15	0	0	0	0	Restricted to the Pilbara region where it occurs in the Chichester and Roeburne subregions. Little information available on its habitat preference, although it may have a more coastal preference. No records within the Full Conceptual Development scenario footprints. Risk considered low.	No
Euphorbia inappendiculata var. *inappendiculata* DPaW Priority 2	6	6	2	0	0	0	0	Known distribution extends from northern Pilbara down through the western Pilbara, and into the north-west Gascoyne bioregion. Poorly collected, but information available suggests that it occurs on cracking clays or clayey silt soils dominated by tussock grasses. No records occur within either development scenario. Risk considered low.	No

Species (sorted as per highest conservation ranking)	Records			Number of records within conceptual development scenarios[1]				Risk of Significance of Impact from the 30% and/or Full Conceptual Development Scenarios	Species of interest?[2]
	Total WA	Pilbara Area	Project Definition Boundary	Existing	Reasonably foreseeable third party	30% Conceptual	Full Conceptual		
Gompholobium Karijini DPaW Priority 2	6	6	5	0	0	0	0	Restricted to the northern boundary of Karijini National Park, but two of the six records fall within the park boundary. No records from within BHP Billiton Iron Ore tenure. Risk determined currently to be very low.	No
Goodenia hartiana DPaW Priority 2	29	12	10	1	0	6	6	Recorded predominantly from the Little Sandy Desert and Great Sandy Desert bioregions. Previous Pilbara-based records around BHP Billiton Iron Ore's Jimblebar tenements have been misidentified (correct identification was *Goodenia* sp. Sandy Creek). Risk determined to be very low.	Yes. 21% of known WA records within 30% and FDS.
Hibiscus sp. Gurinbiddy Range (M.E. Trudgen MET 15708) DPaW Priority 2	10	10	10	0	0	0	2	Recorded from breakaway slopes within BHP Billiton Iron Ore's Mudlark tenements. Current distribution restricted to the southeast Pilbara, but likely to be wider with additional survey work. Two records occur approximately 25 km apart within Karijini National Park. Risk considered low.	Yes. All WA records from within PDB and 20% of known WA records within FDS.
Indigofera ixocarpa DPaW Priority 2	40	40	36	0	11	11	11	Previously recorded within third party mine tenure in the Chichester and Hamersley subregions of the Pilbara. Occurs in skeletal red soils over massive ironstone. No records from BHP Billiton Iron Ore tenure, although a number of records occur in the Full Conceptual Development Scenario footprints. Risk considered low.	Yes. 28% of known WA records within 30% and FDS.

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	Total WA	Pilbara Area	Project Definition Boundary	Existing	Reasonably foreseeable third party	30% Conceptual	Full Conceptual		
Ipomoea racemigera DPaW Priority 2	11	10	9	0	0	1	1	Occurs commonly across the NT, Queensland and north-eastern South Australia. Recorded from four locations in WA; at BHP Billiton Iron Ore's Dynasty and Yandi tenements, along a rail line near Karratha, and in the far northeast near Wyndham. Usually recorded on raised banks within major drainage channels of streams or rivers. A single record from within the Full Conceptual Development Scenario footprints. Risk considered low.	No
Isotropis parviflora DPaW Priority 2	54	53	53	3	0	24	27	Previously recorded from around BHP Billiton Iron Ore's Yandi, Marillana and Jinidi tenements and extending east to Newman where it is common in the Ophthalmia Range. It is also known from the Tanami Desert. It's a short-lived colonising species that is rapidly outcompeted. Large proportion of records within the Full Conceptual Development Scenario footprints, which likely reflects sampling bias given distribution of records. Risk considered moderate.	Yes. 44% of known WA records within 30% and 50% of known WA records within FDS.
Oxalis sp. Pilbara (M.E. Trudgen 12725) DPaW Priority 2	15	14	14	0	1	2	8	Previously recorded from West Angelas Hill (Rio Tinto tenure), as well as from Tandanya and Mudlark leases (BHP Billiton Iron Ore tenure). Within the Pilbara it is restricted to the southern central Hamersley Ranges. There is one confirmed record from Mt Meharry in Karijini National Park, and one record from the Gascoyne approximately 265 km from the nearest Pilbara record. Large proportion of records within the Full Conceptual Development Scenario footprints, which likely reflects sampling bias given distribution of records. Risk considered moderate.	Yes. 13% of known WA records within 30% and 53% of known WA records within FDS.

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	Total WA	Pilbara Area	Project Definition Boundary	Existing	Reasonably foreseeable third party	30% Conceptual	Full Conceptual		
Paspalidium retiglume DPaW Priority 2	10	9	2	0	0	0	0	Distributed across northern Australia in WA, the NT and QLD. Several records in WA, mainly from the Chichester subregion of the Pilbara, but also recorded near Halls Creek in the Central Kimberley. No records from BHP Billiton Iron Ore tenure, and no impact in the Full Conceptual Development Scenario. Risk considered low.	No
Pentalepis trichodesmoides subsp. *hispida* DPaW Priority 2	7	7	3	0	0	0	0	Restricted to the Chichester, Hamersley and Roeborune subregions of the Pilbara where it has been recorded from six localities. No records in the Full Conceptual Development Scenario. Risk considered low.	No
Scaevola sp. Hamersley Range basalts (S. van Leeuwen 3675) DPaW Priority 2	23	23	23	0	0	0	4	Restricted to the Central Pilbara. Not previously recorded from BHP Billiton Iron Ore tenure during baseline surveys, but four records within third party tenure occur within the Full Conceptual Development Scenario. Risk considered low.	Yes. All WA records from within PDB and 17% of known WA records within FDS.
Stylidium weeliwolli DPaW Priority 2	307	299	292	0	2	3	3	Occurs widely across the Pilbara and Gascoyne regions of WA. Prefers gritty sand soil and sandy clay on the edges of watercourses. Two records in the Full Conceptual Development Scenario, however given the high number of records in the Pilbara and Gascoyne, the risk is considered low.	No

Species (sorted as per highest conservation ranking)	Records			Number of records within conceptual development scenarios[1]				Risk of Significance of Impact from the 30% and/or Full Conceptual Development Scenarios	Species of interest?[2]
	Total WA	Pilbara Area	Project Definition Boundary	Existing	Reasonably foreseeable third party	30% Conceptual	Full Conceptual		
Acacia daweana DPaW Priority 3	18	18	17	0	0	0	0	Restricted to the Hamersley region of the Pilbara. Prefers stony red loamy soils on low rocky rises and along drainage lines. No records in the Full Conceptual Development Scenario. Risk considered low.	No
Acacia effusa DPaW Priority 3	99	99	99	2	2	2	2	Known from a large number of records within the central southern sector of the Pilbara bioregion, including Karijini National Park. Habitat is described as lower scree slopes of low rocky ranges or alluvial plains at the base of banded ironstone ranges. It is often common where it occurs. Risk considered low.	Yes. All WA records from within PDB.
Acacia glaucocaesia DPaW Priority 3	41	39	5	0	0	0	0	Occurs in northern WA, across the Pilbara, Dampierland and Great Sandy Desert regions. Prefers red loam, sandy loam and clay soil types in floodplain areas. No records in the Full Conceptual Development Scenario. Risk considered low.	No
Acacia levata DPaW Priority 3	24	24	3	0	0	0	0	Restricted to central eastern Pilbara (Chichester subregion). Previously recorded from three locations along BHP Billiton Iron Ore's Mainline Rail duplication (approximately 35 plants). No records within the Full Conceptual Development Scenario Footprints. Risk considered low.	No

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	Total WA	Pilbara Area	Project Definition Boundary	Existing	Reasonably foreseeable third party	30% Conceptual	Full Conceptual		
Acacia subtiliformis DPaW Priority 3	645	645	645	2	6	36	90	Recorded extensively between Newman and Karijini National Park, a range of approximately 120 km east-west and 90 km north-south. Habitat specific occurring on rocky calcrete low hills and plains. Known from BHP Billiton Iron Ore's Yandi and Jinidi tenements, and occurring extensively on calcrete plains bordering Weeli Wolli Creek. A number of records occur within the 30% and Full Conceptual Development Scenario footprints. Impact considered low.	Yes. All WA records from within PDB and 14% of known WA records within FDS.
Amaranthus centralis DPaW Priority 3	6	4	4	0	0	0	0	Commonly occurs in southern Northern Territory, and from the Everard Ranges near Lake Eyre south to the Flinders Ranges in northern South Australia. There are two collections from western Queensland, and two records from the Pilbara region of Western Australia. In WA, it occurs along Marillana Creek adjacent to BHP Billiton Iron Ore's Yandi Mine. No records within the Full Conceptual Development Scenario footprints. Risk considered low.	No
Ampelopteris prolifera DPaW Priority 3	5	3	2	0	0	0	0	Occurs in northern WA in the Gascoyne, Northern Kimberley and Pilbara regions. Prefers to grow near water or in wet ground. No records in the Full Conceptual Development Scenario. Risk considered low.	No

Species (sorted as per highest conservation ranking)	Records			Number of records within conceptual development scenarios[1]				Risk of Significance of Impact from the 30% and/or Full Conceptual Development Scenarios	Species of interest?[2]
	Total WA	Pilbara Area	Project Definition Boundary	Existing	Reasonably foreseeable third party	30% Conceptual	Full Conceptual		
Aristida jerichoensis var. *subspinulifera* DPaW Priority 3	231	227	227	1	0	20	37	Occurs in large numbers in NSW and QLD, with smaller populations in the NT, South Australia and WA. In WA, it has been recorded extensively west of Mining Area C and adjacent to the Great Northern Highway, extending onto Tandanya, Mudlark and South Flank leases. These are the largest populations represented on BHP Billiton Iron Ore tenure, but it is also recorded closer to Newman and extending out to Jimblebar leases and surrounds. Given the current range, the cumulative risk is considered low.	Yes. All WA records from within PDB and 16% of known WA records within FDS.
Astrebla lappacea DPaW Priority 3	16	9	8	0	0	0	0	Recorded extensively in NSW and QLD, with smaller populations in the NT, South Australia and WA. In WA, it has been recorded in the Gascoyne and Pilbara regions. Prefers hardpan plains. No records in the Full Conceptual Development Scenario. Risk considered low.	No
Atriplex flabelliformis DPaW Priority 3	9	7	6	0	0	0	0	Distributed across most of WA, with a population also recorded in north-eastern New South Wales. WA population mostly centred in the Pilbara, but a few populations also occur in the Great Sandy Desert and Tanami regions. Prefers clay loam or loam on saline flats or marshes. No records in the Full Conceptual Development Scenario. Risk considered low.	No
Calotis latiuscula DPaW Priority 3	34	20	18	0	0	0	2	Widely recorded in arid central Australia, in the NT, QLD, NSW, SA and WA. In WA, numerous records from the Central Ranges and Great Victoria Desert in the east, with a few records in the Pilbara, mostly from around BHP Billiton Iron Ore's Mount Whaleback mine site. Two records in the Full Conceptual Development Scenario, however given the high number of records elsewhere, the relative risk is considered low.	No

Species (sorted as per highest conservation ranking)	Records			Number of records within conceptual development scenarios[1]				Risk of Significance of Impact from the 30% and/or Full Conceptual Development Scenarios	Species of interest?[2]
	Total WA	Pilbara Area	Project Definition Boundary	Existing	Reasonably foreseeable third party	30% Conceptual	Full Conceptual		
Crotalaria smithiana DPaW Priority 3	5	3	3	0	0	0	0	Occurs extensively across central Australia in the southern NT, western QLD, northern NSW and northern SA with a few scattered records in WA. Western Australian records are from the Tanami region near Halls Creek and the southern Pilbara. Prefers floodplains where it can regenerate. No records in the Full Conceptual Development Scenario. Risk considered low.	No
Dampiera anonyma DPaW Priority 3	45	45	45	0	0	0	0	Known from 45 records within the central southern sector of the Pilbara bioregion, of which approximately half occur within Karijini National Park. No records within BHP Billiton Iron Ore tenure or the Full Conceptual Development Scenario footprints. Risk considered very low.	Yes. All WA records from within PDB.
Dampiera metallorum DPaW Priority 3	68	68	68	0	0	0	5	Within BHP Billiton Iron Ore tenements restricted to upper slopes of Mt Robinson within the Mudlark tenements. Restricted to the Hamersley Ranges within (5 records) and east of Karijini National Park. Risk considered low.	Yes. All WA records from within PDB.
Eleocharis papillosa DPaW Priority 3	8	2	1	0	0	0	0	Occurs in widely scattered records across the NT, SA and WA. Records in WA occur over a wide area: Avon Wheatbelt, Carnarvon, Murchison and the Pilbara regions. Prefers red clay over granite and open clay flats. No records in the Full Conceptual Development Scenario. Risk considered low.	No

Species (sorted as per highest conservation ranking)	Records			Number of records within conceptual development scenarios[1]				Risk of Significance of Impact from the 30% and/or Full Conceptual Development Scenarios	Species of interest?[2]
	Total WA	Pilbara Area	Project Definition Boundary	Existing	Reasonably foreseeable third party	30% Conceptual	Full Conceptual		
Eragrostis crateriformis DPaW Priority 3	35	31	4	0	2	2	2	Has a relatively wide distribution occurring along the Pilbara coast from east of Onslow to Port Hedland, and east to Sturt Creek close to the WA/NT border. Habitat described as clay/clayey loam on flats and depressions, sometimes on creek banks. Records occur within Millstream-Chichester National Park. Risk considered low.	No
Eragrostis surreyana DPaW Priority 3	10	10	1	0	0	0	0	Restricted to the Pilbara region of WA but occurs in the Fortescue, Hamersley and Roeburne subregions. No records in the Full Conceptual Development Scenario. Risk considered low.	No
Eremophila coacta DPaW Priority 3	19	19	18	0	0	0	0	Occurs in the south-central Pilbara as well as the northern Gascoyne regions of WA. Prefers laterite and shale soils in ironstone hills and creek lines. No records in BHP Billiton Iron Ore's existing tenements nor in the Full Conceptual Development Scenario. Risk considered low.	No
Eremophila magnifica subsp. velutina DPaW Priority 3	182	182	176	1	1	2	18	Recorded as an estimated 1,500 individuals from ten populations at BHP Billiton Iron Ore's Tandanya tenements and from Eastern Ridge north of Newman. It occurs over a 300 km range extending from south-east of Newman (in the Gascoyne bioregion) to west of Tom Price, with two populations known from Karijini National Park. Prefers skeletal soils over ironstone. Given the current extent, the risk is considered low.	No
Eremophila rigida DPaW Priority 3	8	6	3	0	0	0	0	Restricted to the northern Gascoyne and very southern fringes of the Pilbara regions of WA. Prefers red sand alluvium on hardpan plains and stony clay depressions. No records in the Full Conceptual Development Scenario. Risk considered low.	No

Species (sorted as per highest conservation ranking)	Records			Number of records within conceptual development scenarios[1]				Risk of Significance of Impact from the 30% and/or Full Conceptual Development Scenarios	Species of interest?[2]
	Total WA	Pilbara Area	Project Definition Boundary	Existing	Reasonably foreseeable third party	30% Conceptual	Full Conceptual		
Eucalyptus rowleyi DPaW Priority 3	28	28	11	0	0	0	0	Restricted to the northern Little Sandy Desert and south-central Pilbara regions of WA. No records in the Full Conceptual Development Scenario. Risk considered low.	No
Euphorbia stevenii DPaW Priority 3	13	6	6	0	0	0	0	Many records in South Australia, the NT, Queensland and NSW. Current distribution in WA extending from the central Pilbara and north-east Kimberley, including two locations along BHP Billiton Iron Ore's Mainline Rail. No records within the Full Conceptual Development Scenario footprints. Risk considered low.	No
Fimbristylis sieberiana DPaW Priority 3	366	359	355	0	0	0	1	Current WA distribution extending throughout a large proportion of the Pilbara, into Great Sandy Desert, and further into north-east Kimberley. Has a widespread distribution covering the NT, Queensland and SA. It occurs in riverine forest and vine thickets on the edges of water bodies or on the edges of pools in gorges. Risk considered low.	No
Geijera salicifolia DPaW Priority 3	10	6	6	0	0	0	0	Densely populating the east coastline of Australia from northern Queensland to southern NSW, with small populations in SA, the NT and WA. WA records confined to the Hamersley subregion of the Pilbara. Prefers skeletal or stony soils over massive rock scree and gorges. No records in the Full Conceptual Development Scenario. Risk considered low.	No

Species (sorted as per highest conservation ranking)	Records			Number of records within conceptual development scenarios[1]				Risk of Significance of Impact from the 30% and/or Full Conceptual Development Scenarios	Species of interest?[2]
	Total WA	Pilbara Area	Project Definition Boundary	Existing	Reasonably foreseeable third party	30% Conceptual	Full Conceptual		
Glycine falcate DPaW Priority 3	14	11	6	0	0	0	2	Previously recorded between Karratha and Newman in the Pilbara, and also from the Kimberley, but also is widespread and common across the NT and Queensland with an isolated population in NSW. Two records occur within BHP Billiton Iron Ore tenure under the Full Conceptual Development Scenario. Risk considered low due to the wide distribution of the species.	Yes. 14% of known WA records within FDS.
Goodenia lyrata DPaW Priority 3	34	26	26	2	3	3	4	Recorded from BHP Billiton Iron Ore's Tandanya, Jinidi and South Flank tenements. The distribution extends east and south outside the Pilbara bioregion to the NT border. The Pilbara populations are relatively localised, but conservation is enhanced by plants occurring within the Coondewanna Flats PEC boundary. Risk considered low.	Yes. 12% of known WA records within FDS.
Goodenia purpurascens DPaW Priority 3	22	8	8	3	6	6	6	Recorded mostly in the Northern Kimberley and Victoria Bonaparte regions with another population in the Little Sandy Desert, but also widespread and common through the NT and Queensland. Records from the Project Definition Boundary were made during surveys for Hope Downs 4 (Mattiske 2008); these records are not within DPaW's database and are therefore not displayed on Florabase. Prefers clay or mud in swamps and seasonally wet depressions. Records in the Full Conceptual Development Scenario footprints are restricted the third party tenure. Risk considered low.	Yes. 27% of known WA records within 30% and FDS.

Species (sorted as per highest conservation ranking)	Records			Number of records within conceptual development scenarios[1]				Risk of Significance of Impact from the 30% and/or Full Conceptual Development Scenarios	Species of interest?[2]
	Total WA	Pilbara Area	Project Definition Boundary	Existing	Reasonably foreseeable third party	30% Conceptual	Full Conceptual		
Goodenia sp. East Pilbara (A.A. Mitchell PRP 727) DPaW Priority 3	1020	1020	1018	49	51	209	300	Regionally known from 16 localities between Paraburdoo and Mount Cooke. Recorded from BHP Billiton Iron Ore's Jinidi, Area C West to Yandi, and Yandi leases. It is habitat-specific, occurring on calcrete formations in close proximity to major drainage lines. Relatively widely distributed and common in suitable habitat within the southern Pilbara. Risk considered low to moderate.	Yes. 20% of known WA records within 30% and 29% of known WA records within FDS.
Grevillea saxicola DPaW Priority 3	97	97	97	0	0	1	3	Occurring east of Newman along the southern fringe of the Pilbara. Recorded from the eastern end of the Packsaddle Range, southern slopes of BHP Billiton Iron Ore's Jinidi tenements, and western fringe of Mt Robinson. Risk considered low.	Yes. All WA records from within PDB.
Gunniopsis propinqua DPaW Priority 3	17	1	1	0	0	0	0	Occurs widely across WA in the Pilbara, Gascoyne, Murchison and Yalgoo regions. Prefers stony sandy loam on lateritic outcrops in winter-wet sites. No records in the Full Conceptual Development Scenario. Risk considered low.	No
Gymnanthera cunninghamii DPaW Priority 3	78	74	38	1	1	1	1	Widely distributed throughout the Pilbara typically occurring in low numbers at known locations. Strong association with major drainage lines and unlikely to be impacted to any significant degree within the Full Conceptual Development scenario. Risk considered low.	No
Heliotropium murinum DPaW Priority 3	10	10	3	0	0	0	0	Restricted to the Chichester and Roebourne subregions in the northeast area of the Pilbara. Prefers red sand in plains. No records in the Full Conceptual Development Scenario. Risk considered low.	No

Species (sorted as per highest conservation ranking)	Records			Number of records within conceptual development scenarios[1]				Risk of Significance of Impact from the 30% and/or Full Conceptual Development Scenarios	Species of interest?[2]
	Total WA	Pilbara Area	Project Definition Boundary	Existing	Reasonably foreseeable third party	30% Conceptual	Full Conceptual		
Indigofera gilesii DPaW Priority 3	158	152	152	0	7	19	35	Previously recorded at West Angelas Hill (Rio Tinto tenure) and at BHP Billiton Iron Ore's Tandanya and Jinidi leases, where it occurred on rocky hill tops and creeklines. Widely distributed within the southeast Pilbara (west of Newman) and represented in three other bioregions extending east to the Northern Territory border and south to Wiluna. Any potential cumulative mining impact determined to be low.	Yes. 12% of known WA records within 30% and 22% of known WA records within FDS.
Indigofera sp. Bungaroo Creek (S. van Leeuwen 4301) DPaW Priority 3	44	44	10	0	0	0	0	Restricted to the Chichester and Hamersley subregions in the western area of the Pilbara. Recorded on BHP Billiton Iron Ore's Rocklea tenement at the very western edge of the Project Definition Boundary. No records in the Full Conceptual Development Scenario. Risk considered low.	No
Iotasperma sessilifolium DPaW Priority 3	14	12	10	0	0	0	1	Occurs patchily throughout Australia in WA, the NT, QLD, NSW and SA. In WA, one record in the Ord Victorian Plain region near Halls Creek and the remaining records from the Pilbara. Prefers cracking clay or black loam on the edges of waterholes or in plains. A single record from within the Full Conceptual Development Scenario. Based on extent of records across Australia, the risk is determined to be low.	No
Maireana prosthecochaeta DPaW Priority 3	19	2	1	0	0	0	0	Restricted to WA, occurring mostly in the Gascoyne and Murchison regions with a few records also in the Central Kimberley region. Prefers laterite on hills and salty places. No records in the Full Conceptual Development Scenario. Risk considered very low.	No

Species (sorted as per highest conservation ranking)	Records			Number of records within conceptual development scenarios[1]				Risk of Significance of Impact from the 30% and/or Full Conceptual Development Scenarios	Species of interest?[2]
	Total WA	Pilbara Area	Project Definition Boundary	Existing	Reasonably foreseeable third party	30% Conceptual	Full Conceptual		
Nicotiana umbratica DPaW Priority 3	19	19	12	1	1	1	1	Occurs only in the Pilbara region of WA and the far south-eastern area of New South Wales. Prefers shallow soils on rocky outcrops. Distributed across the Chichester and Hamersley subregions of the Pilbara. On BHP Billiton Iron Ore tenements, mostly recorded from the Fortescue Valley area. No records in the Full Conceptual Development Scenario. Risk considered low.	No
Oldenlandia sp. Hamersley Station (A.A. Mitchell PRP 1479) DPaW Priority 3	13	13	8	0	1	1	1	Restricted to the Pilbara, recorded in an area roughly between Newman and Karratha. Prefers gently undulating plains with large surface rocks and a flat, crab-holed plain. No records in the Full Conceptual Development Scenario. Risk considered low.	No
Olearia mucronata DPaW Priority 3	22	16	16	4	4	4	4	Occurs within the Murchison and Pilbara bioregions, extending over more than 850 km. Within the Pilbara has been recorded from the southern fringe of BHP Billiton Iron Ore's Mudlark tenement and considered very likely to occur within Karijini National Park. Risk considered low.	Yes. 18% of known WA records within 30% and FDS.
Pilbara trudgenii DPaW Priority 3	35	35	35	0	0	0	0	Restricted to the south-east Pilbara, with records from Mt Robinson within BHP Billiton Iron Ore's Mudlark tenement. Prefers skeletal red stony soil over ironstone on hill summits, steep slopes, screes and cliff faces. No records within the Full Conceptual Development Scenario footprints. Risk considered low.	Yes. All WA records from within PDB.

Species (sorted as per highest conservation ranking)	Records			Number of records within conceptual development scenarios[1]				Risk of Significance of Impact from the 30% and/or Full Conceptual Development Scenarios	Species of interest?[2]
	Total WA	Pilbara Area	Project Definition Boundary	Existing	Reasonably foreseeable third party	30% Conceptual	Full Conceptual		
Polymeria distigma DPaW Priority 3	18	4	3	0	0	0	0	Mostly distributed in WA with a few records from the NT and NSW. In WA, occurs across the north in the Pilbara, Dampierland, Great Sandy Desert and the Ord Victoria Plain regions. Prefers sandy soils. No records within the Full Conceptual Development Scenario footprints. Risk considered low.	No
Pterocaulon xenicum DPaW Priority 3	7	3	1	0	0	0	0	Restricted to WA, occurring mostly in the Great Sandy Desert and the Ord Victoria Plain, with a few records from the very north-eastern fringes of the Pilbara region. No records within the Full Conceptual Development Scenario footprints. Risk considered low.	No
Ptilotus subspinescens DPaW Priority 3	47	47	42	0	0	0	0	Restricted to the eastern edge of the Hamersley region of the Pilbara, near BHP Billiton Iron Ore's Rocklea tenement. Prefers gentle rocky slopes, screes and the bases of screes. No records within the Full Conceptual Development Scenario footprints. Risk considered low.	No
Rhagodia sp. Hamersley (M. Trudgen 17794) DPaW Priority 3	1309	1309	1309	7	9	209	405	Recorded extensively over floodplains in western parts of Mining Area C, extending to Tandaya, Mudlark, South Flank and Jinidi tenements, all held by BHP Billiton Iron Ore. Also recorded around Newman and extending east to Jimblebar. Widely distributed taxon associated with mulga on floodplains. Few records occur within Karijini National Park, but additional records likely with additional survey work. Risk considered low to moderate.	Yes. All WA records from within PDB, 16% of known WA records within 30% and 31% of known WA records within FDS.

Species (sorted as per highest conservation ranking)	Records			Number of records within conceptual development scenarios[1]				Risk of Significance of Impact from the 30% and/or Full Conceptual Development Scenarios	Species of interest?[2]
	Total WA	Pilbara Area	Project Definition Boundary	Existing	Reasonably foreseeable third party	30% Conceptual	Full Conceptual		
Rostellularia adscendens var. latifolia DPaW Priority 3	253	253	246	6	4	34	58	Recorded at BHP Billiton Iron Ore's Jinidi, Mining Area C, Tandanya, Mudlark and South Flank tenements. Occurs widely in drainage lines throughout the southern and eastern Pilbara. Also widespread and common across the NT, SA, NSW and Queensland. Risk considered low.	Yes. 13% of known WA records within 30% and 23% of known WA records within FDS.
Sida sp. Barlee Range (S. van Leeuwen 1642) DPaW Priority 3	130	130	125	1	7	10	39	Currently known from between Warrawagine and Tom Price. Five records occur within Karijini National Park. Recently recorded from BHP Billiton Iron Ore's Yandi, Mudlark and Tandanya tenements. Occurrs extensively in gorges and steep rocky slopes throughout southern Pilbara and northern Gascoyne bioregions. Risk considered low.	Yes. 30% of known WA records within FDS.
Solanum albostellatum DPaW Priority 3	9	9	1	0	0	0	0	Recorded in the Roebourne, Chichester and Hamersley subregions of the Pilbara, in a rough line from Newman to Karratha. No records within the Full Conceptual Development Scenario footprints. Risk considered low.	No
Solanum kentrocaule DPaW Priority 3	22	22	21	0	0	0	3	Occurs throughout the southern Pilbara and into the northern Gascoyne bioregions, with records from Mt Robinson within BHP Billiton Iron Ore's Mudlark tenements. A number of records occur within Karijini National Park. Risk considered low.	Yes. 14% of known WA records within FDS.

Species (sorted as per highest conservation ranking)	Records			Number of records within conceptual development scenarios[1]				Risk of Significance of Impact from the 30% and/or Full Conceptual Development Scenarios	Species of interest?[2]
	Total WA	Pilbara Area	Project Definition Boundary	Existing	Reasonably foreseeable third party	30% Conceptual	Full Conceptual		
Stackhousia clementii DPaW Priority 3	20	13	9	0	0	0	0	Occurs scattered throughout central Australia, mostly in southern NT and northern SA. In WA, 12 scattered records occur across the central band from the west coast to the WA/NT border. Likely to be widely distributed across the Fortescue Marsh. No records within the Full Conceptual Development Scenario footprints. Risk considered low.	No
Swainsona thompsoniana DPaW Priority 3	27	27	16	0	0	0	0	Found throughout the Pilbara. Recorded from the Coondewanna Flats PEC within BHP Billiton Iron Ore's Tandanya tenement. No records within the Full Conceptual Development Scenario footprints. Risk considered low.	No
Tecticornia medusa DPaW Priority 3	18	18	14	0	0	0	0	Restricted to the Gascoyne and Pilbara regions of Western Australia. In the Pilbara, recorded within the Fortescue Marsh area. No records within the Full Conceptual Development Scenario footprints. Risk considered low.	No
Themeda sp. Hamersley Station (M.E. Trudgen 11431) DPaW Priority 3	104	104	98	6	1	10	15	Extensively distributed within the southeast Pilbara and extending northwest to Karratha. It has previously been recorded at West Angelas (Rio Tinto) and occurs within the Coondewanna Flats PEC (Lake Robinson) on Tandanya tenements held by BHP Billiton Iron Ore. Potential to impact on known populations within the Full Conceptual Development Scenario, but risk considered low given extent of populations.	Yes. 14% of known WA records within FDS.
Triodia basitricha DPaW Priority 3	12	12	7	0	0	0	0	Recently described species (previously known as *Triodia* sp. Millstream (A.A. Mitchell PRP 207). Occurs in Chichester, Fortescue and Hamersley subregions of the Pilbara and the north-eastern Gascoyne. Risk considered low.	No

Species (sorted as per highest conservation ranking)	Records			Number of records within conceptual development scenarios[1]				Risk of Significance of Impact from the 30% and/or Full Conceptual Development Scenarios	Species of interest?[2]
	Total WA	Pilbara Area	Project Definition Boundary	Existing	Reasonably foreseeable third party	30% Conceptual	Full Conceptual		
Triodia sp. Mt Ella (M.E. Trudgen 12739) DPaW Priority 3	395	394	394	0	3	38	139	Previously recorded at West Angelas (Rio Tinto) from a range of landforms, including gorges, hill slopes and drainage lines, extending onto BHP Billiton Iron Ore's neighbouring Mudlark, Tandanya, Mining Area C, South Flank and Jinidi leases. Extends to the eastern end of the Ophthalmia Range near Jimblebar where it has most recently been recorded at the Wheelarra Hill North tenements. Risk considered low to moderate.	Yes. 35% of known WA records within FDS.
Whiteochloa capillipes DPaW Priority 3	6	3	2	0	0	0	0	Distributed across the far north of Australia from WA to Queensland with most records occurring in the NT. In WA, occurs in the Pilbara, Dampierland and Northern Kimberly. No records in the Full Conceptual Development Scenario. Risk considered low.	No
Xanthoparmelia nashi DPaW Priority 3	12	2	2	0	0	0	0	Restricted to WA, occurring across a wide area: Avon Wheatbelt, Gascoyne, Geraldton Sandplains, Murchison and Pilbara bioregions. A lichen that prefers to grow on granite. No records in the Full Conceptual Development Scenario. Risk considered low.	No
Acacia bromilowiana DPaW Priority 4	63	63	57	0	0	1	4	Widely distributed throughout the southern sector of the Pilbara bioregion, including records from BHP Billiton Iron Ore's tenements at South Flank and Camp Hill. Few records within the Full Conceptual Development Scenario footprints. Risk considered low.	No

Species (sorted as per highest conservation ranking)	Records			Number of records within conceptual development scenarios[1]				Risk of Significance of Impact from the 30% and/or Full Conceptual Development Scenarios	Species of interest?[2]
	Total WA	Pilbara Area	Project Definition Boundary	Existing	Reasonably foreseeable third party	30% Conceptual	Full Conceptual		
Bulbostylis burbidgeae DPaW Priority 4	113	113	94	5	2	7	7	Extending south from Port Hedland in to the central eastern Pilbara. Habitat described as creek lines and under rock overhangs, expecially granite. A number of records from the vicinity of BHP Billiton Iron Ore's mainline rail. Few records within the Full Conceptual Development Scenario footprints but this is mostly attributed to approved areas on BHP Billiton Iron Ore tenure. Risk considered low.	No
Eremophila magnifica subsp. *magnifica* DPaW Priority 4	548	548	547	26	97	121	239	Frequently encountered on rocky slopes across the southern Pilbara bioregion and recorded from a majority of BHP Billiton Iron Ore tenements in southeast Pilbara, including Mining Area C, Marillana, Tandanya, Mudlark and South Flank, and with scattered records from Mount Whaleback extending east along Ophthalmia Range towards Jimblebar. Risk considered moderate.	Yes. 22% of known WA records within 30% and 43% of known WA records within FDS.
Eremophila youngii subsp. *lepidota* DPaW Priority 4	467	461	460	0	0	0	0	This species has two disjunct main distributions, around the NW Cape and around the Fortescue Marsh in the south-west Pilbara bioregion. Two small outlying distributions are found in central Northern Territory. No records within the Full Conceptual Development Scenario footprints. Risk considered low.	No

Species (sorted as per highest conservation ranking)	Records			Number of records within conceptual development scenarios[1]				Risk of Significance of Impact from the 30% and/or Full Conceptual Development Scenarios	Species of interest?[2]
	Total WA	Pilbara Area	Project Definition Boundary	Existing	Reasonably foreseeable third party	30% Conceptual	Full Conceptual		
Goodenia berringbinensis DPaW Priority 4	26	2	1	0	0	0	0	Recorded predominantly within the Murchison, with one location represented in the western Gascoyne and one in the western Pilbara. Recently recorded from BHP Billiton Iron Ore's Dynasty tenement where it was restricted to a localised drainage line. Prefers moist light brown clay soils. No records within the Full Conceptual Development Scenario footprints. Risk considered low.	No
Goodenia nuda DPaW Priority 4	555	553	443	25	8	84	112	Widespread throughout the Pilbara, with records also from the northern Carnarvon and eastern Gascoyne bioregions. Recorded from a majority of BHP Billiton Iron Ore tenements in the Pilbara, with a large population known from Caramulla Creek and surrounds. Records occur within the Full Conceptual Development Scenario, but given the wide distribution and frequency at which populations have been recorded in the southeast Pilbara, the risk is considered low.	Yes. 15% of known WA records within 30% and 20% of known WA records within FDS.

Species (sorted as per highest conservation ranking)	Records			Number of records within conceptual development scenarios[1]				Risk of Significance of Impact from the 30% and/or Full Conceptual Development Scenarios	Species of interest?[2]
	Total WA	Pilbara Area	Project Definition Boundary	Existing	Reasonably foreseeable third party	30% Conceptual	Full Conceptual		
Lepidium catapycnon DPaW Priority 4	1108	1108	1102	25	5	29	170	Broadly distributed between the Pilbara towns of Newman, Nullagine and Wittenoom. The total area of extent approximates 21,736 km^2 with eight known populations occurring within Karijini National Park. Increasing numbers of populations of *Lepidium catapycnon* have been recorded on BHP Billiton Iron Ore tenure, including Newman, Mining Area C, South Flank, Jinidi, Yandi, Marillana, and Mindy. At a state level, the conservation ranking for *Lepidium catapycnon* has recently been downgraded from Threatened (under the WC Act) to Priority 4 in response to the increasing frequency at which this taxon is being found. It is regarded as being relatively common across the southeast Pilbara region and well represented within Karijini National Park. Risk considered low.	Yes. 15% of known WA records within FDS.
Ptilotus mollis DPaW Priority 4	63	62	29	0	0	0	5	Extensive distribution throughout the Pilbara bioregion, and also recorded from Rudall River National Park. A small population of 59 plants has been recorded from three points on the north-east slopes of Mt Robinson within BHP Billiton Iron Ore's South Flank tenement. Risk considered low.	No
Ptilotus trichocephalus DPaW Priority 4	21	18	13	0	0	0	0	Restricted to the northern Gascoyne and southern Pilbara regions of WA. Prefers sandy soils in colluvial plains. Not recorded on BHPBHIO tenements, and no records in the Full Conceptual Development Scenario. Risk considered low.	No
Rhynchosia bungarensis DPaW Priority 4	116	113	42	0	2	2	2	Occurs in northwest WA in the Carnarvon, Gascoyne and Pilbara regions. Prefers pebbly, shingly coarse sand amongst boulders on banks of flow lines in the mouths of gullies. A small number of records within the Full Conceptual Development Scenario footprints (3rd party). Risk considered low.	No

1. Development Scenarios:

- Existing Development Scenario includes existing BHP Billiton Iron Ore and third party developments.
- Reasonably foreseeable third party includes future approved or proposed third party developments and does not include existing developments.
- 30% Conceptual Development Scenario includes existing development, reasonably foreseeable third party developments and BHP Billiton Iron Ore's 30% Conceptual Development Scenario.
- Full Conceptual Development Scenario includes existing development, reasonably foreseeable third party developments and BHP Billiton Iron Ore's Full conceptual Development Scenario

2. Species of interest are those species that are either:

- All known Western Australia records are from within the Project Definition Boundary; or
- More than 10 % of known records occur within the 30% or Full Conceptual Development Scenario footprints.

3.2 Fauna Impact Assessment

A total of 50 conservation significant vertebrate fauna species were identified within the Project Definition Boundary. These species, along with details of the total number of records in West Australia within the combined databases, the total number of records within the Pilbara Area and the total number of records within the Project Definition Boundary are shown in Table 2. The risk of potential impact to each species was determined by the number of West Australian records that fall within footprints under the 30% and Full Conceptual Development Scenarios (explained in Section 2.1). The number of records that fall within currently approved disturbance footprints are also shown (Existing Impact for BHP Billiton Iron Ore and Third Party columns in Table 1). Based on these known occurrences, a qualitative assessment was utilised to determine the potential level of risk of impact as low, moderate or high.

A total of 16 conservation significant vertebrate fauna species were considered to be Species of Interest. Note that due to the spatial extent of some of the data utilised for this project and a sampling bias from data collected by BHP Billiton Iron Ore, the proportion of records within development footprints is likely to be overestimated.

Table 2: Species description and distribution for conservation-significant fauna species within the Project Definition Boundary

Species (sorted as per highest conservation ranking)	Records			Number of records within conceptual development scenarios[1]				Risk of Significance of Impact from the 30% and/or Full Conceptual Development Scenarios	Species of interest?[2]
	Total WA	Pilbara Area	Project Definition Boundary	Existing	Reasonably Foreseeable Third Party	30% Conceptual	Full Conceptual		
TIER 1									
Curlew sandpiper *Calidris ferruginea* EPBC Act Critically Endangered and Migratory WC Act: Schedule 3 Vulnerable and Schedule 5 Migratory	53,088	104	2	0	0	0	0	Recorded across all of Australia, mostly along the coastline and sometimes from inland waterways as well. A migratory species that breeds in the northern hemisphere, migrates to Australia in September and then departs in March/April. Prefers sheltered coastal areas or inland swamps and lagoons. The total estimate for Australia, is 115,000 individuals. Important sites for this species have been recorded at the Dampier and Port Hedland saltworks. There are two records from Ophthalmia Dam (on BHP Billiton Iron Ore tenure) adjacent to Newman, which occurs outside of the Full Conceptual Development Scenario footprints. Based on the criteria outlined in the EPBC Act Policy Statement 3.21 *Industry guidelines for avoiding, assessing and mitigating impacts on EPBC Act listed migratory shorebird species* (Commonwealth of Australia 2015) the Ophthalmia Dam is not considered an important habitat.	No
Northern quoll *Dasyurus hallucatus* EPBC Act: Endangered WC Act: Schedule 2 Endangered IUCN Endangered	3,638	1,605	403	13	1	14	16	Previously occurred continuously across northern Australia but now fragmented into a number of populations, with the Pilbara population separated from the others by the Great Sandy Desert. Recorded extensively across all four sub-regions of the Pilbara. Inhabits diverse habitats including rocky areas, eucalypt forests, sandy lowlands, shrub-land, grassland and desert. There are few records within the Full Conceptual Development Scenario; however considered to be a species of interest due to decline in populations outside of the Pilbara and potential threat of cane toads in northern Pilbara.	Yes. 11% of known WA records within PDS.

Species (sorted as per highest conservation ranking)	Records			Number of records within conceptual development scenarios[1]				Risk of Significance of Impact from the 30% and/or Full Conceptual Development Scenarios	Species of interest?[2]
	Total WA	Pilbara Area	Project Definition Boundary	Existing	Reasonably Foreseeable Third Party	30% Conceptual	Full Conceptual		
Night parrot *Pezoporus occidentalis* EPBC Act: Endangered WC Act; Schedule 1 Critically Endangered IUCN Endangered	59	9	2	0	0	0	0	Very rare and elusive bird, with only a few confirmed sightings since the 1880s. Records scattered across inland Australia in all states except Tasmania. The most recent WA sighting occurred in 2005 when three individuals were spotted by two ornithologists as part of an EIA at a proposed mine site at Minga Well, WA. Prefers semi-arid habitat with dense, low vegetation such as spinifex. No records in the Full Conceptual Development Scenario, and current knowledge of habitat for this species suggests that it is unlikely to occur within the Full Conceptual Development Scenario footprints. Risk currently considered low.	No
Australian painted snipe *Rostratula benghalensis australis* EPBC Act Endangered WC Act: Schedule 2 Endangered IUCN Endangered	1,847	2	1	0	0	0	0	Occurs in wetlands in all states and territories of Australia, most commonly on the east coast. Scattered records in WA from the Kimberly down to Albany. Inhabits shallow terrestrial freshwater wetlands including lakes, swamps and claypays. With only one record from the Pilbara at Fortescue Marsh and no records from the Full Conceptual Development Scenario, cumulative impacts to this species are considered very low.	No
Pilbara olive python *Liasis olivaceus barroni* EPBC Act: Vulnerable WC Act: Schedule 3 Vulnerable	187	185	117	4	1	20	26	Restricted to ranges within the Pilbara, northern Gascoyne and northern Carnarvon regions of Western Australia. In warmer months, prefers riparian habitats with waterholes and rivers. In cooler months, inhabits rocky habitats. There will be an impact under the 30% Conceptual Development and Full Conceptual Development Scenarios, both of which are determined to be moderate.	Yes. 63% of known WA records within PDS.

Species (sorted as per highest conservation ranking)	Records			Number of records within conceptual development scenarios[1]				Risk of Significance of Impact from the 30% and/or Full Conceptual Development Scenarios	Species of interest?[2]
	Total WA	Pilbara Area	Project Definition Boundary	Existing	Reasonably Foreseeable Third Party	30% Conceptual	Full Conceptual		
Greater bilby *Macrotis lagotis* EPBC Act: Vulnerable WC Act: Schedule 3 Vulnerable IUCN Vulnerable	2,522	251	131	3	0	3	3	Once widespread across semi-arid Australia but now reduced to scattered populations. Still has a relatively widespread distribution, with the majority or records located in the NT. In WA, populations occur across the state but are concentrated in the southwest. Inhabit areas of high rainfall and high temperatures with suitable burrowing habitat such as dunes. As the majority of records occur outside the Pilbara and only two occur in the Full Conceptual Development Scenario, the cumulative risk to this species is considered to be low.	Yes. 5% of known WA records within PDS.
Black-flanked rock-wallaby *Petrogale lateralis lateralis* EPBC Act Vulnerable WC Act: Schedule 2 Endangered IUCN Near Threatened	153	13	3	0	0	0	0	Recorded from scattered records across central Australia, mostly from southern NT and northern SA. In WA, records span across the state. Can use a variety of habitats but prefers feeding on grass in close proximity to cliffs or rock piles. Given the limited numbers in the Pilbara and zero records in the Full Conceptual Development Scenario, the risk is considered to be very low.	No
Princess parrot *Polytelis alexandrae* EPBC Act Vulnerable DPaW Priority 4 IUCN Near Threatened	147	2	2	0	0	0	0	Widely distributed across central Australia in western NT, western SA and most of inland and eastern WA. Inhabits sand dunes and sand flats in open savanna woodlands and shrub-lands. As the majority of records are outside the Pilbara and there are no records in the Full Conceptual Development Scenario, the risk to this species is considered very low.	No

Species (sorted as per highest conservation ranking)	Records			Number of records within conceptual development scenarios[1]				Risk of Significance of Impact from the 30% and/or Full Conceptual Development Scenarios	Species of interest?[2]
	Total WA	Pilbara Area	Project Definition Boundary	Existing	Reasonably Foreseeable Third Party	30% Conceptual	Full Conceptual		
Pilbara leaf-nosed bat *Rhinonicteris aurantia* EPBC Act: Vulnerable WC Act: Schedule 3 Vulnerable	389	347	117	0	4	4	9	Restricted to the Pilbara region of WA. Three distinct subpopulations occur: the eastern Pilbara mines and granite, the Hamersley Range, and the Upper Gascoyne. Restricted to caves and horizontal mine shafts with stable, warm and humid microclimates. Occurs over a wide area with relatively few records in the Full Conceptual Development Scenario; however there is a regionally significant roost known from Rio Tinto's Koodaideri project (Rio Tinto 2013). The data from which isn't included in this screening assessment. Based on surveys to date, there have been no significant roosts for this species identified in BHP Billiton Iron Ore tenure, but given this species preference for habitats that occur within mining tenure and its susceptibility to mining related impacts, it is considered a species of interest.	Yes. 30% of known WA records within PDS.
Grey falcon *Falco hypoleucos* WC Act: Schedule 3 Vulnerable IUCN Vulnerable	1,981	94	58	0	0	2	6	Distributed widely but in low densities across much of arid and semi-arid Australia. Prefers *Acacia* shrublands crossed by tree-lined watercourses. Occurs over a wide area with relatively few records in the Full Conceptual Development Scenario, so risk considered to be low.	No
Ghost bat *Macroderma gigas* WC Act: Schedule 3 Vulnerable IUCN Vulnerable	1,821	997	507	35	6	95	179	Once widespread across most of northern Australia, but recent contractions of distribution have left the Pilbara population isolated by the Great Sandy Desert. Forages in a wide range of habitats, but roosts in specific types of caves and horizontal mine shafts. There will be an impact under the 30% Development and Full Conceptual Development Scenarios, both of which are determined to be moderate.	Yes. 28% of known WA records within PDS.

Species (sorted as per highest conservation ranking)	Records			Number of records within conceptual development scenarios[1]				Risk of Significance of Impact from the 30% and/or Full Conceptual Development Scenarios	Species of interest?[2]
	Total WA	Pilbara Area	Project Definition Boundary	Existing	Reasonably Foreseeable Third Party	30% Conceptual	Full Conceptual		
Northern brushtail possum *Trichosurus vulpecula arnhemensis* WC Act: Schedule 3 Vulnerable	2,197	214	11	0	0	0	0	Occurs across northern WA, NT and QLD. Able to live and breed in a variety of habitats including residential areas, forests, and open areas with caves. With many records outside the Pilbara and no records in the Full Conceptual Development Scenario, risk is determined to be very low.	No
TIER 2									
Peregrine falcon *Falco peregrinus* WC Act: Schedule 7 Other Specially Protected	31,292	207	124	0	0	6	8	Distributed across all continents and occurring in all states and territories of Australia. In Australia, not confined to a specific habitat and found everywhere from woodlands to open grasslands to coastal cliffs and inner cities. Cumulative effects from mining considered to be very low due to large numbers of records outside the Pilbara.	No
Pilbara flat-headed blind-snake *Anilios ganei* DPaW Priority 1	85	84	68	4	1	11	20	Confined to the Pilbara region of Western Australia. Rarely encountered due to mostly living underground. Associated with moist gorges and gullies (Wilson & Swan, 2010). Potentially associated with a wide range of other stony habitats as well as Mulga woodlands, therefore could possibly be found in many habitats of the Pilbara (Biologic 2015).	Yes. 80% of known WA records within PDS.
Black-lined ctenotus *Ctenotus nigrilineatus* DPaW Priority 1	62	57	5	0	0	0	0	Restricted to the Pilbara region of WA. Only known from a few patchily distributed records, primarily in the Chichester subregion. Recorded from spinifex habitat at the base of granite outcrops. Occurs over a relatively wide area with no records in the Full Conceptual Development Scenario, so determined to be at low risk.	Yes. 8% of known WA records within PDS.

Species (sorted as per highest conservation ranking)	Records			Number of records within conceptual development scenarios[1]				Risk of Significance of Impact from the 30% and/or Full Conceptual Development Scenarios	Species of interest?[2]
	Total WA	Pilbara Area	Project Definition Boundary	Existing	Reasonably Foreseeable Third Party	30% Conceptual	Full Conceptual		
Northern coastal free-tailed bat *Ozimops cobourgianus* DPaw Priority 1	95	41	1	0	0	0	0	Occurs only along the coastline of northern Western Australia and the Northern Territory in mangroves and rainforest. As this species does not occur inland, risks from cumulative impacts of mining are considered to be very low.	No
Spotted ctenotus *Ctenotus uber johnstonei* DPaW Priority 2	45	22	17	0	0	0	0	Distributed across the northwest of WA. Specimens occurring in the Pilbara may be grouped with *Ctenotus uber johnstonei*, or they may belong to a currently undescribed taxon, in which case they would have no official conservation status. As a precautionary approach, the Pilbara taxon is treated as the Priority 2 subspecies. Habitat is mapped as stony plain and mulga. No records in the Full Conceptual Development Scenario. Risk considered low.	Yes. 37% of known WA records within PDS.
Pilbara barking gecko *Underwoodisaurus seorsus* DPaW Priority 2	30	27	26	0	0	1	5	A relatively newly described (2011) restricted-range species occurring at mid-elevations in the Hamersley Ranges. Known from two separate areas approximately 175 km apart (Biologic 2014). It is unknown whether its distribution is continuous between these areas, or if it occurs as a series of isolated populations. There will be an impact under the 30 percent Development and Full Conceptual Development Scenarios.	Yes. 86% of known WA records within PDS.
Spectacled hare-wallaby *Lagorchestes conspicillatus leichardti* DPaW Priority 3	92	48	10	0	0	0	0	Historically occupied nearly all of the northern half of Australia, but now occurs only patchily from the Pilbara in WA across the Northern Territory and into Queensland. Inhabits tropical grasslands and seeks shelter in spinifex hummock during the day. Occurs over a wide (if scattered) area with no records in the Full Conceptual Development Scenario, so determined to be at low risk.	Yes. 11% of known WA records within PDS.

Species (sorted as per highest conservation ranking)	Records			Number of records within conceptual development scenarios[1]				Risk of Significance of Impact from the 30% and/or Full Conceptual Development Scenarios	Species of interest?[2]
	Total WA	Pilbara Area	Project Definition Boundary	Existing	Reasonably Foreseeable Third Party	30% Conceptual	Full Conceptual		
Brush-tailed Mulgara *Dasycercus blythi* DPaW Priority 4	2,534	686	362	1	6	7	12	Distributed widely across central and inland Australia including WA, the NT and SA. Exact ranges are difficult to determine due to past nomenclature confusion with *D. cristicauda* and *D. hillieri*, which were synonymised and then subsequently split (Woinarski 2014). Inhabits spinifex grasslands. Occurs over a wide area with relatively few records in the Full Conceptual Development Scenario, so risk therefore determined to be low.	Yes. 14% of known WA records within PDS.
Letter-winged kite *Elanus scriptus* DPaw Priority 4 IUCN Near Threatened	1,422	9	2	0	0	0	0	Occurs in inland arid regions of Australia. Prefers open country and grassland. As the majority of records are outside the Pilbara and there are no records in the Full Conceptual Development Scenario, the risk to this species is considered low.	No
Short-tailed mouse *Leggadina lakedownensis* DPaW Priority 4	659	158	51	2	2	2	2	Distributed in discontinuous populations across northern arid Australia from the Pilbara in WA across the NT to Cape York in QLD. In the Pilbara, inhabits a variety of habitats including spinifex grasslands, *Acacia* shrub-lands, sandy soils, cracking clays and stony ranges. As the majority of records occur outside the Pilbara and there are relatively few records in the Full Conceptual Development Scenario, the risk to this species is considered low.	Yes. 8% of known WA records within PDS.
Fortescue grunter *Leiopotherapon aheneus* DPaW Priority 4 IUCN Near Threatened	45	35	12	0	0	0	0	Has a restricted distribution within the Pilbara and is only known from the Fortescue, Robe and Ashburton river systems. Considered reasonably common within this range, inhabiting clear freshwater streams and pools over sandy and rocky bottoms. Due to the high likelihood of additional records of this species occurring within its range and no records in the Full Conceptual Development Scenario, the risk is	Yes. 26% of known WA records within PDS.

Species (sorted as per highest conservation ranking)	Records			Number of records within conceptual development scenarios[1]				Risk of Significance of Impact from the 30% and/or Full Conceptual Development Scenarios	Species of interest?[2]
	Total WA	Pilbara Area	Project Definition Boundary	Existing	Reasonably Foreseeable Third Party	30% Conceptual	Full Conceptual		
								considered to be low.	
Lined soil-crevice skink *Notoscincus butleri* DPaW Priority 4	144	124	14	0	0	0	0	Restricted to the western half of the Pilbara region of WA, with one isolated record in the southwest of the Great Sandy Desert. Inhabits arid, rocky habitats in spinifex-dominated areas near creeks and river beds. With no records in the Full Conceptual Development Scenario, the risk is considered low.	Yes. 10% of known WA records within PDS.
Western pebble-mound mouse *Pseudomys chapmani* DPaW Priority 4	3,523	3,396	2,967	194	50	538	1,005	Recently considered restricted to the Pilbara after experiencing significant declines in range throughout the Gascoyne and Murchison regions (Van Dyck and Strahan 2008). Mounds are common but sparsely distributed within their abundant habitat of gentle slopes covered in small stones and gravel. There will be an impact under the 30 percent Development and Full Conceptual Development Scenarios.	Yes. 84% of known WA records within PDS.
Long-tailed dunnart *Sminthopsis longicaudata* DPaW Priority 4	160	36	14	2	0	2	2	Highly patchy distribution across arid inland regions of WA and the NT. Habitat includes rugged rocky landscapes that support mulga and spinifex, or tall open shrubland and woodlands. Recorded over a wide area with relatively few records in the Full Conceptual Development Scenario, so risk considered low.	Yes. 9% of known WA records within PDS.
EPBC Act Migratory									
Garganey *Anas querquedula* EPBC Act Migratory WC Act: Schedule 5 Migratory	147	1	1	0	0	0	0	Occurs sparsely across most of Australia (excluding SA) with the majority of records occurring in inland waterways of Victoria. Breeds in Western Eurasia then winters in Australia from October to February. Prefers large freshwater or brackish lakes. As the vast majority of records occur outside the Pilbara and there are no records in the Full Conceptual Development Scenario, the risk is considered to be	No

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	Total WA	Pilbara Area	Project Definition Boundary	Existing	Reasonably Foreseeable Third Party	30% Conceptual	Full Conceptual		
								very low.	
Fork-tailed Swift *Apus pacificus* EPBC Act Migratory WC Act: Schedule 5 Migratory	6,469	56	40	3	0	12	13	Distributed across Australia, mainly along the south-eastern coastline in Victoria and NSW. This species is almost exclusively aerial and occurs mainly over dry or open habitats. Breeds in Siberia then spends winters in Australia from October to April. As this species mainly occurs on the east coast of Australia and there are relatively few records in the Full Conceptual Development Scenario, the cumulative risks from mining are considered low.	No
Cattle Egret *Ardea ibis* EPBC Act Migratory WC Act: Schedule 5 Migratory	98,552	18	6	0	0	0	1	Occurs across almost all of Australia except the very arid inland areas of north-western SA, south-western NT, and central WA. A relatively recent arrival to Australia (1948), it prefers terrestrial wetlands but has also been recorded in semi-arid regions. Generally does not migrate out of Australia. With nearly 100,000 records in Australia and only one in the Full Conceptual Development Scenario, this species is not considered at risk.	No
Eastern Great Egret *Ardea modesta* EPBC Act Migratory WC Act: Schedule 5 Migratory	139,992	659	132	1	0	1	12	Covers nearly the entire continent except a small area of extremely arid central Australia. Breeding populations mostly occur in the tropical Top End of the NT, but several more occur scattered across QLD, SA, NSW, Victoria and WA. Non-breeding birds occur across most of Australia. Recorded in a wide range of wetland habitats. Generally does not migrate out of Australia. The risk to this species is considered negligible due to the large number of records outside of the Pilbara and the low number records in the Full Conceptual Development Scenario.	No

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	Total WA	Pilbara Area	Project Definition Boundary	Existing	Reasonably Foreseeable Third Party	30% Conceptual	Full Conceptual		
Sharp-tailed Sandpiper *Calidris acuminate* EPBC Act Migratory WC Act: Schedule 5 Migratory	56,811	140	14	0	0	0	0	Occurs along all coastlines of Australia. Most inland records are of birds in passage. Breeds in Siberia in May/June, and then migrates to Australia to stay from September to April. During the non-breeding season, over 90% of the worlds' population occurs in Australia. Prefers muddy edges of wetlands. The Port Hedland Saltworks is considered an important site for this species. As it is primarily a coastal species, the risk of impact from mining is considered low.	No
Pectoral Sandpiper Calidris melanotos EPBC Act Migratory WC Act: Schedule 5 Migratory	3,619	13	3	0	0	0	0	Distributed along the coastline of Australia, mostly concentrated in the southeast. Rarely recorded in WA. Breeds in northern Russia and North America, and migrates to Australia in northern hemisphere winter. Prefers shallow fresh to saline wetlands with open fringing mudflats. Considered to be a low risk due to the majority of records occurring outside the Pilbara, and no records occurring in the Full Conceptual Development Scenario.	No
Red-necked Stint *Calidris ruficollis* EPBC Act Migratory WC Act: Schedule 5 Migratory	154,107	284	3	0	0	0	0	A commonly recorded species along most of the Australian coastline. Breeds in Siberia and Alaska, then winters in Asia and Australia. Approximately 80% of the non-breeding population occurs in Australia. With no records in the Full Conceptual Development Scenario and the vast majority of records outside of the Pilbara, this species is at low risk to mining impacts.	No
Long-toed Stint *Calidris subminuta* EPBC Act Migratory WC Act: Schedule	1,638	26	7	0	0	0	0	Recorded along the coastline of most of Australia. Rarely recorded in the east and more commonly recorded in WA and the NT. Breeds in Siberia and migrates to Asia, with a few birds making it as far as Australia. Those that do disperse across the continent from the Pilbara to the coast of SA. Most return to Siberia in March/April. No important sites in Australia	No

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	Total WA	Pilbara Area	Project Definition Boundary	Existing	Reasonably Foreseeable Third Party	30% Conceptual	Full Conceptual		
5 Migratory								for this species. No records from the Full Conceptual Development Scenario, risk considered low.	
Little Ringed Plover *Charadrius dubius* EPBC Act Migratory WC Act: Schedule 5 Migratory	382	2	1	0	0	0	0	Recorded only rarely in Australia along the west and south coast. Breeds in northern Africa, Europe and Asia, and then migrates to south-east Asia for winter. Only a few make it to Australia and there are no important sites for this species in Australia. With minimum records in the Pilbara and the majority of the species occurring outside of Australia, the risk to this species is considered very low.	No
Oriental Plover *Charadrius veredus* EPBC Act Migratory WC Act: Schedule 5 Migratory	1,614	30	4	0	0	0	0	Breeds In northern China and Mongolia, with the bulk of the population spending the non-breeding period in northern Australia. Occurs in both coastal and inland areas. All internationally important sites in the non-breeding period are in northern Australia, including the Port Hedland Saltworks and Dampier Saltworks in the Pilbara, and 80-Mile Beach and Roebuck Bay in Dampierland. As the important sites do not intersect the Full Conceptual Development Scenario and there are no records in the Full Conceptual Development Scenario, the risk to this species is considered low.	No
Gull-billed Tern *Gelochelidon nilotica* EPBC Act Migratory WC Act: Schedule 5 Migratory	15,038	175	3	1	0	1	1	Occurs mostly inland, but outside breeding season shows a preference for saltmarshes and lagoons near the coast. Found on all continents except Antarctica. In Australia, commonly recorded along the coastline (excluding the Nullarbor), as well as the south-east interior. Movements are not well understood but generally it spends southern hemisphere summers in Australia and winters in New Guinea or Indonesia. With substantial numbers outside the Pilbara, the risk to this species is considered negligible.	No

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	Total WA	Pilbara Area	Project Definition Boundary	Existing	Reasonably Foreseeable Third Party	30% Conceptual	Full Conceptual		
Oriental Pratincole *Glareola maldivarum* EPBC Act Migratory WC Act: Schedule 5 Migratory	1,070	76	4	2	0	2	2	With a total population estimated at 2.88 million, this species is widespread in northern Australia, especially along the coast of the Pilbara, the Kimberly and the Top End. Breeds in south-east Asia and winters in Australia. No internationally important sites occur in the Pilbara, however two occur nearby in Dampierland, namely 80 Mile Beach and Roebuck Bay. As the vast majority of the population occurs outside the Pilbara the risk to this species is considered low.	No
Barn Swallow *Hirundo rustica* EPBC Act Migratory WC Act: Schedule 5 Migratory	689	45	1	0	0	0	0	Total population estimated at 190 million. Breeds in North America, Europe, northern Africa and Asia and migrates to northern Australia to winter. Recorded in Australia along the northern third of the continent including inland around freshwater wetlands. Highly adaptable to differing habitats, preferring a good supply of artificial structures for nesting and perching. The risk to this species is considered negligible.	No
Black-tailed Godwit *Limosa limosa* EPBC Act Migratory WC Act: Schedule 5 Migratory IUCN Near Threatened	9,428	50	4	0	0	0	0	Recorded in all states and territories of Australia, however prefers coastal regions. The largest populations in Australia occur in the Top End of the NT. Breeds in the far north areas of the world such as Iceland, northern Scandanavia, and Siberia, and then winters in Asia and Australia. Total population estimated at 1.3 million, with 160,000 occurring in Australia. No internationally important sites occur in the Pilbara. This species is considered at very low risk.	No

Species (sorted as per highest conservation ranking)	Records			Number of records within conceptual development scenarios[1]				Risk of Significance of Impact from the 30% and/or Full Conceptual Development Scenarios	Species of interest?[2]
	Total WA	Pilbara Area	Project Definition Boundary	Existing	Reasonably Foreseeable Third Party	30% Conceptual	Full Conceptual		
Rainbow Bee-eater *Merops ornatus* EPBC Act Migratory WC Act: Schedule 5 Migratory	150,915	2,624	1,027	18	22	73	138	Abundantly distributed across all of mainland Australia. Unknown total population size but presumed to be quite large based on reporting rate. Overall population trend increasing. Breeds in Australia, with some populations migrating north to Indonesia and Papua new Guinea for the austral winter. Inhabits a variety of habitats. There will be an impact in the 30% Development Scenario as well as the Full Conceptual Development Scenario, however the species' large population numbers and ability to use alternative habitats indicates a low risk from cumulative mining impacts.	No
Eastern Osprey or Osprey *Pandion haliaetus* EPBC Act Migratory WC Act: Schedule 5 Migratory	14,542	380	9	1	0	1	1	Considered moderately common in Australia. Mostly found in coastal areas but occasionally travel inland along major rivers. Breeding range extends around the northern coast of Australia, and non-breeding range extends along the entire coastline, becoming sparse in the south around Victoria and across the Nullarbor. Most birds stay in Australia all year but some migrate to Indonesia and Papua New Guinea. Australian population trend increasing. Risk to species considered low.	No
Ruff *Philomachus pugnax* EPBC Act Migratory WC Act: Schedule 5 Migratory	588	2	2	0	0	0	0	Considered a rare but regular visitor to Australia, recorded in all states and territories. Breeds in northern Europe and migrates mostly to Africa, India and southern Europe, with a few making their way to Australia each year from Sep-Apr. Prefers fresh or brackish wetlands with exposed mudflats. Total population unknown. Loss of habitat could potentially affect the species, however with the majority of the population outside of Australia and no records in the Full Conceptual Development Scenario the risk is considered low.	No

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	Total WA	Pilbara Area	Project Definition Boundary	Existing	Reasonably Foreseeable Third Party	30% Conceptual	Full Conceptual		
Glossy Ibis *Plegadis falcinellus* EPBC Act Migratory WC Act: Schedule 5 Migratory	23,493	58	21	0	0	0	2	Occurs throughout most of the world, with a total population of 1.2 to 3.2 million. Approximately 12% of the world population occurs in Australia, recorded in all states and territories except Tasmania. Prefers fresh water wetlands but occasionally found in coastal brackish wetlands. Considered migratory and nomadic, moving in response to good rainfall. Often migrates north in autumn and returns south to breeding areas in summer. Migration outside Australia is suspected but not confirmed. As a very mobile species, the risk from mining is considered low.	No
Little Tern *Sternula albifrons* EPBC Act Migratory WC Act: Schedule 5 Migratory	20,667	101	2	0	0	0	0	Widely but patchily spread throughout Europe, Asia, Indonesia and Australasia. Total population estimated between 100,000 to 400,000 birds, with approximately 10% occurring in Australia. Strictly a coastal species, rarely foraging more than 50m inland. Three distinct populations in Australia, two of which are year-round residents in northern and eastern Australia, and one which migrates from Asia to spend the austral summer in Australia. As a strictly coastal bird, the risk of mining to this species is considered negligible.	No
Wood Sandpiper *Tringa glareola* EPBC Act Migratory WC Act: Schedule 5 Migratory	8,160	137	31	1	0	1	3	Breeds in Scandinavia and Siberia and migrates to Africa and south-east Asia for winter, with a few making their way to north-west Australia. No internationally important sites in Australia. In WA, widespread but scattered in most regions. Prefers shallow freshwater wetlands. With only a very small proportion of the population occurring in the Pilbara and only three records in the Full Conceptual Development Scenario the risk to this species is low.	No

Species (sorted as per highest conservation ranking)	Records			Number of records within conceptual development scenarios[1]				Risk of Significance of Impact from the 30% and/or Full Conceptual Development Scenarios	Species of interest?[2]
	Total WA	Pilbara Area	Project Definition Boundary	Existing	Reasonably Foreseeable Third Party	30% Conceptual	Full Conceptual		
Common Sandpiper *Tringa hypoleucos* EPBC Act Migratory WC Act: Schedule 5 Migratory	9,303	167	15	2	0	2	5	Occurs worldwide, breeding in norther Europe and Asia and then migrating to Africa, southern Asia and Australia. Recorded along all coastlines of Australia and in many inland areas as well, but concentrated in the north-west where it is widespread in small numbers. Total world population of 2.5 to 4 million individuals, with approximately 3,000 occurring in Australia. No internationally important sites in WA. As a common and highly mobile species, the risk from mining is considered low.	No
Common Greenshank *Tringa nebularia* EPBC Act Migratory WC Act: Schedule 5 Migratory	42,394	314	21	3	0	3	4	Broad worldwide distribution, breeding from western Europe to eastern Russia, and migrating to Africa, Asia and Australasia. Occurs at low densities along mudflats and inland wetlands. There are no internationally important sites in the Pilbara, however nearby Roebuck Bay and 80 Mile Beach in the Kimberly region of WA are considered important. Population estimate anticipated to increase after more comprehensive survey data becomes available. Risk to species from cumulative mining impacts considered low.	No
Marsh Sandpiper *Tringa stagnatilis* EPBC Act Migratory WC Act: Schedule 5 Migratory	16,355	94	3	1	0	1	1	Breeds from eastern Europe to eastern Siberia, and then migrates to Africa, Asia and Australia. Found on coastal and inland wetlands throughout Australia, but concentrated in the south-east around Victoria and NSW. Global population estimated between 190,000 and 1.2 million. With the majority of the population occurring outside the Pilbara, the risk to this species is low.	No

Species (sorted as per highest conservation ranking)	Records			Number of records within conceptual development scenarios[1]				Risk of Significance of Impact from the 30% and/or Full Conceptual Development Scenarios	Species of interest?[2]
	Total WA	Pilbara Area	Project Definition Boundary	Existing	Reasonably Foreseeable Third Party	30% Conceptual	Full Conceptual		
Common Redshank *Tringa tetanus* EPBC Act Migratory WC Act: Schedule 5 Migratory	164	4	2	2	0	2	2	Globally distributed, breeding from western Europe to central Asia, and then migrating to northern Africa, south and south-east Asia. Only a few migrate to Australia, concentrating around Roebuck Bay in WA, Spencer Gulf in SA and Coffs Harbour in NSW. Found at sheltered coastal wetlands such as bays, lagoons and saltmarshes. As the majority of the species do not occur in Australia it is considered to be a negligible risk.	No

1. Development Scenarios:
- Existing Development Scenario includes existing BHP Billiton Iron Ore and third party developments.
- Reasonably foreseeable third party includes future approved or proposed third party developments and does not include existing developments.
- 30% Conceptual Development Scenario includes existing development, reasonably foreseeable third party developments and BHP Billiton Iron Ore's 30% Conceptual Development Scenario.
- Full Conceptual Development Scenario includes existing development, reasonably foreseeable third party developments and BHP Billiton Iron Ore's Full conceptual Development Scenario

2. Species of interest are those for which more than 5 % of known Pilbara records occur within the Project Definition Boundary.

3.3 Limitations

This assessment has relied on data from a number of sources, and the accuracy of the data not collected on behalf of BHP Billiton Iron Ore has not been verified and unless there is evidence to the contrary it has been assumed that it is accurate and collected in accordance to standard industry guidelines.

There were a number of obviously erroneous records that were removed from the analysis. These species are detailed in Section 2.3.3. It is likely that there are other erroneous records in the dataset that weren't identified during the data review process. Additional errors in species records from the data accessed during the assessment are likely to comprise a small proportion of the dataset and therefore not expected to significantly change the outcome of this assessment.

Delays in the loading of some data into government databases have resulted in inaccuracies in data considered in this assessment. For example, publicly available documents indicate that Rio Tinto Iron Ore has mapped locations for 4,341 individual *Synostemon hamersleyensis* plants (Eco Logical 2014), yet the data available for this species were restricted to locations that have been mapped by consultants for BHP Billiton Iron Ore.

The majority of species data obtained from the Pilbara have been sourced from biological surveys undertaken for impact assessments. In particular, the vast majority of species records from within the Project Definition Boundary and development scenario footprints have been generated from surveys commissioned for BHP Billiton Iron Ore. Therefore there will be a bias in the occurrence of species on mining and exploration tenements. Further, as biological surveys only provide a snapshot of the biological communities present at the time of survey, the absence of a record may not necessarily indicate that a species does not or will not occur there.

A large proportion of fauna species considered in this assessment are highly mobile, and therefore records may not be reflective of a species preferred habitat or continual presence in an area. Further, as some records date back to more than 50 years ago, these may not reflect species current distribution in the Pilbara.

Records are based on locations, not number of individuals or repeat records over time. One location may support a large or small population of a species, or a transient individual. Impacts to specific species will be further quantified at the Derived Proposal stage using detailed information obtained on behalf of BHP Billiton Iron Ore.

Indirect impacts were not considered in this screening assessment, as the influence of these impacts vary according to species, e.g. some species may be more impacted by feral predators than others, and therefore it was not possible to quantify these across a large range of species. The PERSP will consider indirect impacts to Factors as a whole.

The 30% Conceptual Development Scenario and the Full Conceptual Development Scenario footprints were informed by recommended pit designs, or, where recommended pit designs had not yet been developed, a mid-case of resource range analysis. Footprints for overburden storage areas (OSAs) and assumptions for infilling were inferred by BHP Billiton Iron Ore for each proposed operation on a case by case basis using the company's knowledge of existing mining operation.

Disturbance polygons and associated infrastructure are indicative and represent an engineering assessment of current information. This level of certainty is fit-for-purpose for this level of analysis. There is a high probability that disturbance polygons will change as resource information improves, environmental values are avoided and market conditions change.

Impacts from third parties were determined using projects referred to the OEPA prior to June 2012 (the time of referral of the Strategic Proposal). This includes projects that are already approved but not yet implemented. These data do not take into account any further expansions that third party operators may propose to undertake in the future, as this information was not publicly available when the third party footprints developed.

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Appendix 1. Description of conservation rankings

Environment Protection and Biodiversity Conservation Act 1999

As described in Appendix A, the EPBC Act is the Australian Government's central piece of environmental legislation, providing a legal framework by which to protect and manage nationally important flora and fauna as MNES. EPBC Act Categorisations are set out in Table D1.

Table D1: Categories of Threatened Flora and Fauna Species under the EPBC Act

Conservation Code	Description
Ex	**Extinct** Taxa which at a particular time if, at the time, there is no reasonable doubt that the last member of the species has died.
ExW	**Extinct in the Wild** Taxa which is known only to survive in cultivation, in captivity or as a naturalised population well outside its past range; or it has not been recorded in its known and / or expected habitat, at appropriate seasons, anywhere in its past range, despite exhaustive surveys over a time frame appropriate to its life cycle and form.
CE	**Critically Endangered** Taxa which at a particular time, it is facing an extremely high risk of extinction in the wild in the immediate future, as determined in accordance with the prescribed criteria.
E	**Endangered** Taxa which is not critically endangered and it is facing a very high risk of extinction in the wild in the medium-term future, as determined in accordance with the prescribed criteria.
V	**Vulnerable** Taxa which is not critically endangered or endangered and is facing a high risk of extinction in the wild in the medium-term future, as determined in accordance with the prescribed criteria.
CD	**Conservation Dependent** Taxa which at a particular time if, at that time, the species is the focus of a specific conservation program, the cessation of which would result in the species becoming vulnerable, endangered or critically endangered within a period of 5 years.

Wildlife Conservation Act 1950

The WC Act provides for the conservation and protection of wildlife. It is administered by DPaW and facilitates the listing of threatened native plants and threatened native animals that need to be specially protected because they are under identifiable threat of extinction, are rare, or otherwise in need of special protection. The Minister for Environment may list an ecological community as being threatened if it is presumed to be, or is at risk of becoming, totally destroyed. DPaW uses IUCN criteria for assigning species and communities to threat categories. It uses different codes for flora and fauna set out in Table D2.

Table D2: Conservation Codes for Western Australian Flora and Fauna

Code	Schedule under the WC Act	Description
T	Schedules 1-4	**Threatened species** - Published as Specially Protected under the *Wildlife Conservation Act 1950,* and listed under Schedules 1 to 4 of the Wildlife Conservation (Specially Protected Fauna) Notice for Threatened Fauna and Wildlife Conservation (Rare Flora) Notice for Threatened Flora (which may also be referred to as Declared Rare Flora).

Code	Schedule under the WC Act	Description
		Threatened fauna is that subset of 'Specially Protected Fauna' declared to be 'likely to become extinct' pursuant to section 14(4) of the Wildlife Conservation Act. ***Threatened flora*** is flora that has been declared to be 'likely to become extinct or is rare, or otherwise in need of special protection', pursuant to section 23F(2) of the Wildlife Conservation Act. The assessment of the conservation status of these species is based on their national extent and ranked according to their level of threat using IUCN Red List categories and criteria as detailed below.
CR	Schedule 1	**Critically endangered species** Threatened species considered to be facing an extremely high risk of extinction in the wild. Published as Specially Protected under the *Wildlife Conservation Act 1950,* in Schedule 1 of the Wildlife Conservation (Specially Protected Fauna) Notice for Threatened Fauna and Wildlife Conservation (Rare Flora) Notice for Threatened Flora.
EN	Schedule 2	**Endangered species** Threatened species considered to be facing a very high risk of extinction in the wild. Published as Specially Protected under the *Wildlife Conservation Act 1950,* in Schedule 2 of the Wildlife Conservation (Specially Protected Fauna) Notice for Threatened Fauna and Wildlife Conservation (Rare Flora) Notice for Threatened Flora.
VU	Schedule 3	**Vulnerable species** Threatened species considered to be facing a high risk of extinction in the wild. Published as Specially Protected under the *Wildlife Conservation Act 1950,* in Schedule 3 of the Wildlife Conservation (Specially Protected Fauna) Notice for Threatened Fauna and Wildlife Conservation (Rare Flora) Notice for Threatened Flora.
EX	Schedule 4	**Presumed extinct species** Species which have been adequately searched for and there is no reasonable doubt that the last individual has died. Published as Specially Protected under the *Wildlife Conservation Act 1950,* in Schedule 4 of the Wildlife Conservation (Specially Protected Fauna) Notice for Presumed Extinct Fauna and Wildlife Conservation (Rare Flora) Notice for Presumed Extinct Flora.
IA	Schedule 5	**Migratory birds protected under an international agreement** Birds that are subject to an agreement between the government of Australia and the governments of Japan (JAMBA), China (CAMBA) and The Republic of Korea (ROKAMBA), and the Bonn Convention, relating to the protection of migratory birds. Published as Specially Protected under the *Wildlife Conservation Act 1950,* in Schedule 5 of the Wildlife Conservation (Specially Protected Fauna) Notice.
CD	Schedule 6	**Conservation dependent fauna** Fauna of special conservation need being species dependent on ongoing conservation intervention to prevent it becoming eligible for listing as threatened. Published as Specially Protected under the *Wildlife Conservation Act 1950,* in Schedule 6 of the Wildlife Conservation (Specially Protected Fauna) Notice.
S	Schedule 7	**Other specially protected fauna** Fauna otherwise in need of special protection to ensure their conservation. Published as Specially Protected under the *Wildlife Conservation Act 1950,* in Schedule 7 of the Wildlife Conservation (Specially Protected Fauna) Notice.

Department of Parks and Wildlife Priority Species List

Species that have not yet been adequately surveyed to be listed under the *Wildlife Conservation Act 1950* are added to the Priority Flora and Fauna Lists under Priority 1, 2, 3 or 3. These three categories are ranked in order of priority for survey or evaluation of conservation status so that consideration can be given to their declaration as threatened flora or fauna. Species that are adequately known, are rare but not threatened, or meet the criteria for Near Threatened, or that have been recently removed from the threatened list for other than taxonomic reasons are

placed in Priority 4. Conservation Dependent species are placed in Priority 5. These Priority listings are set out in Table D3.

Table D3: Priority Listings for Flora and Fauna

Priority	Description
P1	Species that are known from one or a few collections or sight records (generally less than five), all on lands not managed for conservation, e.g. agricultural or pastoral lands, urban areas, Shire, rail reserves and Main Roads WA road, gravel and soil reserves, and active mineral leases and under threat of habitat destruction or degradation. Species may be included if they are comparatively well known from one or more localities but do not meet adequacy of survey requirements and appear to be under immediate threat from known threatening processes.
P2	Species that are known from one or a few collections or sight records, some of which are on lands not under imminent threat of habitat destruction or degradation, e.g. national parks, conservation parks, nature reserves, State forest, unallocated Crown land, water reserves, etc. Species may be included if they are comparatively well known from one or more localities but do not meet adequacy of survey requirements and appear to be under threat from known threatening processes.
P3	Species that are known from collections or sight records from several localities not under imminent threat, or from few but widespread localities with either large population size or significant remaining areas of apparently suitable habitat, much of it not under imminent threat. Species may be included if they are comparatively well known from several localities but do not meet adequacy of survey requirements and known threatening processes exist that could affect them.
P4	(a) Rare. Species that are considered to have been adequately surveyed, or for which sufficient knowledge is available, and that are considered not currently threatened or in need of special protection, but could be if present circumstances change. These species are usually represented on conservation lands. (b) Near Threatened. Species that are considered to have been adequately surveyed and that do not qualify for Conservation Dependent, but that are close to qualifying for Vulnerable. (c) Species that have been removed from the list of threatened species during the past five years for reasons other than taxonomy.
P5	Species that are not threatened but are subject to a specific conservation program, the cessation of which would result in the species becoming threatened within five years.

IUCN Red List of Threatened Species

The IUCN Red List of Threatened Species provides taxonomic, conservation status and distribution information on plants, fungi and animals that have been globally evaluated using the IUCN Red List Categories and Criteria. This system is designed to determine the relative risk of extinction, and the main purpose of the IUCN Red List is to catalogue and highlight those plants and animals that are facing a higher risk of global extinction (i.e. those listed as Critically Endangered, Endangered and Vulnerable). The IUCN Red List also includes information on plants, fungi and animals that are categorized as Extinct or Extinct in the Wild; on taxa that cannot be evaluated because of insufficient information (i.e. Data Deficient); and on plants, fungi and animals that are either close to meeting the threatened thresholds or that would be threatened were it not for an ongoing taxon-specific conservation program (i.e. Near Threatened). These categorisations are set out in Table D4.

Table D4: IUCN Conservation Status Categories for Flora and Fauna

Priority	Description
Extinct	A taxon is Extinct when there is no reasonable doubt that the last individual has died. A taxon is presumed Extinct when exhaustive surveys in known and/or expected habitat, at appropriate times (diurnal, seasonal, annual), throughout its historic range have failed to record an individual. Surveys should be over a time frame appropriate to the taxon's life cycles and life form.
Extinct in the Wild	A taxon is Extinct in the Wild when it is known only to survive in cultivation, in captivity or as a naturalized population (or populations) well outside the past range. A taxon is presumed Extinct in the Wild when exhaustive surveys in known and/or expected habitat, at appropriate times (diurnal,

	seasonal, annual), throughout its historic range have failed to record an individual. Surveys should be over a time frame appropriate to the taxon's life cycle and life form.
Critically Endangered	A taxon is Critically Endangered when the best available evidence indicates that it meets any of the criteria A to E for Critically Endangered, and it is therefore considered to be facing an extremely high risk of extinction in the wild.
Endangered	A taxon is Endangered when the best available evidence indicates that it meets any of the criteria A to E for Endangered, and it is therefore considered to be facing a very high risk of extinction in the wild.
Vulnerable	A taxon is Vulnerable when the best available evidence indicates that it meets any of the criteria A to E for Vulnerable, and it is therefore considered to be facing a high risk of extinction in the wild.
Near Threatened	A taxon is Near Threatened when it has been evaluated against the criteria but does not qualify for Critically Endangered, Endangered or Vulnerable now, but is close to qualifying for or is likely to qualify for a threatened category in the near future.
Least Concern	A taxon is Least Concern when it has been evaluated against the criteria and does not qualify for Critically Endangered, Endangered, Vulnerable or Near Threatened. Widespread and abundant taxa are included in this category.
Data Deficient	A taxon is Data Deficient when there is inadequate information to make a direct, or indirect, assessment of its risk of extinction based on its distribution and/or population status. A taxon in this category may be well studied, and its biology well known, but appropriate data on abundance and/or distribution are lacking. Data Deficient is therefore not a category of threat. Listing of taxa in this category indicates that more information is required and acknowledges the possibility that future research will show that threatened classification is appropriate. It is important to make positive use of whatever data are available. In many cases great care should be exercised in choosing between DD and a threatened status. If the range of a taxon is suspected to be relatively circumscribed, if a considerable period of time has elapsed since the last record of the taxon, threatened status may well be justified.
Not Evaluated	A taxon is Not Evaluated when it is has not yet been evaluated against the criteria.