BHP

BHP Billiton Iron Ore Pilbara Strategic Assessment

Assurance Plan

10 May 2018

Declaration of Accuracy

I declare that:

1. To the best of my knowledge, all the information contained in, or accompanying this Assurance Plan is complete, current and correct.

2. I am duly authorised to sign this declaration on behalf of the approval holder.

3. I am aware that:

   a. Section 490 of the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act) makes it an offence for an approval holder to provide information in response to an approval condition where the person is reckless as to whether the information is false or misleading.

   b. Section 491 of the EPBC Act makes it an offence for a person to provide information or documents to specified persons who are known by the person to be performing a duty or carrying out a function under the EPBC Act or the *Environment Protection and Biodiversity Conservation Regulations 2000* (Cth) where the person knows the information or document is false or misleading.

   c. The above offences are punishable on conviction by imprisonment, a fine or both.

Signed

Full name (please print)

Christopher Antony Serginson

Organisation (please print)

BHP Billiton Iron Ore

Date 10/05/2018

Glossary and Abbreviations

Term	Meaning
Activity or activities	The activities within the Strategic Assessment Area as defined at Part A, Section 2.5 of the Program.
Agreement, the	The agreement dated 18 September 2012 (including the Variation to the Agreement dated 21 October 2015) between the Commonwealth Minister for the Environment and BHP Billiton Iron Ore for the strategic assessment of the impacts of the Proposal on MNES.
Approval	Means the approval of the taking of an action or class of actions granted by the Minister on 19 June 2017 in accordance with the Program given under section 146B of the EPBC Act.
Approval Holder	Means any person or persons named in an Approval as an Approval Holder who may take action in accordance with the Program.
BHP Billiton Iron Ore	BHP Billiton Iron Ore Pty Ltd, as manager and agent for and on behalf of BHP Billiton Minerals Pty Ltd, BHP Iron Ore (Jimblebar) Pty Ltd, United Iron Pty Ltd, the participants of the Mount Goldsworthy Joint Venture, Mount Newman Joint Venture and Yandi Joint Venture.
Commence, commenced or commencement	Any preparatory works required to undertake a Notifiable Action including clearing, the erection of any onsite temporary structure and the use of heavy duty equipment for the purpose of breaking the ground.
controlling provision	As defined in Part 7 Division 1 section 67 of the EPBC Act.
Department, the	The Australian Government Department responsible for the administration of the EPBC Act or successors.
Direct disturbance	Means the clearing of native vegetation and/or moving of earth as a result of activities undertaken within the Strategic Assessment Area in accordance with the Program.
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999* (Commonwealth).
ESD	Ecologically sustainable development.
Impact or impacts	As defined in section 527E of the EPBC Act.
Impact Assessment Report or IAR	BHP Billiton Iron Ore Strategic Assessment: Impact Assessment Report (BHP Billiton Iron Ore 2016).
Implementation Framework	Comprises this Assurance Plan and the Offsets Plan, which are designed to support the implementation of the Program
Minister	Minister responsible for administering the EPBC Act and includes a delegate of the Minister.
New Listings	Any new listed threatened species or existing species that have been included in a higher endangerment category identified in accordance with Section 4.1.2 of the Program.
New Matters	Other matters protected by a controlling provision of Part 3 of the EPBC Act (other than listed threatened species) that may be identified in accordance with Section 4.1.2 of the Program.
Notifiable Action	An activity that is considered likely to have a relevant impact on a Program Matter based on an assessment of the proposed activity against the thresholds defined for Program Matters in the Assurance Plan. In relation to the voluntary part of the Program, this includes an activity that is considered likely to have a relevant impact on a New Listing or a New Matter.

Notifiable Action completion	The point at which a Notifiable Action has been implemented in full, such as the time identified in a Validation Notice or at an earlier point as agreed between BHP Billiton Iron Ore and the Department.
Offsets Plan	A plan that provides further detail on the processes that will be implemented to identify and deliver offsets associated with a Notifiable Action.
Other controlling provisions	Any controlling provision under the EPBC Act that is not already considered in accordance with the Program, this Assurance Plan and/or the Offsets Plan.
Practicable	Means reasonably practicable having regard to, among other things, local conditions and circumstances (including costs) and to the current state of technical knowledge
Program	The BHP Billiton Pilbara Strategic Assessment Program endorsed by the Minister on 11 May 2017. Whilst the Agreement refers to a Plan, it was agreed with the Department that the term Program is a better reflection of the systems and processes to be delivered by BHP Billiton Iron Ore.
Program Matters	Means the listed threatened species Hamersley lepidium *(Lepidium catapycnon)*, Pilbara leaf-nosed bat (*Rhinonicteris aurantius*), Northern quoll (*Dasyurus hallucatus*), Greater bilby (*Macrotis lagotis*), Ghost bat (*Macroderma gigas*), and Olive python (Pilbara subspecies) (*Liasis olivaceus barroni*).
Protected Matters	Matters protected by a provision of Part 3 of the EPBC Act.
Strategic Assessment Area	The geographical extent of the assessment and boundaries within which the Program must be implemented, as depicted in Figure 1.
Validation Notice	A non-statutory process administered by BHP Billiton Iron Ore under Part C of the endorsed Program.
WC Act	*Wildlife Conservation Act 1950* (WA)

Contents

1 Introduction

1.1 Context and Purpose

The BHP Billiton Iron Ore Pilbara Strategic Assessment Program was endorsed by the Minister for the Environment and Energy on 11 May 2017 and an Approval Decision (the Approval) for taking actions in accordance with the Program was issued on 19 June 2017.

As described in Part B of the endorsed Program (the Program), an Assurance Plan is required to be approved prior to undertaking an activity in accordance with the Program. The conditions of approval set out in Annexure 2 of the Approval require the Approval Holder to prepare and submit, within 12 months of the Approval, the Assurance Plan for the Minister's approval. This Assurance Plan has been prepared to meet the requirements of the Program and the Approval.

The purpose of this Assurance Plan is to define the environmental objectives, procedures and governance arrangements to ensure that all future activities within the scope of the Program are undertaken in accordance with the endorsed Program and achieve the Program's objectives. The Assurance Plan has been developed to manage impacts to the Program Matters, being the listed threatened species greater bilby (*Macrotis lagotis*), olive python (Pilbara subspecies) (*Liasis olivaceus barroni*), Pilbara leaf-nosed bat (*Rhinonicteris aurantius*), northern quoll (*Dasyurus hallucatus*), Hamersley lepidium *(Lepidium catapycnon)* and ghost bat (*Macroderma gigas*). The Plan also includes Program Matter Outcomes which are measureable outcomes that BHP Billiton Iron Ore must meet for each Program Matter to align with the objectives developed for each Program Matter (see Section 2.4).

Implementation of the Assurance Plan is supported by BHP Billiton Iron Ore Offsets Plan and Validation Notices, regional plans, site specific plans and standard operating procedures.

1.2 Timeframes

Part B (Implementation and Review) and Part C (Validation) of the Program will have effect for 100 and 70 years respectively from the date of the Approval, subject to the review and adaptive implementation requirements defined in Section 4 of the Program. The Assurance Plan therefore has effect for 100 years from the date of the Approval.

1.3 Scope of Plan

This Assurance Plan applies to all activities taken under the Program.

The Program applies to:

- all activities (as defined in Section 2.5 of the Program) associated with assets of BHP Billiton Iron Ore within the Strategic Assessment Area (Figure 1) with the exclusion of those noted below; and
- all activities associated with assets divested by BHP Billiton Iron Ore for which a Validation Notice has been issued.

The Approval does not apply to the following actions within the Strategic Assessment Area:

- activities in any existing National Park, including Karijini National Park; and
- activities associated with any existing BHP Billiton Iron Ore operations and infrastructure that have been previously approved.

Activities north of the 26 km rail-chainage mark of the Newman to Port Hedland rail line, including BHP Billiton Iron Ore's existing operations at Port Hedland and the Goldsworthy rail line from Port Hedland to and including Yarrie, are not covered by the Approval.

Any activity that has not commenced prior to Year 70 from the Approval date is not included within the scope of the Program.

1.4 Assurance Plan Requirements

Section 3.1 of the endorsed Program specifies the requirements for and content of the Assurance Plan. Table 1.1 outlines these requirements. Unless otherwise agreed to in writing by the Department, the Approval Holder is required to revise the Assurance Plan every five years from the date of the Approval, as described in Section 4.1 of the Program.

Table 1.1: Assurance Plan Requirements

	Strategic Assessment Program Assurance Plan requirements	Sections which address these requirements
1	Objectives and outcomes for the Program Matters	2.1, 2.4
2	A list of the Program Matters that may be impacted by the activities	2.2
3	The process for implementing Parts B and C of the Program	3, 7, 8
4	A process for adaptive management and corrective action	4
5	An authorisation process to inform any person that they authorise, permit or request to undertake an activity of their obligations under the Program	6
6	A process for data management and sharing of data	10
7	Details of compliance audit and reporting requirements	7.1
8	A process for regular and ongoing stakeholder engagement	5.1
9	An approach to engagement with the Department	5.2
10	Governance to deliver the requirements of the Assurance Plan outlined above	9

Figure 1 Boundary of the Strategic Assessment Area and Current Tenure

DATE: 20/09/2016
DRAWN: BHP Billiton Iron Ore
Environmental Approvals

2 Objectives and Outcomes

2.1 Program Matters Objectives

BHP Billiton Iron Ore is required to develop an objective for each Program Matter in consultation with the Department (Section 3.1.1 of the Program). Each objective is to be based on the Department's Standards for Accreditation of Environmental Approvals under the EPBC Act (2014) or other applicable Departmental Policy and is to set out an environmental standard that:

- supports the Commonwealth Government's intended outcomes for each Program Matter;
- is consistent with the principles of ecologically sustainable development; and
- will not result in unacceptable or unsustainable impacts on Program Matters.

The Commonwealth Government's objective for the Controlling Provision *Listed threatened species and ecological communities* is 'The survival and conservation status of listed species and ecological communities is promoted and enhanced, including through the conservation of habitat critical to the survival of a species or community and other measures contained in any recovery plans, threat abatement plans or conservation advices'.

The Approval Holder shall achieve the objective for each Program Matter by implementing the Program in accordance with Program Matter Outcomes defined in the Assurance Plan. The requirements for the Program Matter Outcomes are detailed in Section 3.1.2 of the Program. For the purpose of this Assurance Plan, species-specific outcomes have been developed for each of the Program Matters (Section 2.4).

These Program Matter Outcomes will be reviewed as part of the five yearly reviews and revised if necessary, for example if there are changes to Commonwealth standards or objectives.

2.2 Program Matters Applicable to this Assurance Plan

The Program Matters defined in the Program are:

- Greater bilby (*Macrotis lagotis*)
- Pilbara olive python (*Liaisis olivaceus barroni*)
- Pilbara leaf-nosed bat (*Rhinonicteris aurantia*)
- Northern quoll (*Dasyurus hallucatus*)
- Hamersley lepidium (*Lepidium catapycnon*)
- Ghost bat (*Macroderma gigas*)

Amendments to the Threatened Species List effective under the EPBC Act on 15 February 2018 included the delisting of *Lepidium catapycnon* which was removed from the Vulnerable category. Under Section 4.1.1 of the Program, BHP Billiton Iron Ore is not required to continue to manage any listings under the Program Matters that become delisted and may elect to discontinue with specific management measures for any delisted protected matters that are set out in the Implementation Framework. On this basis, *Lepidium catapycnon* has not been included further for the purpose of this Assurance Plan.

Program Matter Outcomes have been developed for each Program Matter listed above (except *Lepidium catapycnon*) and are provided in Section 2.4. The Program must be implemented to comply with the Program Matter Outcomes.

2.3 Ecologically Sustainable Development

This section demonstrates how the following principles of ecologically sustainable development have been applied in the Assurance Plan:

- Integration Principle;
- Precautionary Principle;
- Principle of Intergenerational Equity;
- Biodiversity Principle; and
- Valuation Principle.

Integration Principle

The integration principle requires that impact assessment and decision-making processes effectively integrate both long-term and short-term economic, environmental and social considerations.

The Assurance Plan has defined Program Matters Objectives and Outcomes to ensure environmental considerations are effectively addressed, over the long term, as part of implementing the Program. The validation process requires the application of the mitigation hierarchy to Notifiable Actions, consideration of contemporary data and guidance materials, and stakeholder engagement during the development and finalisation of a Validation Notice. These processes support decision-making that integrates long-term and short-term economic, environmental and social considerations.

Precautionary Principle

The EPBC Act requires the Minister to consider the precautionary principle, which states that a lack of full scientific certainty should not be used as a reason for postponing a measure to prevent degradation of the environment where there are threats of serious or irreversible environmental damage.

The review process described in Section 7 is designed to ensure that new guidance and information (such as scientific data and changes in threats to Program Matters over time) are considered by BHP Billiton Iron Ore as BHP Billiton Iron Ore prepares to implement an activity. The validation process (Section 3) is used to inform measures to avoid, mitigate and offset impacts to Program Matters - the application of the mitigation hierarchy - to ensure that Program Matter Outcomes are met. The mitigation hierarchy has been and will continue to be implemented to ensure, as far as practicable, that impacts are first avoided, then mitigated and finally offset if residual adverse impacts are unavoidable.

Principle of intergenerational equity

The principle of intergenerational equity states that the present generation should ensure that the health, diversity, and productivity of the environment is maintained or enhanced for the benefit of future generations. The Program provides for intergenerational equity through the development and implementation of the Assurance Plan, which contains Program Matter Outcomes that contribute to the overall objectives of the Program. BHP Billiton Iron Ore's commitment to continue to undertake stakeholder engagement as detailed in Section 5 will ensure that the environmental concerns of future generations will be considered in decision-making.

Biodiversity Principle

The biodiversity principle requires that the conservation of biological diversity and ecological integrity be a fundamental consideration in impact assessment and decision-making. BHP Billiton Iron Ore will use the validation process outlined in Section 3 to design and implement Program activities, thereby ensuring that conservation of biodiversity and ecological integrity are central to planning and implementing Program activities.

Valuation Principle

The valuation principle requires that improved valuation, pricing and incentive mechanisms should be used to enable environmental factors to be included in cost-benefit assessment. BHP Billiton Iron Ore has considered the quantum of impact to Program Matters and the full costs and benefits of implementing the Program, including providing for effective offsets. The Assurance Plan validation process uses site-specific information, such as updated baseline data and detailed mine planning information, to validate the quantum of impact. This site specific information informs decision-making regarding application of the mitigation hierarchy to meet the Program Matter Outcomes.

2.4 Program Matter Objectives and Outcomes

This section describes objectives and outcomes for each of the Program Matters which will inform BHP Billiton Iron Ore's management approaches for activities implemented under the Program. These objectives and outcomes are based on the information presented in the Strategic Assessment Impact Assessment Report (IAR), relevant guidance and ongoing monitoring and research undertaken as part of BHP Billiton Iron Ore's continuous improvement program (for example recent ghost bat assessments (Biologic 2016)).

The IAR included a comprehensive impact assessment undertaken at a regional scale to quantify and assess the potential for significant impacts (direct, indirect and cumulative) on the Program Matters from implementing the Program. A range of inputs, including modelling, published scientific information, and regulatory guidance for each Program Matter, informed the impact assessment.

For the purpose of the IAR, predictive species habitat modelling was undertaken by Eco Logical (2015) for all the Program Matters, with the exception of ghost bats. Ghost bats were listed during assessment of the IAR and therefore predictive species habitat modelling was not undertaken for this species. The impact assessment for ghost bats was instead compiled from available data and expert advice.

The primary objective of the habitat modelling was to model potential species habitat based on the relationships identified between spatial patterns in environmental variables favoured by the species and the locations of recorded species observations. The modelling was undertaken to complement the existing data records and to provide a regional context in which to consider the potential impacts of the Program. Modelling may be updated through the five yearly Assurance Plan reviews provided for in Section 7.2, incorporating new knowledge and additional species records.

Habitat suitability for each MNES was categorised into four habitat ranks as follows:

- Habitat Rank 4: Highest probability of potential habitat suitability (model value 70% to 100%);
- Habitat Rank 3: Model value 30% to 70%;
- Habitat Rank 2: Model value 10% to 30%; and
- Habitat Rank 1: Lowest probability of potential habitat (model value zero to 10%).

Relevant species experts independently reviewed each Program Matter model output.

BHP Billiton Iron Ore also undertook a cumulative impact assessment for all of the Program Matters for which predictive species habitat modelling was conducted. The objectives of the cumulative impact assessment were to:

- Present a baseline of habitat suitability for each of the five Program Matters in the Pilbara bioregion, from which potential cumulative impact could be measured;
- Quantify the potential cumulative impacts to habitat suitability of both existing non-mining land use and activities and iron ore projects operating and proposed in the Pilbara bioregion based on typical mining operations; using a conservative approach without the inclusion of management and mitigation measures;
- Determine the proportion of potential cumulative impact attributable to BHP Billiton Iron Ore's Program; and
- Assess the implications of the potential cumulative impact attributable to BHP Billiton Iron Ore's Program in the context of the total potential cumulative impact and the ecology of each Program Matter.

The most preferred habitat, Habitat Rank 4 is considered an indicator of habitat critical to the survival of each Program Matter. Impacts to Habitat Rank 4 was consequently used as the metric for assessing overall potential cumulative impacts to each Program Matter in the IAR.

The information presented in the IAR, contemporary surveys and conservation advice has been used in determining the Assurance Plan outcomes for the Program Matters. Embedding these Program Matter Outcomes into the management of the Program Matters, BHP Billiton Iron Ore will avoid, mitigate and offset impacts to species habitat for each Program Matter and therefore support the Commonwealth Government's intended outcome for the Controlling Provision *Listed threatened species and ecological communities*. The mitigation hierarchy will be implemented to relevant Program Matters for each Notifiable Action under the Program. Adaptive implementation strategies will be applied during each 5 yearly review cycle to ensure the application of the most current knowledge and management approaches.

Based on the analysis of potential cumulative impacts to the Program Matters considered in the IAR, and the management processes and commitments provided in the Program, the IAR concluded that:

- implementation of the Program will not have a significant impact on MNES,
- objects of the EPBC Act will be met; and
- the Program will not result in unacceptable impacts on Program Matters.

Based on the analysis of potential cumulative impacts to the Program Matters considered in the IAR, and the management processes and commitments provided in the Program, the IAR concluded that implementation of the Program will not have a significant impact on MNES, that the objects of the EPBC Act will be met and that the Program will not result in unacceptable impacts on Program Matters. Key findings of the IAR assessment are summarised below.

Although the Strategic Assessment Area also extends into the Gascoyne and Little Sandy Desert bioregions, almost all of the potential impacts associated with iron ore mining proposed under the Program occur within the Pilbara bioregion.

Greater Bilby (*Macrotis lagotis*)

The greater bilby is the only surviving member of the family Thylacomyidae, with the lesser bilby (*Macrotis leucura*) considered extinct in the 1960s. It is a small nocturnal burrowing marsupial that is restricted to the arid regions of central Australia and is listed as Vulnerable under the EPBC Act and Schedule 1 under the WC Act.

Eco Logical (2015b) modelled the habitat preference (the probability of that species being located in certain habitats) for the greater bilby using 21 species records from publicly available and BHP Billiton Iron Ore data. The model indicated that preferred habitat (representing the highest probability of potential habitat, Habitat Rank 4) was strongly associated with hotter regions in the eastern part of the Strategic Assessment Area (Figure 2). Within this range, lower, less rocky areas were identified as higher potential greater bilby habitat.

From the greater bilby modelling, existing mining, infrastructure and pastoral impacts have modified the proportion of both Habitat Ranking 4 (H4) and Habitat Ranking 3 (H3) habitat classes from the base case (from approximately 10% to less than 1% for H4 and approximately 9% to 8% for H3), with a corresponding increase in the proportion of Habitat Ranking 2 (H2) and Habitat Ranking 1 (H1). The addition of both third-party and BHP Billiton Iron Ore future mining potential impacts did not materially change these relative proportions.

Potential impacts to the greater bilby because of the Program were considered minor at the regional scale given that less than 1% (114 ha) of the most preferred habitat (H4) will be potentially impacted. The majority of the habitat occurring within the mining footprint associated with the Program is Habitat Rank 1 (the lowest probability of potential habitat).

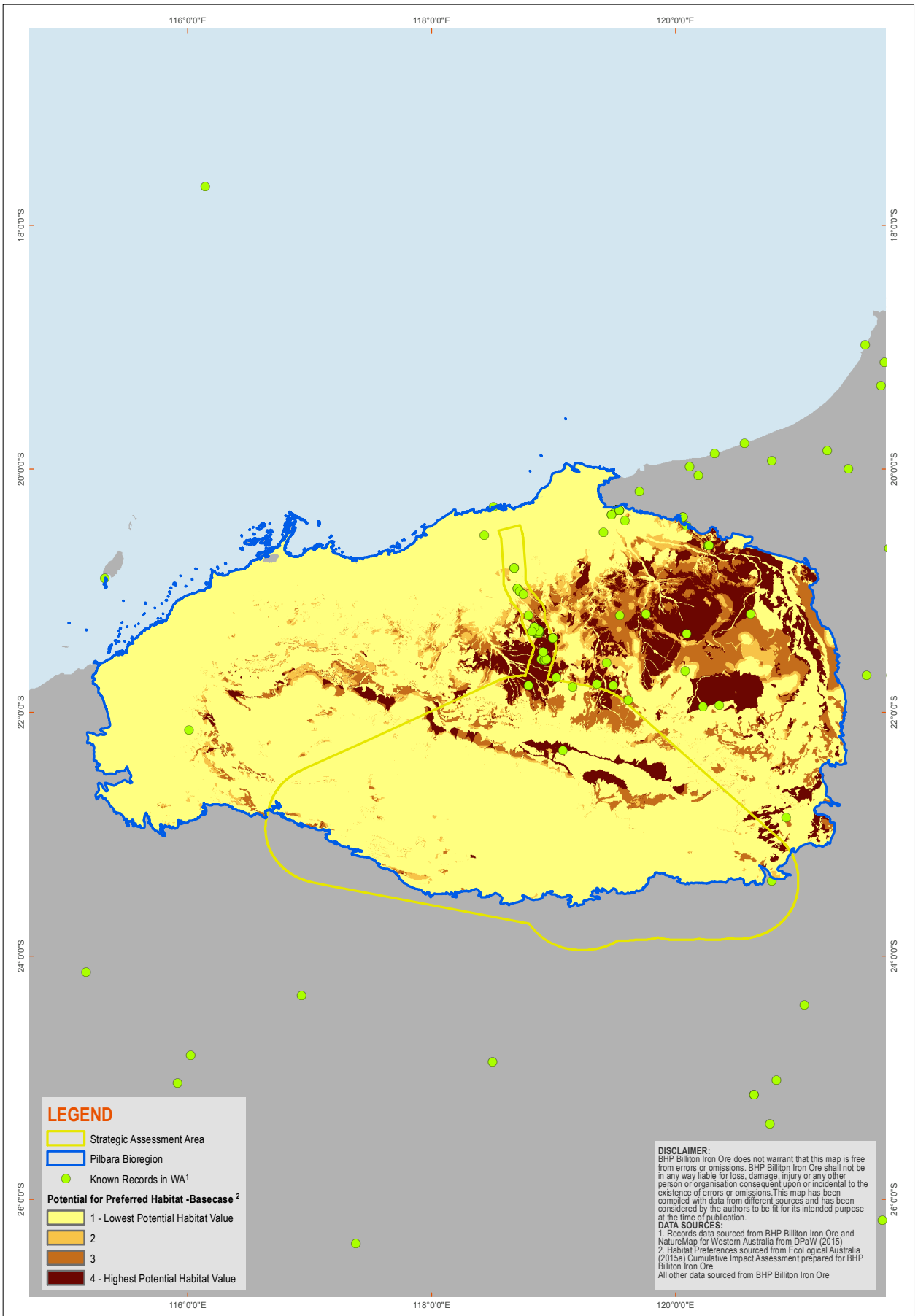
Informed by the information presented in the IAR and contemporary surveys; Program Matter Outcomes, triggers, and reporting requirements for management of the greater bilby have been developed and are set out in Table 2.1 below. Collectively, these Program Matter Outcomes underpin management actions to be implemented and environmental outcomes to be achieved, through the Validation Notice.

The Program Matter Objectives and Outcomes were also informed by and are consistent with the following information sources such that BHP Billiton Iron Ore are seeking to maintain the current distribution and conservation status for this species.

Approved Conservation Advice for *Macrotis lagotis* (greater bilby) (Threatened Species Scientific Committee 2016a)	Conservation objectives: • Maintain the current distribution of bilbies, and seek to expand this distribution. • Implement landscape-scale control of introduced predators at key bilby sites. • Maintain the existing insurance populations on feral predator-free islands and fenced areas, and potentially increase the number of these insurance populations. • Develop and implement a national monitoring program for bilbies.
National Recovery Plan for the Greater Bilby *Macrotis lagotis*. (Pavey, C. 2006)	Overall objectives: • To improve and at least maintain the national conservation status of the greater bilby (currently listed nationally as Vulnerable) over the duration of the recovery plan. • To achieve an accurate assessment of distribution (both extent of occurrence and area of occupancy), trends in occurrence, and successfully reduce the impacts of key threatening processes.

Example management actions provided in Table 2.1 are also consistent with the following Threat Abatement Plans as listed on the Species Profile and Threats Database for greater bilby (Department of the Environment and Energy 2017):

- Threat Abatement Plan for predation by feral cats (Department of the Environment 2015)
- Threat Abatement Plan for competition and land degradation by rabbits (Department of the Environment and Energy 2016)
- Threat Abatement Plan for Predation by the European Red Fox (Department of the Environment, Water, Heritage and the Arts 2008).



Pilbara Strategic Assessment

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DATE: 22/10/2015
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CHECKED: F. Jones/M. Rhodes
APPROVED: B. Skarratt

Figure 2 Modelled distribution of preferred habitat for the greater bilby

Table 2.1. Greater Bilby Program Matter Objectives and Outcomes

Program Matter Objective	Notifiable Action trigger	Program Matter Outcome	Management Actions detailed in Validation Notices	Minimum reporting requirements for Greater Bilby
To support the long-term persistence and viability of the Greater Bilby within the strategic assessment area.	• Presence of Greater Bilby habitat[1] within or adjacent[2] to the activity; or • Presence[3] of Greater Bilby individuals within or adjacent to the activity; or • A recorded Greater Bilby population or habitat within or adjacent to the activity; or • A circumstance that the approval holder considers may prejudice the Program Matter Objective for the Greater Bilby[4].	• No loss of Greater Bilby population/s as a result of Program activities. • Loss of Greater Bilby habitat is offset[5] by measures that maintain or enhance the distribution and conservation status of the Greater Bilby.	**Validation Notices** will: • detail actions to **avoid impacts** on Greater Bilby habitat through, for example, road design or placement of infrastructure/waste dumps; • detail actions to **mitigate impacts** on Greater Bilby through, for example, actions to maintain habitat connectivity (e.g. culvert design), control traffic and/or control of predators attracted to the site by construction and operation activity; and • outline actions to **offset impacts** on Greater Bilby where applicable through, for example, destocking habitat and landscape-scale predator control that will enhance greater bilby population/s.	**Validation Notices** will: • describe activities employed to asses and determine greater bilby habitat and population/s within and adjacent to the activity area and findings of the associated surveys; • specify and describe the relevant Notifiable Action trigger/s, for example the nature and extent of Greater Bilby habitat and/or record of greater bilby presence; • demonstrate application of the mitigation hierarchy on impacts to Greater Bilby habitat and population (i.e. to avoid, mitigate and offset impacts); • describe monitoring activities designed to provide 'early-control' (that management actions are effective) and 'early warning' (to determine whether corrective actions are required) functions; • include appropriate and effective corrective actions that may be implemented in response to an 'early-warning'; and • provide evidence on the effectiveness of management and corrective actions proposed to avoid, mitigate and offset impacts on Greater Bilby habitat and population. **Annual Program Reports** will, as a minimum, report on: • program implementation over the reporting period; • attainment of Greater Bilby Program Matter Outcomes; and • the effectiveness of management and corrective actions to avoid, mitigate and/or offset impacts to Greater Bilby.

[1] Determined by baseline survey. Habitat as defined in the National Recovery Plan for the Greater Bilby.

[2] For the purpose of the Greater Bilby, *adjacent to* means within 1 kilometre from the activity.

[3] Presence is detected with evidence of greater bilby scat, digging, track, etc

[4] Circumstances may include site specific matters related to potential indirect impacts identified in Section 3.3 of this Plan

[5] In accordance with Section 3.2 of the Program and the Offsets Plan

Pilbara Olive Python (*Liasis olivaceus barroni*)

The Pilbara olive python is known from a number of sites throughout the Pilbara and is associated with drainage systems, including areas with localised drainage and semi-permanent watercourses. In the Hamersley IBRA subregion, the Pilbara olive python is most often encountered in the vicinity of permanent waterholes in rocky ranges or among riverine vegetation (Threatened Species Scientific Committee 2008). The Pilbara olive python is listed as Vulnerable under both the EPBC Act and WC Act.

In the Impact Assessment Report, Eco Logical (2015) modelled the habitat preference for the Pilbara olive python using 75 species records from publicly available and BHP Billiton Iron Ore data. The model indicated that preferred habitat (representing the highest probability of potential habitat, Habitat Rank 4) was most heavily concentrated in the ranges of the southern and central areas of the Pilbara bioregion; however, preferred habitat was also predicted in association with river plains in the north and the ranges and outcrops of the eastern part of the Pilbara bioregion (Figure 3).

Whilst the above modelling approach was considered appropriate to provide regional predictions of preferred habitat, the model did not consider highly-specific species requirements such as semi- or permanent waterholes. The following text provides further details on permanent waterholes which has informed the development of Program Matter Outcomes for the Pilbara olive python.

In the Pilbara, the hydrological contribution of surface water inputs to upland waterholes varies both spatially and temporally. This, coupled with the physical characteristics of the pool and the local landscape setting, determines the length of inundation, resulting in two ecological classes of waterhole: ephemeral or permanent. The ways in which fauna species may utilise water within waterholes therefore varies depending on their functional significance in the species' survival. Some fauna may rely directly on waterholes for survival (a primary utilisation), while other species may utilise indirect resources associated with waterholes (a secondary utilisation).

Biota (2016) used three categories to describe how a species might utilise waterholes, based on the type of waterhole utilisation (primary/secondary). These categories were:

1. Obligate: primary or secondary utilisation of waterholes is key to the survival of a species.

2. Facultative: primary or secondary utilisation of waterholes is optional or opportunistic, and not required for a species' survival.

3. Not required: primary or secondary types of waterholes utilisation do not constitute a function of a species' biology.

Few Pilbara fauna species would rely specifically on upland waterholes, as their arid adaptions have enabled them to persist in the absence of reliable water availability. The exceptions to this are those fauna that use free water exclusively for key life history stages or ecophysiological demands, such as amphibians, some bats and surface water-dependent birds. However, none of these fauna is restricted to upland gorge habitats where rock pools occur, as they would also use free water available in lowland creeks and rivers (Biota 2016).

Upland waterholes may be locally or regionally significant as they provide resources that are utilised by fauna for key ecological activities such as drinking, reproduction, foraging, shelter and refugia. It is the combination of these resources and the setting of waterholes within a landscape that determines the overall value of a waterhole, and some waterholes will therefore be more significant than others. Isolated waterholes may be locally significant, as they represent hotspots for species richness and abundance. Ephemeral pools are likely to have local significance when present, as they represent temporary drinking, breeding and foraging resources, and may also provide

important connective refugial habitats that enable species to disperse and occupy previously unfavourable habitats. Permanent pools in upland settings are regionally uncommon, and are therefore likely to be regionally significant as the physical characteristics and nature of water permanency has shaped the local habitat, in turn influencing the fauna that may utilise it.

Core habitat for the Pilbara olive python includes gorges, escarpments, rocky outcrops and rock holes. The snake shelters in caves, beneath boulders and in pools of water (Biota 2016). It requires rock pools for capturing prey, including wallabies, birds and mammals, which are ambushed from a submerged position in the water. The species does not need to drink water and is also often recorded in rocky habitat away from water. Permanent waterholes would be locally significant to the Pilbara olive python as they represent key foraging and shelter resources, particularly in areas away from waterways. Biota (2016) consider that the Pilbara olive python does not directly rely on waterholes for survival, but the species secondary obligate utilisation for predation and a secondary facultative utilisation for shelter. Although the species is found elsewhere in the Pilbara, they are considered to have a medium dependence on permanent waterholes.

In defining the extent of permanent waterholes within the Strategic Assessment Area and within or in proximity to BHP Billiton Iron Ore tenure, a number of studies have been undertaken on the Pilbara hydrology which cover the Strategic Assessment Area. These studies include:

- Environmental Protection Authority Inland Waters of the Pilbara Western Australia (EPA 1988)
- Edith Cowan University Wetland values of the eastern Pilbara (Coughran et al 2014)
- CSIRO Pilbara Water Resource Assessment: Upper Fortescue region (McFarlane 2015)
- SEA Hydrology (BHP Billiton 2015)

These studies identified named significant waterholes and water features within the upper Fortescue River catchment, the following being relevant to the Program:

- Weeli Wolli spring (permanent)
- Ben’s oasis (permanent)
- Fortescue Marsh (non-permanent)
- Lake Robinson/Coondewanna Flats (non-permanent)
- Koodaideri spring (permanent)
- Coondiner pool (non-permanent)
- Punda Spring (permanent)
- Freshwater claypans (non-permanent)
- Innawally pool (permanent).

In 2011 the Western Australian Minister for Environment approved the Jimblebar Expansion, with the publication of Ministerial Statement (MS) 857. Innawally Pool stretches approximately 1,000 m along Jimblebar Creek, within the BHP lease for the Jimblebar mine. The assessment approved mining adjacent to Innawally Pool and surface water discharge to Jimblebar Creek. Innawally Pool is not included in the Program Matter Outcomes as the approved activities qualify for the exemptions described in Section 2.3 of the Program.

Informed by this information and contemporary surveys; Program Matter outcomes, triggers, and reporting requirements for management of the Pilbara olive python have been developed and are set out in Table 2.2 below.

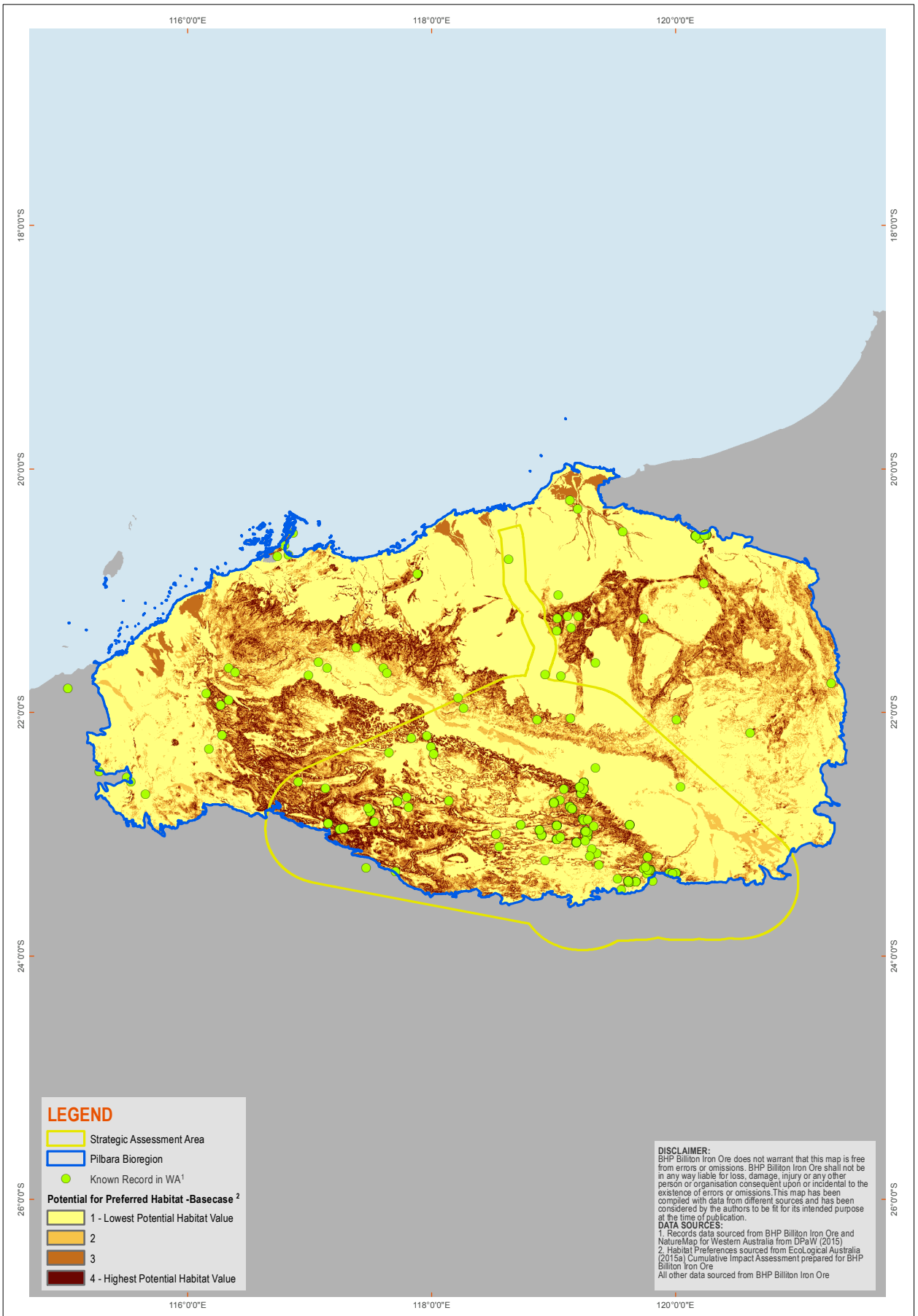
Collectively, these Program Matter Outcomes underpin management actions to be implemented, and environmental outcomes to be achieved, through the Validation Notice.

The Program Matter Objectives and Outcomes were also informed by and are consistent with the following information sources in that BHP Billiton Iron Ore are seeking to maintain the current distribution and conservation status for this species and minimise the loss or modification to its habitat.

Threatened Species Scientific Committee (2008). Commonwealth Conservation Advice on *Liasis olivaceus barroni* (Olive Python (Pilbara subspecies)). (Threatened Species Scientific Committee 2008).	Regional and Local Priority Actions: • Habitat Loss, Disturbance and Modification • Animal Predation or Competition • Conservation Information • Enable Recovery of Additional Sites and/or Populations

Example management actions provided in Table 2.2 are also consistent with the following Threat Abatement Plan as listed on the Species Profile and Threats Database for Pilbara olive python (Department of the Environment and Energy 2017):

- Threat Abatement Plan for predation by feral cats (Department of the Environment 2015)



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APPROVED: B. Skarratt

Figure 3 Modelled distribution of preferred habitat for the Pilbara olive python

Table 2.2. Pilbara Olive Python Program Matter Objectives and Outcomes

Program Matter Objective	Notifiable Action trigger	Program Matter Outcome	Management Actions detailed in Validation Notices	Minimum reporting requirements for Pilbara olive python
To support the long-term persistence and viability of the Pilbara olive python within the strategic assessment area.	• Presence of Pilbara olive python habitat[1] within or adjacent[2] to the activity; or • Presence[3] of Pilbara olive python individuals within or adjacent to the activity; or • A recorded Pilbara olive python individual or habitat within or adjacent to the activity; or • A circumstance that the approval holder considers may prejudice the Program Matter Objective for the Pilbara olive python.	• No loss of Pilbara olive python population/s as a result of Program activities. • Program activities do not physically disturb, or result in adverse changes to the hydrological regimes and/or water quality of the following waterholes: Weeli Wolli Spring, Coondiner Pool, Ben's Oasis, Koodaideri Spring, and Punda Spring. • Loss of Pilbara olive python habitat is offset[4] by measures that maintain or enhance the distribution and conservation status of the Pilbara olive python.	**Validation Notices** will: • detail actions to **avoid impacts** on Pilbara olive python through, for example, road design or placement of infrastructure/waste dumps to avoid impacts on waterholes; • detail actions to **mitigate impacts** on Pilbara olive python through, for example, design and implementation of surface water and groundwater management controls to minimise direct or indirect impacts to waterholes, control traffic speeds with Pilbara olive python road signage, relocation of individual animals disturbed during construction and/or control of predators attracted to the site by construction and operation activity; and • outline actions to **offset impacts** on Pilbara olive python where applicable through, for example, destocking habitat, landscape-scale predator control and/or the creation of habitat for Pilbara olive python population/s.	**Validation Notices** will: • describe activities employed to asses and determine Pilbara olive python habitat and population/s within and adjacent to the activity area and findings of the associated surveys; • specify and describe the relevant Notifiable Action trigger/s, for example the nature and extent of Pilbara olive python habitat and/or record of Pilbara olive python presence; • demonstrate application of the mitigation hierarchy on impacts to Pilbara olive python habitat and population (i.e. to avoid, mitigate and offset impacts); • describe monitoring activities designed to provide 'early-control' (that management actions are effective) and 'early warning' (to determine whether corrective actions are required) functions; • include corrective actions that may be implemented in response to an 'early-warning'; and • provide evidence on the effectiveness of management and corrective actions proposed to avoid, mitigate and offset impacts on Pilbara olive python habitat. **Annual Program Reports** will, as a minimum, report on: • Program implementation over the reporting period; • attainment of Pilbara olive python Program Matter Outcomes; and • the effectiveness of management and corrective actions to avoid, mitigate and offset impacts to Pilbara olive python.

[1] Determined by baseline survey. Habitat as defined in Conservation Advice for the Pilbara olive python.

[2] For the purpose of the Pilbara olive python, *adjacent to* means (a) within 1.5 kilometres from the activity and (b) to the extent of a modelled groundwater drawdown from implementing the activity.

[3] Presence is detected with evidence of Pilbara olive python scat, track, etc

[4] In accordance with Section 3.2 of the Program and the Offsets Plan

Pilbara Leaf-nosed Bat (*Rhinonicterus aurantia*)

The Pilbara leaf-nosed bat (PLNB) is listed as Vulnerable under the EPBC Act and WC Act, primarily due to the potential loss of roost sites associated with mining activities, and in particular the recommencement of mining at historically abandoned shafts that have subsequently become important roost sites.

Colonies of the PLNB are found in three distinct areas: in the mines of the eastern Pilbara, scattered throughout the Hamersley Range in smaller colonies, and in sandstone formations south of the Hamersley Range in a small number of significant colonies (Armstrong 2001). There are confirmed roosts at Bamboo Creek mine, Copper Hills mine, Klondyke Queen mine, and Lalla Rookh mine; one cave in Barlee Range; and 16 other likely permanent occurrences (DotE 2016b).

Eco Logical (2015) modelled the habitat preference for the PLNB using 137 species records from publicly available and BHP Billiton Iron Ore data. No distinction between types of records was available within the data. It is likely that most of the locations have been recorded from bat call detectors and therefore may not necessarily reflect the location of roosts. Further, this number may be biased towards records on mining tenure due to the relative survey effort undertaken by biological consulting companies for environmental approvals. Nevertheless, the data does demonstrate that this species is commonly recorded and is consistent with the findings of McKenzie & Bullen (2009).

The model indicated that preferred habitat (Habitat Rank 4) occurs in the central-east of the Pilbara bioregion (Figure 4). Within the Strategic Assessment Area, Habitat Rank 4 was modelled to occur in small pockets throughout the central and western sections of the Strategic Assessment Area, associated with the Hamersley Range and Ophthalmia Range.

At the regional level, the Pilbara leaf-nosed bat modelled impacts of the existing mining, infrastructure and pastoral activities have not changed the proportion of either Habitat Rank 4 (H4) 2%, or Habitat Rank 3 (H3) 1% habitat classes from the base case. As a result, the potential impacts to the Pilbara leaf-nosed bat were considered to be minor at the regional scale.

Informed by the information presented in the IAR and contemporary surveys; Program Matter Outcomes, triggers, and reporting requirements for management of the Pilbara leaf-nosed bat have been developed and are set out in Table 2.3 below. Collectively, these Program Matter Outcomes underpin management actions to be implemented, and environmental outcomes to be achieved, through the Validation Notice.

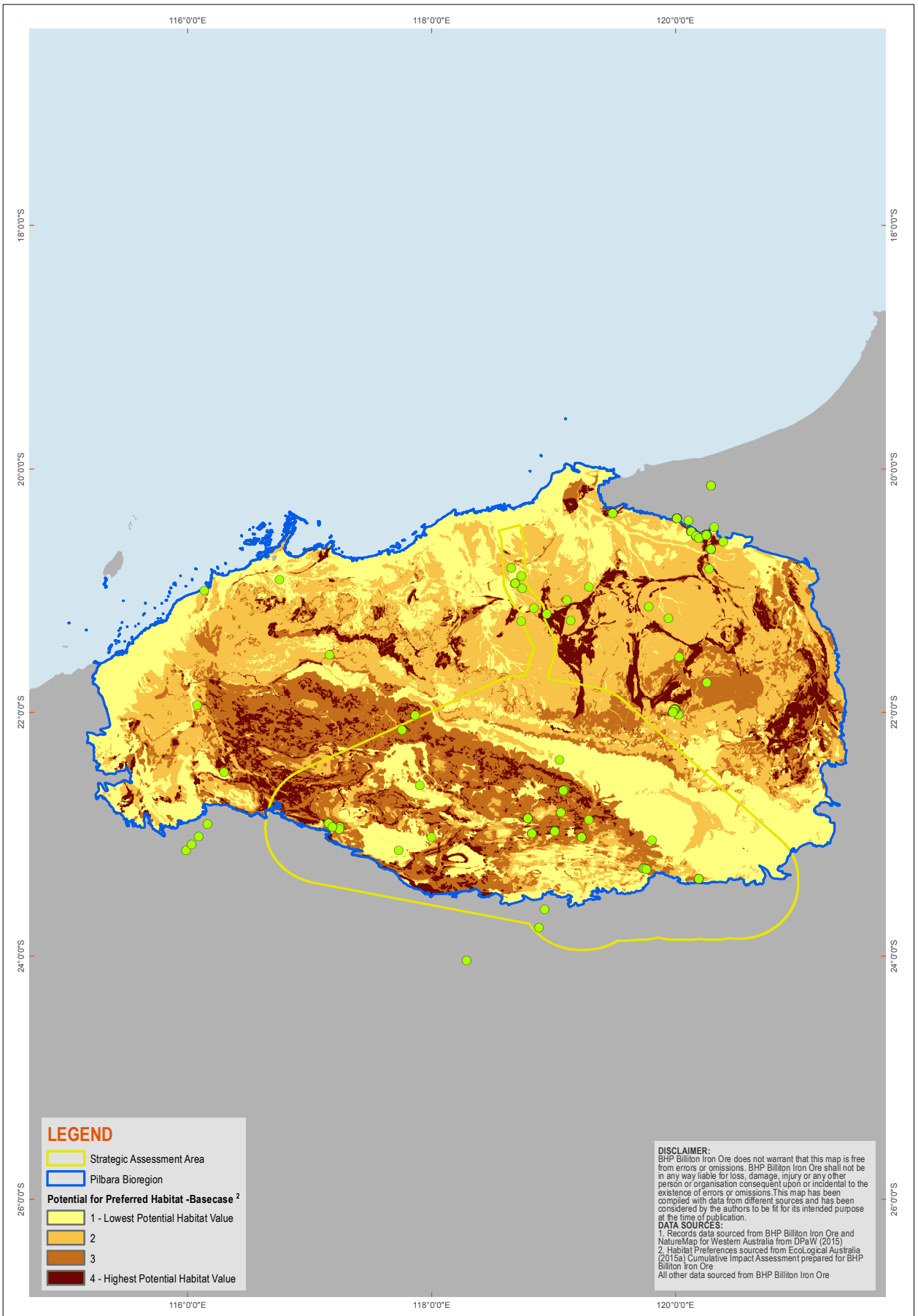

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Figure 4 Modelled distribution of preferred habitat for the Pilbara leaf-nosed bat

The Program Matter Objectives and Outcomes were also informed by and are consistent with the following information sources such that BHP Billiton Iron Ore are seeking to protect known key roost sites and foraging habitat and maintain the current distribution and conservation status for this species.

Approved Conservation Advice for *Rhinonicteris aurantia* (Pilbara form) (Pilbara Leaf-nosed Bat) (Threatened Species Scientific Committee 2016b)	National conservation objectives: • Ensure that activities within the range of the PLNB do not have a significant impact under the EPBC Act. (Guidance on what is likely to have a significant impact on this species is provided in Appendix A of the Conservation Advice). • Eliminate key threats to the PLNB and halt the predicted decline of the species through best practice mining design and construction and better coordinated regional management. • Protect and manage all confirmed and suspected roost sites to support the recovery and long-term persistence of the PLNB. • Identify and protect sufficient high value foraging habitat around roost sites to support the long-term persistence of PLNB colonies. • Support coordinated research on the occurrence, population size and ecological requirements of the PLNB so best practice management options can be developed to minimise anticipated impacts from new and existing mining activity.

There is no adopted or made Recovery Plan for this species. No Threat Abatement Plan has been identified as being relevant for this species.

Table 2.3. Pilbara Leaf-nosed Bat (PLNB) Program Matter Objectives and Outcomes

Program Matter Objective	Notifiable Action trigger	Program Matter Outcome	Management Actions detailed in Validation Notices	Minimum reporting requirements for PLNB
To support the long-term persistence and viability of the PLNB within the strategic assessment area.	• Presence of PLNB roosting or foraging habitat[1] within or adjacent[2] to the activity; or • Presence[3] of PLNB individuals within or adjacent to the activity; or • A recorded PLNB population or habitat within or adjacent to the activity; or • A circumstance that the approval holder considers may prejudice the Program Matter Objective for the PLNB.	• No loss of PLNB population/s as a result of Program activities. • Loss of PLNB habitat is offset[4] by measures that maintain or enhance the distribution and conservation status of the PLNB.	**Validation Notices** will: • detail actions to **avoid impacts** on PLNB through, for example, mine and road design or placement of infrastructure/waste dumps to create an exclusion zone for bat roost sites; • detail actions to **mitigate impacts** on PLNB through, for example, the design and implementation of surface water and groundwater management controls to minimise direct or indirect impacts to foraging areas, and/or control night time traffic speeds with PLNB road signage; and • outline actions to **offset impacts** on PLNB through, for example, destocking habitat and habitat creation.	**Validation Notices** will: • describe activities employed to assess and determine PLNB habitat and individuals within and adjacent to the activity area and findings of the associated surveys; • specify and describe the relevant Notifiable Action trigger/s, for example the nature and extent of PLNB habitat and/or record of PLNB presence; • demonstrate application of the mitigation hierarchy on impacts to PLNB habitat and population (i.e. to avoid, mitigate and offset impacts); • describe monitoring activities designed to provide 'early-control' (that management actions are effective) and 'early warning' (to determine whether corrective actions are required) functions; • include corrective actions that may be implemented in response to an 'early-warning'; and • provide evidence on the effectiveness of management and corrective actions proposed to avoid, mitigate and offset impacts on PLNB habitat. **Annual Program Reports** will, as a minimum, report on: • Program implementation over the reporting period; • attainment of PLNB Program Matter Outcomes; and • the effectiveness of management and corrective actions to avoid, mitigate and offset impacts to PLNB.

[1] Determined by baseline survey. Roosting habitat is defined as Priorities 1-4 in the Conservation Advice

[2] For the purpose of the PLNB, *adjacent to* (a) means within 10 kilometres from the activity or (b) to the extent of a modelled groundwater drawdown from implementing the activity.

[3] Presence is demonstrated with evidence of Pilbara leaf-nosed bat scat, bat survey data etc

[4] In accordance with Section 3.2 of the Program and the Offsets Plan

Northern Quoll (*Dasyurus hallucatus*)

The northern quoll is listed as Endangered under the EPBC Act and WC Act, primarily because of the impact of cane toads on populations in the Northern Territory and Queensland and the perceived threat associated with the arrival of cane toads in Western Australia.

Eco Logical (2014) suggests that habitat areas in the north and northeast of the Pilbara bioregion are core habitat for the northern quoll. The main body of the Strategic Assessment Area is located a minimum of 50 km south of identified core habitat and has a low probability for containing core habitat (Eco Logical 2014). Eco Logical (2015) modelled the habitat preference for the northern quoll using 518 species records from publicly available and BHP Billiton Iron Ore data. The model indicated that Habitat Rank 4 was strongly associated with rugged hills, ranges and outcrops in the north and northeast of the Pilbara bioregion, as opposed to areas in the central and southern areas of the Pilbara bioregion (Figure 5).

For the northern quoll, existing mining, infrastructure and pastoral impacts have reduced the proportion of both Habitat Rank 4 (H4) and Habitat Rank 3 (H3) habitat classes from the base case (from approximately 10% to 1% for H4 and from approximately 25% to 17% for H3), with a corresponding increase in the proportion of Habitat Rank 2 (H2) and Habitat Rank 1 (H1). The addition of both third-party and BHP Billiton Iron Ore Full Conceptual Development Scenario potential impacts do not materially change these relative proportions.

The model indicates that there is a relatively small increase of 504 ha (once existing impacts are considered) in potential impact to Habitat Rank 4 (highest probability of potential habitat) for the northern quoll when all future operations within the scope of the Program are included (Eco Logical 2015). This is due to the removal of some indirect impacts upon closure, such as fauna mortality from collision with mine vehicles and trains.

The Program Matter objective, outcomes and triggers, and reporting requirements for management of the northern quoll have been developed and are set out in Table 2.4 below. Collectively, these Program Matter Outcomes underpin the design of management actions to be implemented, and environmental outcomes to be achieved, through the Validation Notice.

The Program Matter Objectives and Outcomes are also informed by and are consistent with the following information sources, in that BHP Billiton Iron Ore are seeking to maintain the current distribution and conservation status for this species.

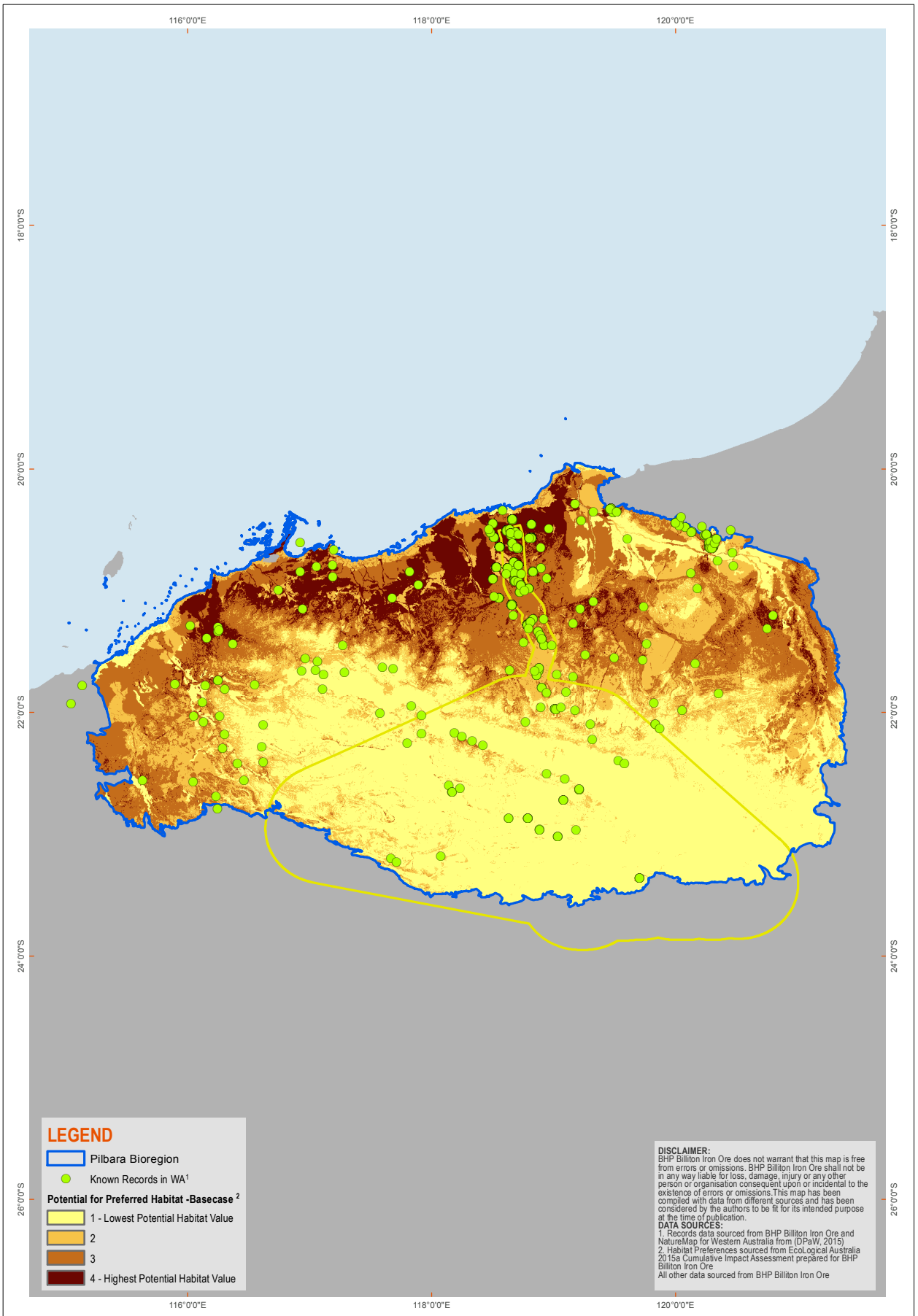

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Figure 5 Modelled distribution of preferred habitat for the northern quoll

Commonwealth Listing Advice on Northern Quoll (*Dasyurus hallucatus*). (Threatened Species Scientific Committee 2005)	The Advice lists the priority recovery and threat abatement actions required for northern quoll as being to:
	• minimise the impact of colonising Cane Toads on the species by:
	  ▪ investigating the use of physical barriers or other means, where feasible, to prevent the colonisation of key habitat areas;
	  ▪ undertaking translocation and management of Northern Quoll populations in safe havens where necessary;
	• identify areas of critical habitat (e.g. island populations);
	• investigate the need to establish a captive breeding program for the species; and
	• investigate the status of the species in Queensland, including the reasons for its survival following Cane Toad invasion.

National Recovery Plan For the Northern Quoll *Dasyurus hallucatus* (Hill, B. & S. Ward 2010).	Overall objectives: This recovery plan aims to minimise the rate of decline of the northern quoll in Australia, and ensure that viable populations remain in each of the major regions of distribution into the future. Specific Actions: • Protect northern quoll populations on offshore islands from invasion and establishment of cane toads, cats and other potential invasive species • Foster the recovery of northern quoll sub-populations in areas where the species has survived alongside cane toads • Halt northern quoll declines in areas not yet colonised by cane toads • Halt declines in areas recently colonised by cane toads • Maintain secure populations and source animals for future reintroductions/introductions, if they become appropriate • Reduce the risk of northern quoll populations being impacted by disease • Reduce the impact of feral predators on northern quolls • Raise public awareness of the plight of northern quolls and the need for biosecurity of islands and WA.

Example management actions provided in Table 2.4 are also consistent with the following Threat Abatement Plans as listed on the Species Profile and Threats Database for northern quoll (Department of the Environment and Energy 2017):

- Threat Abatement Plan for predation by feral cats (Department of the Environment 2015)
- Threat abatement plan for the biological effects, including lethal toxic ingestion, caused by cane toads (Commonwealth of Australia 2011)

Table 2.4. Northern Quoll Program Matter Objectives and Outcomes

Program Matter Objective	Notifiable Action trigger	Program Matter Outcome	Management Actions detailed in Validation Notices	Minimum reporting requirements for northern quoll
To support the long-term persistence and viability of the northern quoll within the strategic assessment area.	• Presence of Northern Quoll habitat[1] within or adjacent[2] to the activity; or • Presence[3] of Northern Quoll individuals within or adjacent to the activity; or • A recorded Northern Quoll population or habitat within or adjacent to the activity; or • A circumstance that the approval holder considers may prejudice the Program Matter Objective for the Northern Quoll.	• No loss of Northern Quoll population/s as a result of Program activities. • No loss of Northern Quoll habitat that supports a high density population[4] as a result of Program activities. • Loss of Northern Quoll habitat is offset[5] by measures that maintain or enhance the distribution and conservation status of the Northern Quoll.	Validation Notices will: • detail actions to **avoid impacts** on northern quoll through, for example, road design or placement of infrastructure/waste dumps; • detail actions to **mitigate impacts** on northern quoll through, for example, onsite waste management, controlling night time traffic speeds with northern quoll road signage and/or raise awareness of northern quoll within the local community; and • outline actions to **offset impacts** on northern quoll where applicable through, for example, destocking habitat, landscape scale predator controls and/or the creation and monitoring of habitat for northern quoll population/s.	**Validation Notices** will: • describe activities designed to assess and determine northern quoll habitat and population within and adjacent to the activity area and findings of the associated surveys; • specify and describe the relevant Notifiable Action trigger/s, for example the nature and extent of northern quoll habitat and/or recorded northern quoll presence; • demonstrate application of the mitigation hierarchy on impacts to northern quoll habitat and population (i.e. to avoid, mitigate and offset impacts); • describe monitoring activities designed to provide 'early-control' (that management actions are effective) and 'early warning' (corrective actions are required) functions; • include corrective actions that may be implemented in response to an 'early-warning'; and • provide evidence on the effectiveness of management and control actions proposed to avoid, mitigate and offset impacts on northern quoll habitat. **Annual Program Reports** will, as a minimum, report on: • Program implementation over the reporting period; • attainment of northern quoll Program Matter Objectives and Outcomes; and • the effectiveness of management and corrective actions to avoid, mitigate and offset impacts to northern quoll.

[1] Determined by baseline survey. Habitat as described in the National Recovery Plan for the Northern Quoll.

[2] For the purpose of the Northern Quoll, *adjacent to* means within 1 kilometre from the activity.

[3] Presence is demonstrated with evidence of northern quoll scat, digging, track, etc

[4] Defined as defined in EPBC Act referral guideline for the endangered northern quoll

[5] In accordance with Section 3.2 of the Program and the Offsets Plan

Ghost Bat (*Macroderma gigas*)

The ghost bat is listed as Vulnerable under both the EPBC Act and WC Act (2015 and 2016, respectively). The key threats to this species are habitat loss from mining, either due to destruction or disturbance of roost sites and nearby areas or to collapse or reworking of old mine adits (a horizontal shaft used to access a mine or for sampling); disturbance of breeding sites, primarily due to human visitation; modification to foraging habitat; and mortality from cane toad ingestion.

The ghost bat occurs across northern Australia from the Pilbara region of Western Australia to central Queensland. In the Pilbara bioregion, it occurs in all four IBRA subregions, with a majority of the population occurring in the Chichester subregion. Here, most populations occur in disused mines where up to 500 bats are known to occur. There are estimated to be 317 caves in the Pilbara utilised by ghost bats (Biologic & BatCall WA 2014).

The IAR presented a 2016 review of ghost bat records from the company's database and publicly available data supplied by Western Australian Department of Parks and Wildlife (DPaW) and Western Australian Museum in December 2015 and January 2016 respectively. The review identified 1,028 records for ghost bat, of which 465 occurred within the Strategic Assessment Area. Over the long-term, 175 records are predicted to be impacted by iron ore mining (reasonably foreseeable third party and BHP Billiton Iron Ore Full Conceptual Development).

In the Hamersley subregion, populations are more widespread and much smaller than those in the Chichester subregion, with most occurring in natural roosts. A recent estimate of its population size within the Pilbara has been given as 1,300 - 2,000 individuals (Threatened Species Scientific Committee 2016a; Biologic & BatCall WA 2014) estimated the Hamersley subregion to contain 300-400 individuals. The population on BHP Billiton Iron Ore tenure is estimated at around 50 to 60 individuals (Biologic 2016) as shown in Figure 6.

Based on the extensive ghost bat assessment undertaken for the recent Mining Area C - Southern Flank Public Environmental Review (PER) State approval, current data indicate:

- There is a small, highly mobile population of ghost bats within the area of BHP Billiton Iron Ore's operations;
- That the use of roosts varies and can be categorised as having high or low value based on their use as feeding, day or maternity roosts;
- Bats are easily disturbed and will vacate roosts when mining activities are in close proximity; and
- Bats will re-establish use of viable caves once mining operations have ceased.

Informed by this research, Program Matter Outcomes, triggers and reporting requirements for management of the ghost bat have been developed and are set out in Table 2.5 below. Collectively, these Program Matter Outcomes underpin management actions to be implemented, and environmental outcomes to be achieved, through the Validation Notice.

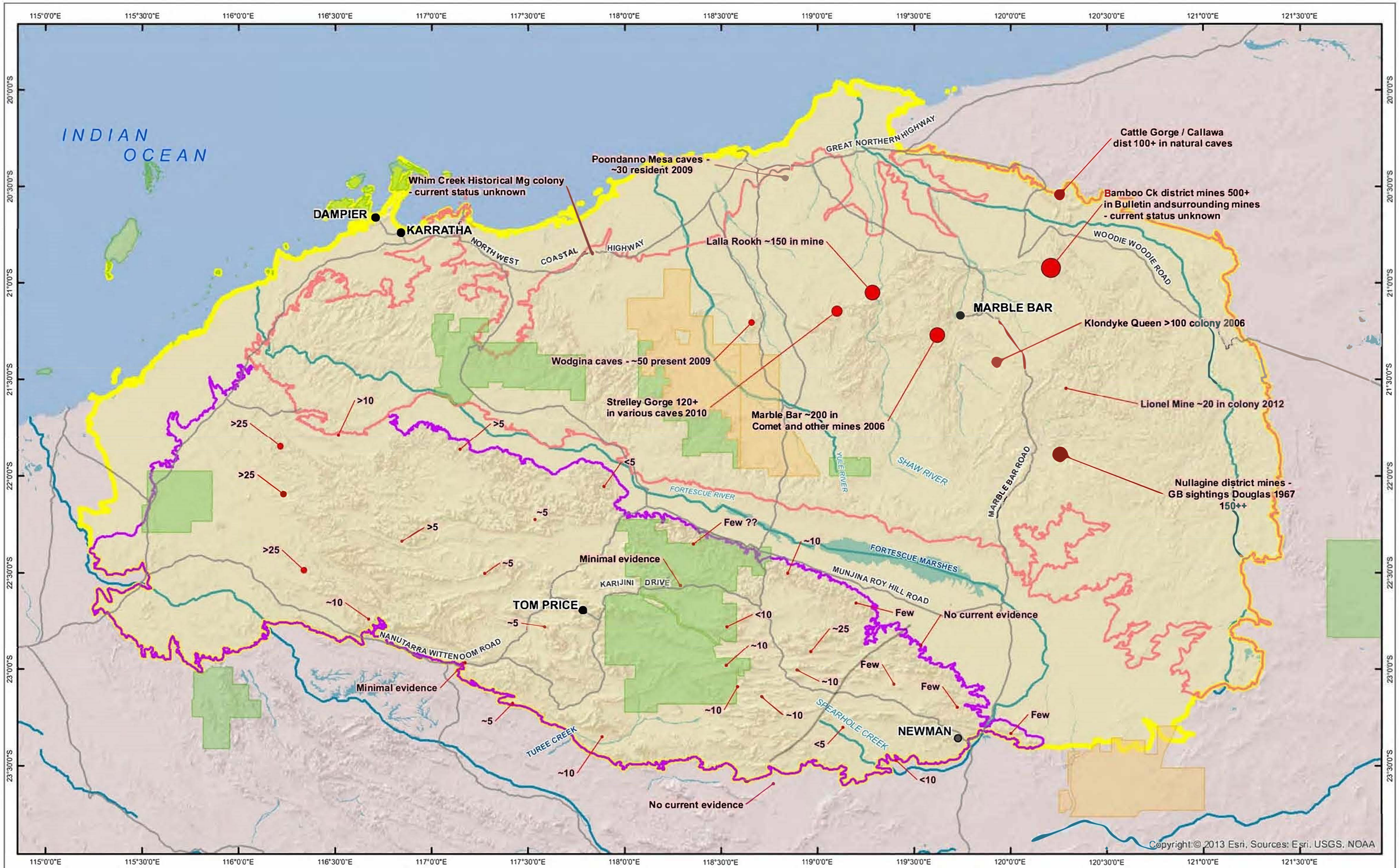

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Figure 6
Ghost Bat Populations estimates based on records in the Pilbara

Legend

- Estimate of Ghost Bat individuals
- Pilbara IBRA
- Chichester Subregion (IBRA)
- Hamersley Subregion (IBRA)

Reserves

- IndigenousReserve
- NatureConservationReserve

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The Program Matter Objectives and Outcomes were also informed by and are consistent with the following information sources in that BHP Billiton Iron Ore are seeking to maintain the current distribution and conservation status for this species and minimise disturbance to important roost sites.

Approved Conservation Advice for *Macroderma gigas* (ghost bat). (Threatened Species Scientific Committee 2016c)	Primary Conservation Actions: • Protect roost sites from mining, human disturbance and collapse. • Replace the top strands of barbed wire in fences near roost sites with single-strand wire.

There is no adopted or made Recovery Plan for this species at this time. However, the Threatened Species Scientific Committee has recommended a Recovery Plan be developed. Example management actions provided in Table 2.5 are also consistent with the following Threat Abatement Plan as listed on the Species Profile and Threats Database for ghost bat (Department of the Environment and Energy 2017):

- Threat Abatement Plan for Predation by the European Red Fox (Department of the Environment, Water, Heritage and the Arts 2008).

Table 2.5. Ghost Bat Program Matter Objectives and Outcomes

Program Matter Objective	Notifiable Action trigger	Program Matter Outcome	Management Actions detailed in Validation Notices	Minimum reporting requirements for Ghost Bat
To support the long-term persistence and viability of the Ghost bat within the strategic assessment area.	• Presence of Ghost Bat roosts[1] or foraging habitat within or adjacent[2] to the activity, or • Presence[3] of Ghost bat individuals within or adjacent to the activity; or • A recorded Ghost Bat population or habitat within or adjacent to the activity; or • A circumstance that the approval holder considers may prejudice the Program Matter Objective for the Ghost Bat.	• No loss of Ghost Bat population/s as a result of Program activities. • Loss of Ghost Bat habitat, including roosts, is offset[4] by measures that maintain or enhance the distribution and conservation status of the Ghost Bat	**Validation Notices** will: • detail actions to **avoid impacts** on the Ghost bat through, for example, road design or placement of infrastructure/waste dumps to create an exclusion zone for bat roost sites; • detail actions to **mitigate impacts** on the Ghost bat through, for example, the design and implementation of surface water and groundwater management controls to minimise direct or indirect impacts to roosts and foraging areas, control night time traffic speeds with Ghost bat road signage and/or design and locate barbed wire fences so as to minimise unintentional bat mortality from entanglement; and • outline actions to **offset impacts** on the Ghost bats where applicable through, for example, destocking habitat, and/or the creation and monitoring of habitat for Ghost bat population/s.	**Validation Notices** will: • describe activities designed to assess and determine Ghost bat habitat and population/s within and adjacent to the activity area and findings of the associated surveys; • specify and describe the relevant Notifiable Action trigger/s, for example the nature and extent of Ghost bat habitat and/or recorded Ghost bat presence; • demonstrate application on the mitigation hierarchy on impacts to Ghost bat habitat and population (i.e. to avoid, mitigate and offset impacts); • describe monitoring activities designed to provide 'early-control' (that management actions are effective) and 'early warning' (to determine whether corrective actions are required) functions; • include corrective actions that may be implemented in response to an 'early-warning'; and • provide evidence of the effectiveness of management and corrective actions proposed to avoid, mitigate and offset impacts on Ghost bat habitat. **Annual Program Reports** will, as a minimum, report on: • Program implementation over the reporting period; • attainment of Ghost bat Program Matter Objectives and Outcomes; and • the effectiveness of management and corrective actions to avoid, mitigate and offset impacts to Ghost bat.

[1] Determined by pre-disturbance survey. Roosting habitat as described in the Conservation Advice for the Ghost bat.

[2] For the purpose of the Ghost bat, *adjacent to* means (a) within 5 kilometres from the activity and (b) to the extent of a modelled groundwater drawdown from implementing the activity.

[3] Presence is detected with evidence of Ghost bat guano, bat survey data, etc.

[4] In accordance with Section 3.2 of the Program and the Offsets Plan

3 Validation Process

3.1 Overview

A comprehensive environmental impact assessment was undertaken to provide the Minister with appropriate information to support the endorsement of the Program. This impact assessment is presented in the IAR and is based on a number of inputs such as publicly available and BHP Billiton Iron Ore data, specialist knowledge and peer review. The assessment was current at March 2016 and has been conducted at the whole of Strategic Assessment Area scale. To ensure that all activities are consistent with the Program Matter Objectives and Outcomes at the local scale and over the life of the Program, a validation process for each Notifiable Action is required.

The validation process is described in Part C of the Program. An overview of the validation process is provided in Figure 7. The process for implementing the validation process is discussed throughout this Chapter.

3.2 Decide whether a Validation Notice is required

The first step in the validation process is for BHP Billiton Iron Ore to decide whether a proposed activity is a Notifiable Action (as defined in the Program) and therefore requires a Validation Notice.

For an activity to be a Notifiable Action, the activity must:

- be within the scope of the Program; and
- meet one or more of Notifiable Action triggers.

Activities that do not require a Validation Notice will be managed in accordance with the applicable Western Australian environmental approvals legislation and BHP Billiton Iron Ore's environmental management systems.

BHP Billiton Iron Ore will report its Validation Notice decisions, including when there is a decision that an activity is not a Notifiable Action, in the Annual Environmental Report as described below (Section 8.1).

3.3 Develop Draft Validation Notice

For each Notifiable Action, a validation process is implemented to ensure the cumulative impact of the activities under the Program does not prejudice attainment of the Program Matters Objectives and Outcomes. A Validation Notice will be issued 20 business days prior to undertaking activities associated with the Notifiable Action. The matters that must be addressed in a Validation Notice are detailed in Section 8 of the Program. Notifiable Actions will vary in scale and environmental impact, so the scope of information presented in the draft Validation Notice will vary on an action-by-action basis.

Review Baseline Environmental Data

BHP Billiton Iron Ore will consider information and data related to all Program Matters related to a Notifiable Action. This consideration ensures that up-to-date data, scientific and species-management information and changes to the environment inform decision-making and are addressed in the Validation Notice.

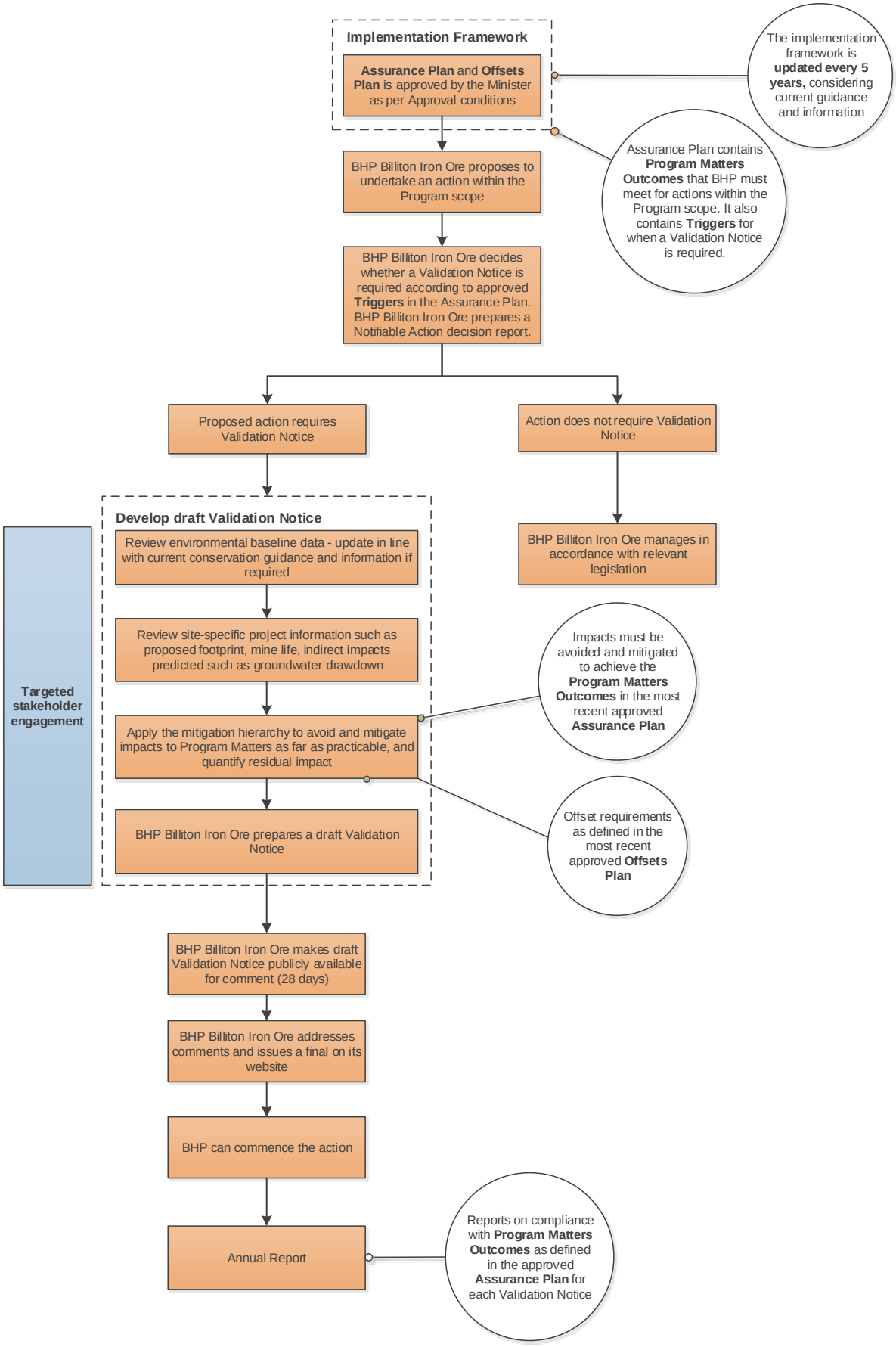

Figure 7. Validation process

BHP's tenure baseline data will be reviewed and evaluated at least every five years to ensure that the data meet the requirements set out in contemporary guidance, are reflected in revised Assurance and Offset Plans and are appropriate for identifying, assessing and managing impacts to Program Matters. Prior to undertaking a Validation Notice, BHP Billiton Iron Ore will supplement and update relevant baseline environmental data where required, including desktop reviews and on-ground surveys (including targeted surveys) where required to support the Validation Notice. Data are required to be updated in accordance with current conservation guidance and information for each Program Matter to demonstrate that the Program Matter Outcomes will be met through application of the mitigation hierarchy. Updates to baseline data will also be undertaken if the standards for collecting baseline data have changed through the review of current guidance and information in accordance with Section 7.2.

This data will be used:

- to identify Program Matters applicable to the proposed activity;
- to inform decisions on whether an activity is a Notifiable Action;
- to identify and evaluate potential direct and indirect impacts to Program Matters;
- to inform application of the mitigation hierarchy; and
- as part of a reference data set for monitoring and rehabilitation programs associated with the activity.

Review Proposed Activity Information

Where BHP Billiton Iron Ore determines that a proposed activity is a Notifiable Action, information about the proposed activity will be reviewed to consider whether the relevant Program Matters Outcomes will be met. This information will include the following:

- Proposed disturbance area with figures as appropriate;
- Proposed development timelines including staged commissioning (if any);
- Construction, mining, ore processing, handling and/or transport methods proposed;
- Process infrastructure proposed (i.e. crushing, screening, conveyors, stockyards, train load-out etc);
- Water supply source or network (raw water and potable), or water management required to access ore below the water table;
- Rail infrastructure proposed (i.e. new rail line proposed, addition to existing infrastructure such a duplication of rail, train load-out facilities, rail sidings etc); and
- any other relevant information specific to the proposed activity and Program Matters.

The activity information will be overlayed with environmental data from subsequent fauna surveys to inform the application of the mitigation hierarchy (Section 3.3.3). As a proposed activity proceeds through the planning stages, the activity information often evolves through an iterative process as decisions are informed by business processes. BHP Billiton Iron Ore will seek to avoid and mitigate impacts on Program Matters through improved project design and project planning.

Mitigation Hierarchy and Residual Impact

For each Notifiable Action, BHP Billiton Iron Ore will apply the mitigation hierarchy to ensure that Program Matter Outcomes (Section 2.4) are met. The mitigation hierarchy is to avoid, mitigate and as a last resort, offset direct and indirect impacts to Program Matters. Indirect impacts to be addressed during the validation process may include, but are not limited to, potential groundwater drawdown, changes to surface water hydrology and quality, light and

noise pollution, increased human access to bat roosts, vibration and/or impacts due to vertebrate pests/predators, and habitat fragmentation.

Impacts to Program Matters will be avoided where practicable through activity planning and design measures or placement and design of infrastructure that avoid areas of important habitat or by selecting alternative mining methods.

Impacts to Program Matters will be mitigated through measures such as the staging or timing of activities to mitigate cumulative or seasonal impacts, implementing water management controls to provide environmental flows, vertebrate pest control strategies, establishing appropriate separation distances between activity and important habitat or rehabilitation activities to provide habitat for Program Matters.

If residual impacts to Program Matters cannot be avoided or mitigated offsets will be implemented in accordance with the Offsets Plan.

BHP Billiton Iron Ore will document within the Validation Notice evidence that application of the mitigation hierarchy (including proposed offsets where required) to ensure the cumulative impact of the activities under the Program do not prejudice attainment of the Program Matters Objectives and Outcomes. The estimated residual impact, addressing direct and indirect impacts, will also be documented within the Validation Notice.

Undertake Targeted Stakeholder Engagement

BHP Billiton Iron Ore will undertake targeted stakeholder consultations during the development of the draft Validation Notice. The stakeholders consulted and level of stakeholder consultation activity undertaken will depend on the location, complexity, size and risk of the particular activity, and the level of stakeholder interest indicated from ongoing stakeholder engagement.

Key regulatory authorities, including the Department, will be consulted during the development of the draft Validation Notice, including on the application of current guidance and information, management options and the measures to offset any potential residual impact.

BHP Billiton Iron Ore will advise interested parties on the stakeholder register (as described in Section 5.1) of the proposed submission, including a description of proposed activities of the Notifiable Action, the potential impacts on the Program Matters and the proposed management approach. BHP Billiton Iron Ore will also continue engaging with community members, Traditional Owners and other interested parties during routine consultation activities (such as community consultation group meetings and Native Title group committee meetings) during the development of the draft Validation Notice.

The draft Validation Notice will include a summary of the issues raised during stakeholder engagement and explain how the issues have been addressed.

3.4 Make Draft Validation Notice Publicly Available

The draft Validation Notice will be made available on BHP's website (or equivalent) for a period of 28 days along with instructions on how to make comment on the document. Interested parties will be advised when each draft Validation Notice is made available.

3.5 Address Public Comments and Issue a Final Validation Notice

BHP Billiton Iron Ore is required under the Program to consider comments received on the draft Validation Notice prior to issuing a final Validation Notice. BHP Billiton Iron Ore will document how the comments have been addressed and include a summary of this in the final Validation Notice.

3.6 Variation to a Validation Notice

Under the Program, BHP has the option to review and revise a Validation Notice, following the same process as for issuing a Validation Notice. The need for a variation to a Validation Notice could, for example, be triggered by a change in the scope of the activity prior to full implementation or change in the risk of meeting Program Matter Outcomes.

3.7 Commencement of the Action

Where BHP Billiton Iron Ore has issued a Validation Notice, the action must commence within five years of the date of the Notice. If the notifiable action has not substantially commenced within the five-year timeframe, then the Approval Holder must not implement the action until either:

- The Department authorises commencement of the action by BHP Billiton Iron Ore or the Approval Holder; or
- BHP Billiton Iron Ore issues a new Validation Notice for that action in accordance with this Program. This process extends the commencement timeframe for another five years.

4 Adaptive Implementation

As outlined in the Program, adaptive management is a key principle for BHP Billiton Iron Ore's management of impacts to Program Matters. It is a systematic process for continually improving management practices and performance through monitoring, evaluation and corrective action.

Fundamental to the Program's adaptive implementation approach are the Assurance Plan and Offsets Plan and the review processes described in Section 7. Adaptive management embedded in this Assurance Plan ensures that management of Protected Matters continues to be effective throughout implementation of the Program.

Key aspects of the approach are shown in Figure 7 and include:

- Triggers and thresholds identified in the Assurance Plan (Section 2.4) for each Program Matter;
- The validation process triggered by a Notifiable Action. The validation process includes:
    - A review of up-to-date baseline data and environmental information relevant to the proposed activity;
    - Identification of management triggers, contingency responses and corrective actions where appropriate;
    - Application of the mitigation hierarchy;
    - Stakeholder engagement; and
    - Finalisation of a Validation Notice.
- Conducting research activities to improve the understanding of Program Matters, for example, undertaking a research program on the behaviour and roosts of Ghost bats.
- Monitoring and annual reporting during implementation of the activities over the life of the Program. This will include the effective coordination, scheduling, auditing and reporting on Program activities to maximise continuous improvement opportunities;
- Five yearly and voluntary technical reviews of the Assurance Plan and Offsets Plan which will be informed by new science and policy advice, contemporary guidance, new listings, new EPBC Act protected matters, Validation Notice outcomes, monitoring and reporting data from implemented activities, and data from existing BHP Billiton Iron Ore projects. These reviews will include review of Program Matter Objectives and Outcomes.
- The Five yearly review will also include a review of key risks to the effective implementation of the Program. The review will also consider monitoring and precautionary corrective actions to mitigate reasonably foreseeable long-term risks. An example of a strategic risk is the expanding distribution of cane toad in northern Western Australia and the associated impacts on native fauna; and
- Based on these reviews, the Assurance Plan and Offsets Plan will be updated and submitted to the Minister for approval.

Adaptive management also includes the implementation of corrective actions if environmental monitoring or reviews indicate that Program Matter Outcomes may not be met and to ensure that the Implementation and Validation Framework remains fit for purpose over the life of the Approval Decision. Corrective actions may include modification of the Assurance Plan, Offset Plan and Validation Notice, in addition to on-ground actions, to ensure Program Matter Outcomes are met. Corrective action will be determined on an action-by-action basis, taking into account the location and impacts associated with the activity undertaken.

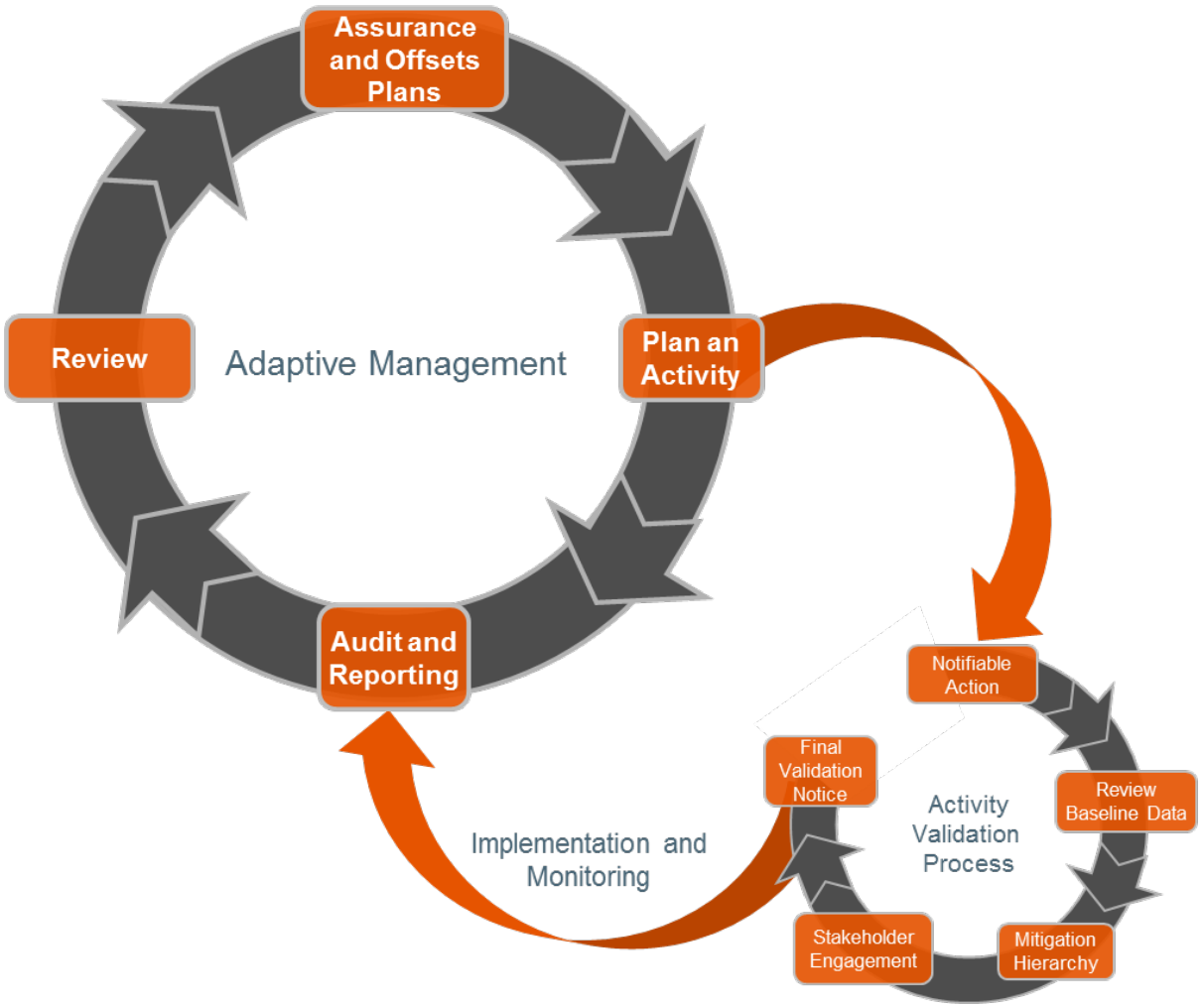

Figure 8. The Pilbara Strategic Assessment Adaptive Management Process

5 Consultation and Public Information

5.1 Stakeholder Consultation

BHP Billiton Iron Ore is required to maintain a register of interested parties for the purpose of stakeholder consultation. Interested parties have been identified through the formal Strategic Assessment public consultation period or have self-identified after the consultation period. Members of the community and groups are able to self-identify through local stakeholder engagement activities such as Community Consultative Groups in Port Hedland and Newman, and regular meetings with Traditional Owner groups and non-government organisations, or through www.bhpbilliton.com/contact. The BHP Billiton Iron Ore community team will advise on any enquiries or requests to be included in stakeholder engagement activities relating to the Strategic Assessment.

Relevant Western Australian regulatory agencies, including the Department of Water and Environmental Regulation, the Department of Biodiversity, Conservation and Attractions and the Department of Mines, Industry Regulation and Safety or equivalent departments are included on the register of interested parties.

BHP Billiton Iron Ore is responsible for undertaking a five-yearly review of the Assurance Plan and the Offsets Plan (see Section 7). BHP Billiton Iron Ore is required to undertake stakeholder engagement during the preparation of the revised Plans and to make publicly available any revised draft Assurance Plan and Offsets Plan for a period of 28 days and provide instructions on how to provide comment. BHP Billiton Iron Ore is also required to consider comments on these documents prior to submission to the Department for approval.

BHP Billiton Iron Ore must publish the approved Assurance Plan and Offsets Plan on its website within one month of receiving the Minister's written approval of the Assurance Plan and Offsets Plan.

5.2 Engagement with the Department

Prior to issuing a draft and final Validation Notice, BHP Billiton Iron Ore will consult with the Department to advise the nature of the proposed activity, any comments from stakeholder consultation and the proposed timing for issuing the Validation Notice and activity commencement dates.

Prior to issuing the five yearly and voluntary Assurance Plan reviews as detailed in Section 7, BHP Billiton Iron Ore will also consult with the Department on the review process and seek from the Department contemporary information relevant to the reviews and Program Matters, and input on any improvements to Program Matter Objectives and Outcomes and notifiable action triggers. A record of any comments from stakeholder engagement on these documents, as discussed above, and how they have been addressed within the Assurance Plan and Offsets Plan will be provided to the Department when the revised Plans are submitted for approval by the Minister.

BHP Billiton Iron Ore will also provide the Department with a copy of the Annual Environmental Report as detailed in Section 8.1.

6 Authorisation Process

The Program requires BHP Billiton Iron Ore to have in place an authorisation process to inform any person that they authorise, permit or request to undertake an activity of their obligations under the Program.

The Iron Ore Projects Environmental Standard *Delivery Criteria – Environment*, set out the minimum environmental criteria that must be met in delivery of BHP Billiton Iron Ore projects and applies to all project delivery teams responsible for execution of projects and any contractors or sub-contractors directly engaged to undertake project delivery activities.

The Standard requires a Project Environmental Management Plan (PEMP) be prepared prior to and implemented for the duration of each activity. The BHP Billiton Iron Ore Project Manager is responsible for preparation, implementation and ongoing review/update of the PEMP. The BHP Billiton Iron Ore Project Manager may assign the responsibility to prepare the overall PEMP to a contractor which is appointed by BHP Billiton Iron Ore to oversee the completion of the activity, however, in such circumstances the BHP Billiton Iron Ore Project Manager will remain accountable for ensuring a PEMP is in place which is fit-for-purpose, effective and compliant with this Standard.

The Standard requires the contractor or sub-contractor identify applicable environmental legislation and statutory approvals, to establish and maintain a project obligations register, to implement an effective tracking system of compliance and to track compliance status against legal or other obligations which will be reviewed on a monthly basis. The BHP Billiton Iron Ore Project Manager is responsible for ensuring the contractor is aware of all their environmental obligations, including those under the Program, and to review the project obligation register.

7 Audit and Review

7.1 Compliance Tracking and Auditing

BHP Billiton Iron Ore will track compliance against the Approval conditions and Program commitments at a regional scale and against Validation Notices at a local / site-scale. The validation process described in Section 3 ensures that Program Matter Outcomes will be achieved through implementation of the mitigation hierarchy.

The Company maintains an ISO 14001 compliant Environmental Management System which is independently certified. BHP Billiton Iron Ore has set out its approach to managing environmental compliance and risk in its internal procedure *How we Manage Environmental Compliance and Risk.* The processes defined in this procedure have been developed to comply with the requirements of Clause 4.3.1 of ISO 14001 Environmental Management Systems. The procedure applies to all environment risks / impacts whether strategic, operational, compliance or technical in nature.

Key processes outlined in the procedure include:

- Risk management;
- Baseline and impact assessment;
- Legal and corporate obligations;
- Land disturbance approval process; and
- Internal and external audits.

BHP Billiton Iron Ore currently use the software package CMO online database tool to administer and report against its legal and corporate obligations. The process used to report on legal and corporate environmental obligations to both internal and external stakeholders is described in a separate procedure, *How We Report Environmental Compliance and Risk*.

The controls for environmental risk are verified through both internal and external audits. BHP Billiton Iron Ore will also conduct regular compliance audits and will report the outcomes in the Annual Environmental Report, described further in Section 8.1. External audits undertaken by the Western Australian Department of Mines, Industry Regulation and Safety and the Department of Water and Environmental Regulation on specific approvals, permits, management plans, licenses or facilities are typically undertaken on a biennial basis. BHP Billiton Iron Ore typically undertakes selective internal audits on individual operations, internal assurance processes (monitoring and reporting data, corporate policy compliance, procedures) and sustainability reporting on an annual basis.

In line with Approval conditions, independent compliance audits will be conducted by BHP Billiton Iron Ore, or as requested by the Minister. If the audit is requested by the Minister, the terms of reference for audits are to be approved by the Minister prior to the commencement of the audit, and the report will address the criteria to the satisfaction of the Minister.

7.2 Five Yearly Review of this Assurance Plan

In accordance with the EPBC Act, BHP Billiton Iron Ore will consider the following plans and advice as they apply to relevant MNES:

- threat abatement plans;
- conservation advice;
- recovery plans; and/or

- equivalent guidance material.

The above documents will be considered in determining the suitability of baseline information, evaluating cumulative impact, demonstrating application of the mitigation hierarchy, quantifying impact, the effectiveness of the Program and confirming that the Program Matter Outcomes will be met if the Notifiable Action is taken.

The review will include any improvements to the Program Matter Objectives and Outcomes.

Should guidance material relevant to a particular activity be released after the date of a Validation Notice for a particular Notifiable Action issued to the Department, BHP Billiton Iron Ore is not required to consider that guidance in taking the activity but may have regard to that material in implementation of the action where practicable and possible.

In addition to current guidance, other information may be considered during the review process. For example, should cane toads become established in the Pilbara region and create a change in threat level to northern quoll populations in the central Pilbara, the change may be relevant in considering the cumulative impact of activities under the Program to this species.

Listing advice is released from the Department periodically advising whether a listing event has created a new MNES, or affected an existing MNES under the EPBC Act. Under the Program, BHP Billiton Iron Ore has voluntarily committed to consider these new listing events as relevant to the Controlling Provisions.

In line with the five yearly review of the Assurance Plan, BHP Billiton Iron Ore will identify whether in the preceding five years, there have been any New Listings (that is, newly listed threatened species or ecological communities existing species that have been included in a higher endangerment category) which may be significantly impacted by activities undertaken in accordance with the Program.

If there are any New Listings identified in these reviews, BHP Billiton Iron Ore will:

- update the Assurance Plan to include objectives and outcomes for the New Listings: and,
- if any residual adverse impacts on New Listings are identified, update the Offsets Plan.

BHP Billiton Iron Ore will voluntarily undertake to implement the Assurance Plan and Offsets Plan as they apply to New Listings as if those New Listings were Program Matters.

7.3 Voluntary Consideration of New Matters

At Year 35 (from the date of Approval), BHP Billiton Iron Ore will identify if there are any New Matters that may be significantly impacted by activities undertaken in accordance with the Program.

- If any New Matters are identified, BHP Billiton Iron Ore will revise the Assurance Plan to include objectives and outcomes for the New Matters and, accordingly, if any additional residual adverse impacts on New Matters are identified, revise the Offsets Plan.

BHP Billiton Iron Ore will implement the Assurance Plan and Offsets Plan to protect New Matters as if those New Matters are Program Matters.

8 Reporting

8.1 Annual Environmental Report

BHP Billiton Iron Ore produces an Annual Environmental Report for all of its environmental obligations under State and Commonwealth legislation.

As a minimum, the Annual Environmental Report will contain:

- Notifiable Actions identified under the Program during the period covered by the report;
- Details of activities within the scope of the Program which were commenced during the period covered by the report but were determined not notifiable;
- Status of implementation (planned start date, action commenced and planned completion date; and action completed) of all Notifiable Actions;
- Assets divested through the process described in Section 2.1 of the Program;
- Status of offsets implemented for each Notifiable Action;
- Disturbance areas associated with all actions, whether material or non-material, implemented since the Approval. Both the annual disturbance and the total disturbance (since the Approval) will be included.
- The outcomes of compliance audits undertaken during the period covered by the report will be included;
- Summary of any exceedances of the Program Matter Outcomes relevant to each Notifiable Action, and corrective actions taken; and
- deviations from the Program or from information and management commitments contained in a Validation Notice for a Notifiable Action.

The Annual Environmental Report will also include the outcomes of the five yearly reviews as described in Section 7.2. where these reviews occur within the reporting period.

8.2 Notifiable Action Decisions

The decision-making process for Notifiable Actions is described in Section 3.2. Reports that outline the basis for Notifiable Actions decision will be produced each time BHP Billiton Iron Ore makes a decision on whether or not an action is a Notifiable Acton. The Notifiable Action decisions reports will be retained by BHP Billiton Iron Ore and made available to the Department for auditing purposes.

9 Governance

BHP Billiton Iron Ore has an internal environmental governance hierarchy (Figure 9) that enables the business to meet its environmental objectives and legal compliance requirements and provides for continual improvement in environmental performance. The governance hierarchy has been developed in accordance with relevant international, national and state policies and agreements.

BHP Billiton's environmental governance hierarchy comprises three tiers: Corporate level, Asset level (business, e.g. Iron Ore) and Operations (site level). At the Corporate level, BHP Billiton's Corporate Charter – *Our BHP Billiton Charter* – identifies the values that underpin business activities. Measurable, minimum performance standards are defined in Our Requirements documents. These standards apply to all Assets and support the development and implementation of BHP Billiton Iron Ore's EMS. BHP Billiton's *Our Requirements Environment and Climate Change* (BHP Billiton, 2016c) is the key guidance document for environmental management across all operations. BHP Billiton reports its corporate-wide sustainability performance in the BHP Billiton Annual Sustainability Report.

At the Asset level, BHP Billiton Iron Ore's Health, Safety and Environmental Management System (EMS), which includes regional strategies and plans, is the governance system that addresses environmental outcomes for the Pilbara region.

Site-specific management, monitoring and reporting is undertaken in a manner consistent with Corporate- and Asset-level governance documents. Management plans, procedures and registers are examples of the internal controls that underpin day-to-day operational activities. BHP Billiton Iron Ore publicly reports its environmental compliance performance in its AER in accordance with relevant environmental approval conditions.

The BHP Billiton Iron Ore Manager Approvals is responsible for implementing the Assurance Plan. This responsibility includes:

- Determining whether an activity is a Notifiable Action as set out in Section 2.4;
- Approval to issue draft and final Validation Notices as set out in Section 3.3;
- Approval of responses to public comments on the draft Validation Notices as set out in Section 3.4.; and
- Preparation of the Annual Environmental Report.

The BHP Billiton Iron Ore Project Manager is responsible for implementation, audit and review of the land disturbance procedure.

The President BHP Billiton Iron Ore is responsible for approving the Annual Environmental Report.

BHP Billiton Iron Ore will ensure these governance roles are undertaken by suitably qualified senior BHP personnel in the future in the event of any organisational or structural changes.

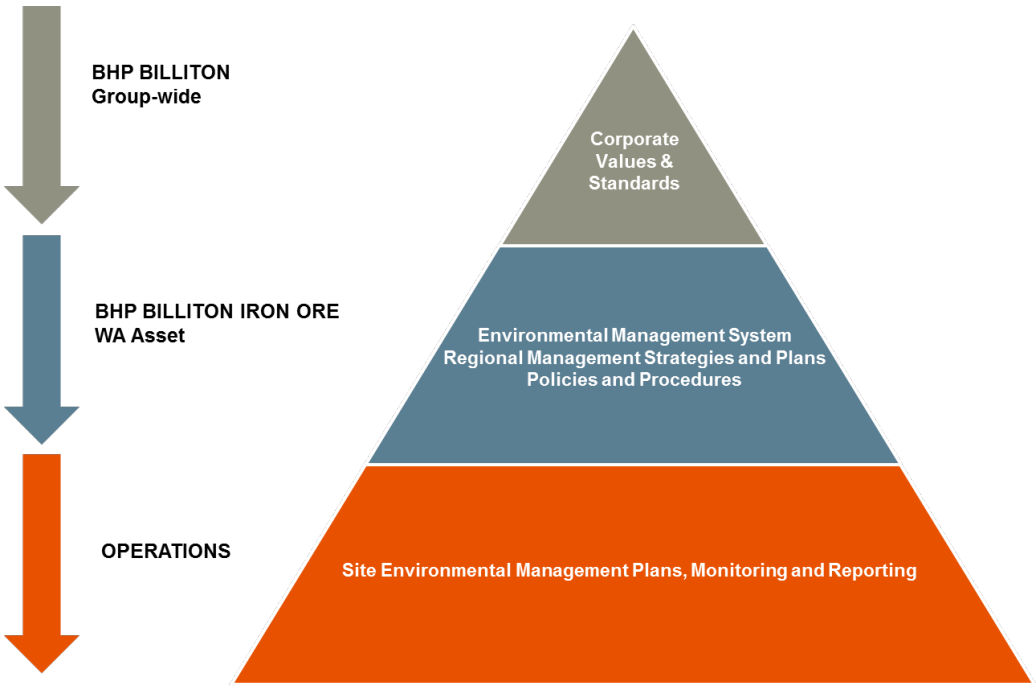

Figure 9: BHP Environmental Governance Hierarchy

10 Data Management and Sharing

10.1 Data Management

BHP Billiton Iron Ore has a number of internal procedures in place for the collection, management and storage of biodiversity data related to the implementation of the Program.

The procedure *Biodiversity Survey Spatial Data Requirements* ensures that all biodiversity survey data is submitted to BHP Billiton Iron Ore in a standard and consistent format, enabling effective QA/QC and efficient upload into BHPBIO systems. Effective data standards enable comparison and analysis of data between survey areas and within areas over time. The procedure sets out requirements for:

- Provision of raw data;
- Provision of spatial (GIS) data using survey data templates;
- Biodiversity survey templates which enable automated importation into BHP Billiton Iron Ore's GIS database;
- Vegetation and flora survey standards to ensure consistency of survey methodology across different surveys; and
- Vertebrate fauna survey standards.

The Superintendent HSE Biodiversity has responsibility for governance and custody of biodiversity data.

The procedure *How we report environment compliance and performance* sets out requirements for environmental data verification and assurance and reporting of environmental monitoring data.

Under the procedure, all data required for environmental compliance and risk needs to be checked, verified and audited by the site Environment Specialists to provide adequate assurance and maintain data integrity. The frequency of verification of different data types is based on risk. The process for entry and storage of verified data is set out in the procedure.

The reporting requirements set out in the procedure include:

- An annual review of the site monitoring register and the guideline trigger values to ensure the program is efficient, risk based and meets compliance requirements;
- Environmental monitoring and measurement equipment is to be maintained / calibrated / verified in accordance with manufacturer's specifications;
- Verify source data integrity – determine if the data from a sampling point has been mapped against the correct data program, data type, test methods and units of measurement are accurate;
- Source monitoring data is analysed against trigger values, trends and outliers, and in consideration of the target environmental outcomes; and
- An investigation is required for any values that are above triggers and thresholds.

10.2 Data Sharing

BHP Billiton Iron Ore has provided the Western Australian Department of Biodiversity, Conservation and Attractions and the Environmental Protection Authority with the biodiversity data (including spatial data) used in the preparation of the Strategic Assessment and the State Strategic Proposal.

BHP Billiton Iron Ore, along with Western Australian Universities, CSIRO, WA Museum and key State government departments, has also been a foundation member on the Western Australian Biodiversity Science Institute (WABSI) Steering Committee since its formation in 2013. WABSI has been established to help identify and prioritise the State's critical biodiversity knowledge gaps; to foster research and end-user collaborations and partnerships to address these gaps; and to facilitate the communication and up-take of research findings.

The Institute has four research nodes:

- Information Management
- Biodiversity Survey
- Biodiversity Processes and Threats
- Restoration and *Ex-situ* Conservation

The Information Management Node will focus on developing an information system to facilitate aggregation, interpretation and access to biodiversity data held by government, industry and research agencies. BHP Billiton Iron Ore has committed to making its biological data available to WABSI through the Information Management Node once the systems are operational.

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