BHP

Pilbara Strategic Assessment

Assurance Plan and Offsets Plan

Revision 2.3

FINAL

9 May 2023

Revision	Date	Description	Prepared	Reviewed	Approved
0	10/05/2018	Assurance Plan prepared to meet requirements of Strategic Environmental Assessment Program and approved by the Federal Minister for the Environment	BHP	DAWE	BHP WAIO Manager Environment Federal Minister for Environment
1_G	07/11/2022	For Public Comment Draft Revised Assurance Plan and Offsets Plan prepared to meet the requirements for a 5 yearly review under the Strategic Environmental Assessment Program	WAIO Environment Approvals	WAIO Environment Approvals	BHP WAIO Manager Environment BHP WAIO Head of HSE
1	16/12/2022	Assurance Plan and Offsets Plan prepared to meet requirements of Strategic Environmental Assessment Program	WAIO Environment Approvals	WAIO Environment Approvals	BHP WAIO Manager Environment
2	14/03/2023	Revised Assurance and Offset Plan to address recommendations from the Minister (Ref MS23-000012)	WAIO Environment Approvals	WAIO Environment Approvals	BHP WAIO Manager Environment
2.1	16/03/2023	Minor amendment to Section 15 Commencement of Offset	WAIO Environment Approvals	WAIO Environment Approvals	BHP WAIO Manager Environment
2.2	6/04/2023	Minor amendment to Section 7.3 Apply Mitigation Hierarchy	WAIO Environment Approvals	WAIO Environment Approvals	BHP WAIO Manager Environment
2.3	9/05/2023	Inclusion of reference to Greater Bilby Recovery Plan (DCCEEW 2023) and revised home range for Northern Quoll	WAIO Environment Approvals	WAIO Environment Approvals	BHP WAIO Manager Environment

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
Assurance Plan	A plan that is part of the implementation framework to enable effective delivery of the Program and which defines the governance processes to ensure that all BHP activities within the Strategic Assessment Area are undertaken 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	'Commence' is defined in the Program. For the avoidance of doubt, and consistent with section 8 of the Program, the term 'preparatory works' used in that definition relates to notifiable actions only and does not preclude BHP from undertaking early works that would not have meet a Notifiable Action Trigger Commencement of the action does not include minor physical disturbance necessary to: i. undertake pre-clearance surveys or monitoring programs ii. install signage and/or temporary fencing to prevent unapproved use of the development envelope iii. protect environmental and property assets from fire, weeds, and pests, including installation of temporary fencing, and use of existing surface access tracks iv. install temporary site facilities for persons undertaking pre-commencement activities so long as these are located where they have no impact on the protected matters
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 (currently the Department of Climate Change, Energy, Environment and Water)
DCCEEW	The Department of Climate Change, Energy, Environment and Water or successors
Decision Notice	A non-statutory process administered by BHP Billiton Iron Ore under Part C of the endorsed Program
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)
Effective date of Implementation of the Approval	19 June 2017

Term	Meaning
Existing disturbance baseline	Disturbance as at 19 June 2017
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
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 – when they apply	Offsets apply to any Notifiable Action taken under the endorsed Program that has a residual adverse impact following avoidance and mitigation measures
Offsets Plan	A plan that is part of the implementation framework to enable effective delivery of the Program and which provides further detail on the processes that will be implemented to identify and deliver offsets associated with the residual impacts of 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 Pilbara Leaf-nosed Bat (*Rhinonicteris aurantius*), Northern Quoll (*Dasyurus hallucatus*), Greater Bilby (*Macrotis lagotis*), Ghost Bat (*Macroderma gigas*), Olive Python (Pilbara subspecies) (*Liasis olivaceus barroni*), Grey Falcon (*Falco hypoleucos*) and Night Parrot (*Pezoporus occidentalis*)
Program Scope: Exclusions – previously approved areas	See section 2.3 of the Program
Program Scope: Description of Activities	As set out under the 'approved class of actions' section of the Approval decision notice (19 June 2017) and section 2 of the Program

Term	Meaning
Upper Disturbance Limit	The Upper Disturbance Limit is described in section 2.4 of the Program. For the avoidance of doubt, and in accordance with section 5 of the Program, only activities that are within the scope of the Program (i.e. those that BHP decides are Notifiable Actions or are not Notifiable Actions) will count towards the maximum upper disturbance limit of 110,000 hectares
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

Contents

Purpose and Structure of Document

This document has been prepared by BHP Billiton Iron Ore (BHP) to meet the key requirements of the Pilbara Strategic Assessment Program (2018) (the Program) and its implementation and review framework. It consists of three parts:

- Part A: Strategic Assessment overview, including:
    - Strategic Assessment process and approval
    - scope of approval and implementation framework.
- Part B: Assurance Plan, including:
    - Program Matters that may be impacted by activities within the scope of the Program
    - Objectives and Outcomes for the Program Matters
    - the process for implementing and validating the Program
    - the process for adaptive management and corrective action
    - an authorisation process for activities
    - data management and sharing
    - compliance audit and reporting requirements
    - process for regular and ongoing stakeholder engagement, including engagement with the Department
    - governance arrangements to deliver the above.
- Part C: Offsets Plan, including:
    - Program Matter Outcomes to be achieved
    - calculation of residual impacts and associated offset outcomes
    - tracking offsets over time
    - monitoring, reporting and adaptive management processes
    - timeframes and responsibilities for implementation
    - funding schedule and financial arrangement
    - governance arrangements to deliver the above.

Part A: Strategic Assessment Overview

1 Pilbara Strategic Assessment, Approval Overview and Implementation Framework

1.1 Approval Overview

BHP developed the Program in accordance with an agreement dated 18 September 2012 between the then Minister for the Environment and Energy (the Minister) and BHP to undertake a strategic assessment of the impacts of mining iron ore in the Pilbara region of Western Australia. The Program provides a strategic assessment overview for its activities within a defined Strategic Assessment Area (SAA) as shown in Figure 1.1, an implementation and review framework based on an Assurance Plan and Offsets Plan, and validation to demonstrate that BHP has met the requirements of the Program for its activities. The Program was endorsed by the Minister on 11 May 2017 and an Approval Decision (the Approval) for taking actions in accordance with the Program was issued on 19 June 2017.

Part B (Implementation and Review) of the Program required the preparation of an Assurance Plan and an Offsets Plan by BHP. These plans were approved by the Minister of Environment on 11 May 2018. Section 4 of the Program requires BHP to review these plans every five years from the date of the Approval, which also includes a voluntary consideration by BHP of any New Matters that should be included (refer section 8.12 and 8.12.2 of this document).

A review of the plans was undertaken in 2022 and this document represents the revised version of the original Assurance Plan and Offsets Plan prepared and approved in 2018. Implementation of these plans is supported by the BHP Validation Notices, Offsets Proposals and Decision Reports.

1.2 Approval 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 (19 June 2017), subject to the review and adaptive implementation requirements defined in section 4 of the Program. Any activity that has not commenced prior to Year 70 from the date of the Approval is not included with the scope of the Program. The Assurance Plan and Offsets Plan, prepared in accordance with Part B of the Program, as varied from time to time, will therefore have effect for 100 years from the date of the Approval.

1.3 Scope of Approval and Implementation Framework – Assurance Plan and Offsets Plan

The Program implementation framework provides the processes that enable effective delivery of the Program throughout its life. The framework is comprised of two plans: the Assurance Plan (Part B of this document) and the Offsets Plan (Part C of this document). These plans apply to all activities within the scope of the Program taken within the SAA (Figure 1.1) as described further below.

The Program applies to:

- all activities (as defined in section 2.5 of the Program) associated with assets of BHP within the SAA with the exclusion of those noted below

- all activities associated with assets divested by BHP for which a Validation Notice has been issued.

The Approval does not apply to the following actions within the SAA:

- activities in any existing National Park, including Karijini National Park
- activities associated with any existing BHP 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'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.

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ASSURANCE PLAN AND OFFSETS PLAN

Location of the Strategic Assessment Area

N

0 25 50 75 100

Kilometres

Date:	3/11/2022	Project No:	A1108/027	Figure: 1.1
Prepared:	Spatial Data	Checked:	Env Approvals	

- Major Roads
- Current Rail
- BHP Full Conceptual Development Scenario
- National Park and Nature Reserve
- Strategic Assessment Area (SAA)

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Part B: Assurance Plan

2 Purpose and Plan Requirements

2.1 Purpose

The purpose of the Assurance Plan is to define the governance processes to ensure that all activities are undertaken in accordance with the Program, and specifically to ensure that all activities are consistent with the Program Matters Outcomes at the local scale and over the life of the Program.

2.2 Assurance Plan Requirements

Section 3.1 of the endorsed Program specifies the requirements for and content of the Assurance Plan. Table 2.1 outlines these requirements and cross references to sections of this document which address these.

Table 2.1: Assurance Plan Requirements

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

3 Program Matters

Protected matters that are relevant to the Program as at the date of the Approval (subject to section 4.1.1 of the Program), are referred to as Program Matters. The Program Matters included in the Assurance Plan and Offsets Plan approved in 2018 are:

- Greater Bilby (*Macrotis lagotis*)
- Pilbara Olive Python (*Liasis olivaceus barroni*)
- Pilbara Leaf-nosed Bat (*Rhinonicteris aurantia*)
- Northern Quoll (*Dasyurus hallucatus*)
- Ghost Bat (*Macroderma gigas*).

In accordance with section 4.1.2 of the Program, BHP voluntarily undertook a review in 2022 to identify whether there have been any newly listed threatened species or existing species that have been included in a higher management category, which may be significantly impacted by activities taken in accordance with the Program. On this basis, the following Program Matters have been voluntarily added to this revised plan:

- Grey Falcon (*Falco hypoleucos*)
- Night Parrot (*Pezoporus occidentalis*).

BHP has documented the process for identifying the Program Matters that have been included in this revised plan in its Five Yearly Review Report (BHP, 2022). Appendix 1 summarises the listing amendments to the Threatened Species List relevant to Program Matters.

4 Program Matters' Objectives

BHP has developed the following objective for each of the Program Matters based on the Department's *Standards for Accreditation of Environmental Approvals under the EPBC Act* (2014) and in consultation with the Department (section 3.1.1 of the Program):

> *'To support the long-term persistence and viability of the (insert Program Matter) within the strategic assessment area'.*

The Approval Holder shall achieve the objective for each Program Matter by implementing the Program in accordance with Program Matter Outcomes defined in this Assurance Plan (Section 5).

The Program Matter Objectives (see section 3.1.1 of the Program):

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

Table 4.1 summarises how the Program Matter Objectives will meet the environmental standards stipulated by the Program through the implementation of the Assurance Plan.

Table 4.1: Environmental standards for Program Matter objectives and requirements to be met by Assurance Plan

Environmental Standard	Requirement	How Assurance Plan will address
The Commonwealth Government's objective for the Controlling Provision Listed threatened species and ecological communities	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	Implementation of Assurance Plan to meet Program Matter Objectives and Outcomes will ensure environmental considerations are effectively addressed, over the long term. Validation process (Section 7) and application of mitigation hierarchy is used to inform measures to avoid, mitigate and offset impacts to Program Matters. Review process (Section 8) is designed to ensure that new guidance and information are considered by BHP.
Principles of Ecological Sustainable Development	Integration Principle: Impact assessment and decision-making processes effectively integrate both long-term and short-term economic, environmental and social considerations	Implementation of Assurance Plan to meet Program Matter Objectives and Outcomes will ensure environmental considerations are effectively addressed, over the long term. Validation process (Section 7) and application of mitigation hierarchy is used to inform measures to avoid and mitigate impacts to Program Matters. Stakeholder engagement to consider environmental concerns of future generations in decision making (Sections 7 and 8).

Environmental Standard	Requirement	How Assurance Plan will address
	Precautionary Principle: 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	Review process (Section 8) is designed to ensure that new guidance and information are considered by BHP. Validation process (Section 7) and application of mitigation hierarchy is used to inform measures to avoid, mitigate and offset impacts to Program Matters.
	Principle of Intergenerational Equity: The present generation should ensure that the health, diversity, and productivity of the environment is maintained or enhanced for the benefit of future generations	Implementation of Assurance Plan to meet Program Matter Objectives and Outcomes will ensure environmental considerations are effectively addressed, over the long term. Stakeholder engagement to consider environmental concerns of future generations in decision making (Sections 7 and 8). Review process (Section 8) is designed to ensure that new guidance and information are considered by BHP.
	Biodiversity Principle: The conservation of biological diversity and ecological integrity be a fundamental consideration in impact assessment and decision-making	Validation process (Section 7) will ensure that conservation of biodiversity and ecological integrity are central to planning and implementing Program activities. Stakeholder engagement to consider environmental concerns of future generations in decision making (Sections 7 and 8).
	Valuation Principle: Improved valuation, pricing and incentive mechanisms should be used to enable environmental factors to be included in cost-benefit assessment	Validation process (Section 7) uses updated baseline data and detailed mine planning information, to validate the quantum of impact and inform the application of the mitigation hierarchy to meet the Program Matter Outcomes.

5 Program Matters' Outcomes

This section describes outcomes for each of the Program Matters that will inform BHP's management approaches for activities implemented under the Program. These outcomes are based on the information presented in the Strategic Assessment Impact Assessment Report (IAR), the latest species information (distribution, ecology, habitat and threats), recent conservation advice, relevant guidance, contemporary surveys and ongoing monitoring and research undertaken as part of BHP's continuous improvement program. New information for each Program Matter is presented in the Five Year Review Report (BHP 2022 - Section 6).

Collectively, these Program Matter Outcomes will be achieved through implementation of the mitigation hierarchy through the development of either a Decision Report (for Non-Notifiable Actions), or through the development of a Validation Notice (for Notifiable Actions), and will apply for the length of the Strategic Assessment approval, that is, 100 years.

A Notifiable Action, requiring the preparation of a Validation Notice, is an activity that is considered likely to impact on a Program Matter based on the proposed activity meeting one or more of the triggers defined in this Assurance Plan. The process for determining whether an activity is a Notifiable Action, and the validation process implemented to ensure the cumulative impact of the activities under the Program continue to meet the Program Matter Outcomes are discussed in Sections 6 and 7 of this document.

Notifiable Action triggers for each Program Matter are presented in relation to Program Matter Outcomes in the following sections.

The circumstances in which impacts on the Program Matters will be able to be avoided, mitigated and/or offset will vary with each Program Matter and on an activity-by-activity basis, as Notifiable Actions will vary in scale and environmental impact. The scope of information presented in the Validation Notice will therefore vary on an activity-by-activity and species-by-species basis.

The demonstration that Program Matter Outcomes have been met following application of the mitigation hierarchy, will be by implementation of a range of species-specific data driven performance targets tailored to each activity and Program Matter.

The demonstration of Program Matter Outcomes will be captured in four ways:

- Decision Reports (Section 6.2) for actions that do not exceed the Notifiable Action trigger for a Program Matter (and therefore are not Notifiable Actions)
- Validation Notices for Notifiable Actions (Section 7)
- Annual Environmental Reporting (Section 8.10)
- Five Yearly Review (Section 8.12).

5.1 Greater Bilby (*Macrotis lagotis*)

The Greater Bilby is a small nocturnal burrowing marsupial that is restricted to the arid regions of central Australia and is listed as Vulnerable under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and the *WA Biodiversity Conservation Act 2016* (BC Act).

The current distribution of Greater Bilby records in the SAA at the time of this Assurance Plan is shown on Figure 5.1. Current background information including species description and conservation status, species distribution, ecology and habitat for the Greater Bilby is summarised in the Five Yearly Review Report (BHP 2022 - Section 7). Critical and supporting habitats for the Greater Bilby are described in Table 5.1.

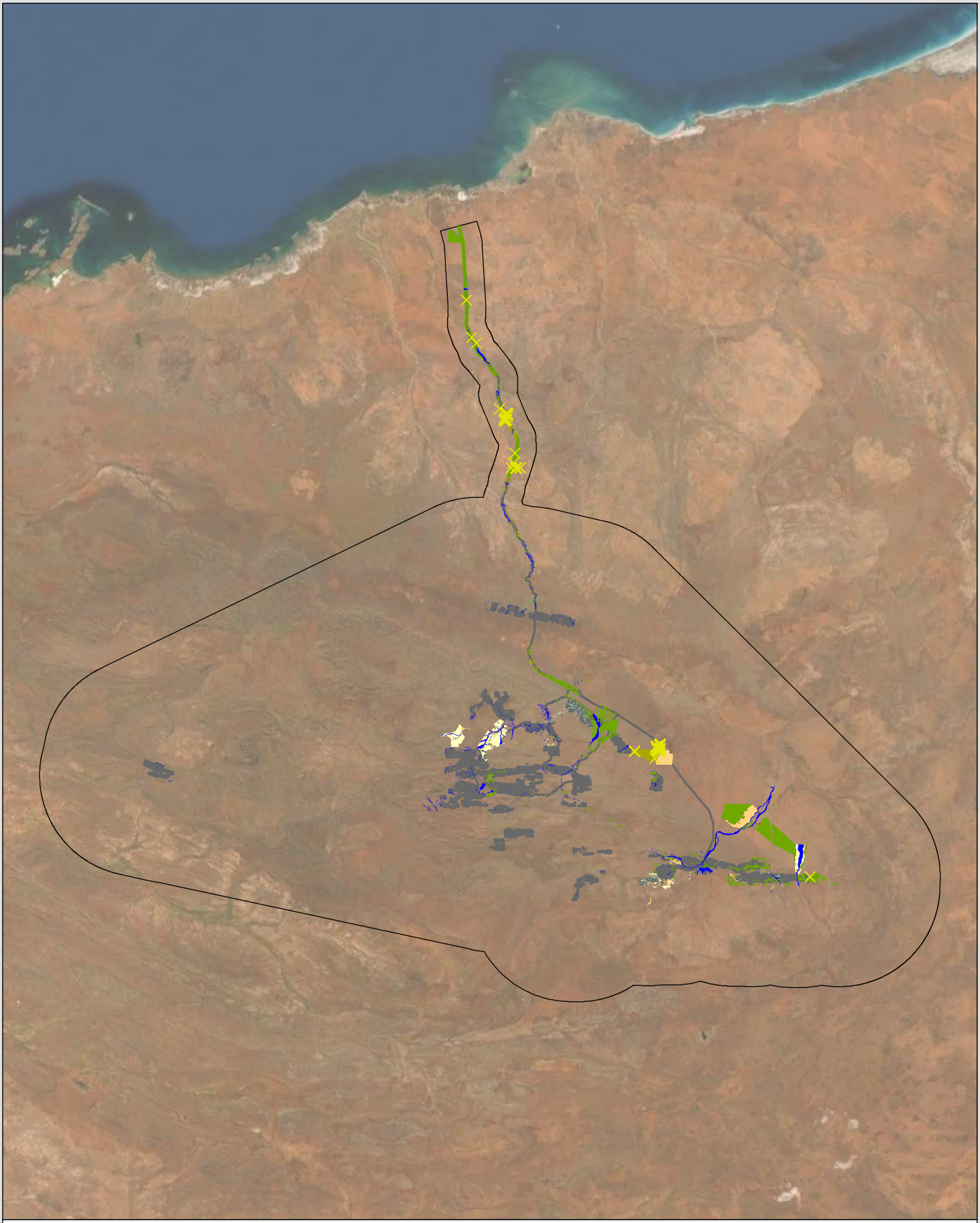
Program Matter Outcomes and Notifiable Action triggers for the preparation of a Validation Notice for the management of the Greater Bilby are set out in Table 5.2. Circumstances where a Decision Report will be prepared are set out in Table 5.3.

The Program Matter Objectives and Outcomes were guided by and are consistent with the following conservation advice:

Approved Conservation Advice for *Macrotis lagotis* (Greater Bilby) (Threatened Species Scientific Committee 2016a)	**Conservation objectives:** • **maintain the current distribution of Greater Bilby 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**
Recovery Plan for the Greater Bilby *Macrotis lagotis* (DCCEEW 2023)	**Overall objectives:** • **grow the size of the Greater Bilby population** • **maintain or increase the extent of occurrence and area of occupancy of the Greater Bilby** • **maintain the genetic diversity of the Greater Bilby and retain the potential for evolutionary change through adaptation and selection** • **increase the role of Indigenous organisations, communities, and individuals in bilby conservation.**

As part of its approach to adaptive management of the Greater Bilby, BHP has considered, and will continue to consider 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).



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ASSURANCE PLAN AND OFFSETS PLAN

Greater Bilby distribution and habitat in the SAA

N

0 25 50 75 100

Kilometres

Date:	2/11/2022	Project No:	A1108/007	Figure: 5.1
Prepared:	Spatial Data	Checked:	Env Approvals	

- *Macrotis lagotis* (Greater Bilby)
- Sand Dune
- Sand Plain
- Sandy/ Stony Plain
- Hardpan Plain
- Major Drainage Line
- Medium Drainage Line
- Minor Drainage Line
- Mulga Woodland
- Drainage Area/ Floodplain
- BHP Full Conceptual Development Scenario
- Strategic Assessment Area (SAA)

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Table 5.1: Greater Bilby Critical and Supporting Habitats

Program Matter	Habitat Type	Habitat Description	Possible BHP Habitat Name[1]	Reference
Greater Bilby	Critical	Denning and foraging within the home range of plain habitat with isolated dunes and dune fields that support soils from coarse sand to light medium clay with vegetation types • Woodlands of low trees (<10m) with *Eucalyptus* and *Acacia* spp. • Shrub-steppe communities over *Triodia* hummock grasslands • Pindan woodland with hummock and tussock grasses	Sand Dune, Sand Plain	DCCEEW (2023); Cramer *et al.* (2017)
		Denning and foraging within the home range of rises, breakaways, plateaus, granitic hills and rises that support sandy soils, sandy loams and red earths often with lateritic, small gravel, stony matrix with vegetation types of low shrub cover of *Acacia* spp. including mulga (*A. aneura*) over hummock and tussock grasses.	Sand Plain, Stony Plain	DCCEEW (2023); Cramer *et al.* (2017)
		Denning and foraging within the home range of creeklines and palaeodrainage systems that support sandy and sandy loam soils, alluvial and calcareous areas, and salt channels and lakes with vegetation types of Spinifex grasslands (mainly *Triodia basedowii*, *T. pungens* and *T. schinzii*) with low shrub cover of *Acacia* spp. and *Melaleuca* spp.	Drainage Area/ Flood Plain, Saline Flats and Marsh	DCCEEW (2023); Cramer *et al.* (2017)
	Supporting	Open tussock grasslands on uplands and hills	Sand Dune	DCCEEW (2023)
		Mulga (*Acacia aneura*) woodland/shrubland (both pure mulga and mixed stands of mulga/witchetty bush) growing on ridges and rises	Mulga Woodland	DCCEEW (2023); TSSC (2016a)
		Hummock grassland growing on sand plains and dunes, drainage systems, salt-lake systems, and other alluvial areas	Sand Plain, Stony Plain, Drainage Area/Flood Plain, Saline Flats and Marsh	DCCEEW (2023); TSSC (2016a)
		Laterite and rock feature substrates that support *Acacia kempeana*, *Acacia hilliana* and *Acacia rhodophylla* shrub species and spinifex hummocks with open runways between the hummocks for easy movements	Sandy / Stony Plain	Southgate et al. (2007)

[1] BHP will utilise fauna consultants and surveys to identify which BHP-named habitats correspond most closely to critical or supporting habitat of a Program Matter at a site. Habitats listed do not necessarily all display features corresponding to the describe critical and supporting habitats.

Table 5.2: Greater Bilby Program Matter Objectives and Outcomes – Notifiable Actions

Program Matter Objective	Notifiable Action trigger	Example	Program Matter Outcomes (PMO)	Validation Notice requirements
To support the long-term persistence and viability of the Greater Bilby within the SAA	Within the activity area and or within a 500 m buffer of the activity boundary, there is: Presence of Greater Bilby critical habitat and or supporting habitat **AND** Presence or sign/s of Greater Bilby residing individuals	Identified habitat with frequent or regular visitation and or evidence of use over time Evidence of breeding	Minimise loss of critical and supporting habitats of the Greater Bilby as a result of Program Activities within the SAA **AND** No loss (or maintain) Greater Bilby population(s) as a result of Program activities	Validation Notice will include the items outlined in Section 7 and the following items to meet the PMO: • describe habitat management activities • describe Greater Bilby monitoring activities suitable to the type of Bilby occurrence • monitoring and management designed to include performance targets (including early warning) to demonstrate progress toward meeting the PMO, meeting the PMO and or to determine whether corrective actions or alternative management are required • corrective actions or alternative management that may be implemented in response to a performance target not being met
	Within the activity area there is: Presence of Greater Bilby critical habitat and or supporting habitat **AND** Presence or sign of Greater Bilby transient, infrequent or dispersing individual/s	Identified habitat with a single record or sign of the Greater Bilby	Minimise loss of critical and supporting habitats of the Greater Bilby as a result of Program Activities within the SAA	Validation Notice will include the items outlined in Section 7 and the following items to meet the PMO: • describe habitat management activities • management designed to include performance targets (including early warning) to demonstrate progress toward meeting the PMO, meeting the PMO and or to determine whether corrective actions or alternative management are required • corrective actions or alternative management that may be implemented in response to a performance target not being met

Table 5.3: Greater Bilby Program Matter – Non-Notifiable Actions

Program Matter Objective	Non-Notifiable Action Scenario*	Decision Report
To support the long-term persistence and viability of the Greater Bilby within the SAA	Within the activity area there is: Presence of Greater Bilby critical habitat and or supporting habitat only **AND** No current evidence of a population or individuals present or using or occupying the area	Decision Report to include: • information and data supporting the decision of Non-Notifiable • summary of other applicable environmental approvals • summary of any Offsets that address critical and supporting habitats for the Program Matter (these may include Offsets provided under State legislation that address impacts to the Program Matter)
*As per Section 6 of the Program		

5.2 Pilbara Olive Python (*Liasis olivaceus barroni*)

The Pilbara Olive Python is known from a number of sites throughout the Pilbara and is associated with gorges and drainage systems, including areas with localised drainage and semi-permanent watercourses. In the Hamersley Interim Biogeographic Regionalisation for Australia (IBRA) subregion, the Pilbara Olive Python is most often encountered in the vicinity of permanent water holes 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 BC Act.

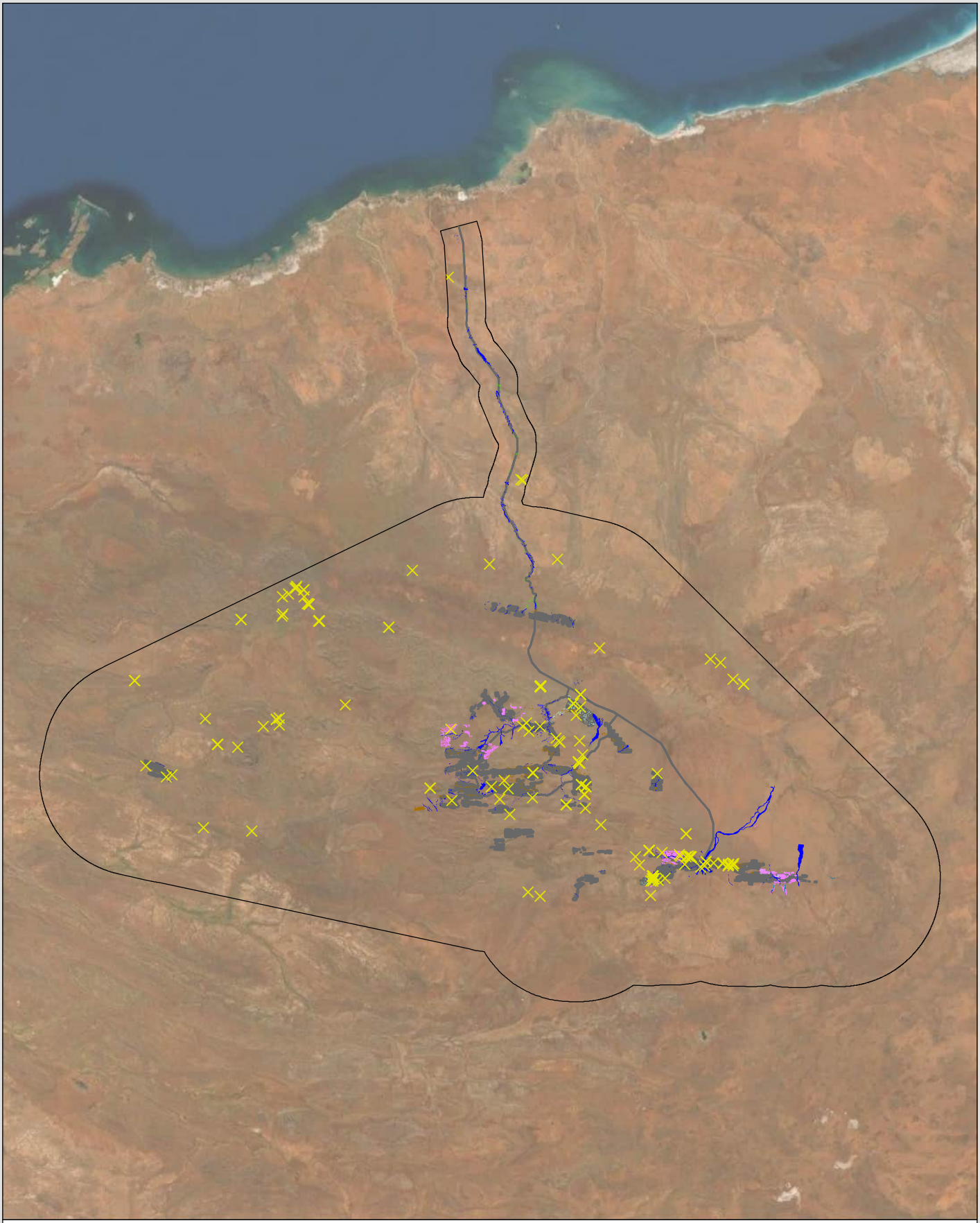
The current distribution of Pilbara Olive Python records in the SAA at the time of this Assurance Plan is shown on Figure 5.2. Current background information including species description and conservation status, species distribution, ecology and habitat for the species is summarised in the Five Yearly Review Report (BHP 2022 - Section 7). Critical and supporting habitats for the Pilbara Olive Python are described in Table 5.4. Program Matter Outcomes and Notifiable Action triggers for the preparation of a Validation Notice for the management of the Pilbara Olive Python are set out in Table 5.5. Circumstances where a Decision Report is required to be prepared are set out in Table 5.6.

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

Commonwealth Conservation Advice on *Liasis olivaceus barroni* (Olive Python (Pilbara subspecies)) (Threatened Species Scientific Committee 2008)	**Regional and local priority actions:** • **identify populations of high conservation priority** • **manage any changes to hydrology which may result in changes to the water table levels, increased run-off, sedimentation or pollution** • **implement Threat Abatement Plan for the control and eradication of foxes and cats** • **investigate options for linking, enhancing or establishing additional populations**

As part of its approach to adaptive management of the Pilbara Olive Python, BHP has considered, and will continue to consider 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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ASSURANCE PLAN AND OFFSETS PLAN

Pilbara Olive Python distribution and habitat in the SAA

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Kilometres

Date:	3/11/2022	Project No:	A1108/010	Figure: 5.2
Prepared:	Spatial Data	Checked:	Env Approvals	

- *Liasis olivaceus subsp. barroni* (Pilbara Olive Python)
- Breakaway/ Cliff
- Gorge/ Gully
- Hillcrest/ Hillslope
- Major Drainage Line
- Medium Drainage Line
- Minor Drainage Line
- Waterhole
- BHP Full Conceptual Development Scenario
- Strategic Assessment Area (SAA)

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Table 5.4: Pilbara Olive Python Critical and Supporting Habitats

Program Matter	Habitat Type	Habitat Description	Possible BHP Habitat Name[3]	Reference
Pilbara Olive Python	Critical	Rocky outcrops in proximity to deep gorges, gullies, and water holes	Gorge/Gully, Breakaway/Cliff, Water holes	DEWHA (2008)
		Permanent water holes	Water holes	
	Supporting	Deep gorges, gullies, drainage lines and water courses	Gorge/Gully, Major Drainage Lines, Minor Drainage Lines	DEWHA (2008)
		Under rock piles, on top of rocks or under spinifex to ambush prey	Boulders/Rockpiles	Tutt *et al.* (2004)

[3] BHP will utilise fauna consultants and surveys to identify which BHP-named habitats correspond most closely to critical or supporting habitat of a Program Matter at a site. Habitats listed do not necessarily all display features corresponding to the describe critical and supporting habitats.

Table 5.5: Pilbara Olive Python Program Matter Objectives and Outcomes – Notifiable Actions

Program Matter Objective	Notifiable Action trigger	Population Example	Program Matter Outcomes (PMO)	Validation Notice requirements
To support the long-term persistence and viability of the Pilbara Olive Python within the SAA	Within the activity area and or within a 500 m buffer of the activity boundary, there is: Presence of Pilbara Olive Python critical habitat and or supporting habitat **AND** Presence or sign/s of a Pilbara Olive Python population or residing individuals	Identified habitat with frequent or regular visitation and or evidence of use over time Evidence of breeding	Minimise loss of critical and supporting habitats of the Pilbara Olive Python as a result of Program Activities within the SAA **AND** No loss (or maintain) Pilbara Olive Python population(s) as a result of Program activities	Validation Notice will include the items outlined in Section 7 and the following items to meet the PMO: • describe habitat management activities • describe Pilbara Olive Python monitoring activities suitable to the type of Python occurrence • monitoring and management designed to include performance targets (including early warning) to demonstrate progress toward meeting the PMO, meeting the PMO and or to determine whether corrective actions or alternative management are required • corrective actions or alternative management that may be implemented in response to a performance target not being met
	Within the activity area there is: Presence of Pilbara Olive Python critical habitat and or supporting habitat **AND** Presence or sign of Pilbara Olive Python transient, infrequent or dispersing individual/s	Identified habitat with a single record or sign of the Pilbara Olive Python Low number of Python records	Minimise loss of critical and supporting habitats of the Pilbara Olive Python as a result of Program Activities within the SAA	Validation Notice will include the items outlined in Section 7 and the following items to meet the PMO: • describe habitat management activities • management designed to include performance targets (including early warning) to demonstrate progress toward meeting the PMO, meeting the PMO and or to determine whether corrective actions or alternative management are required • corrective actions or alternative management that may be implemented in response to a performance target not being met

Table 5.6: Pilbara Olive Python Program Matter Objectives and Outcomes – Non-Notifiable Actions

Program Matter Objective	Non-Notifiable Action* Scenario	Decision Report
To support the long-term persistence and viability of the Pilbara Olive Python within the Strategic Assessment Area	Within the activity area there is: Presence of Pilbara Olive Python critical habitat and or supporting habitat only **AND** No current evidence of a population or individuals present or using or occupying the area	Decision Report to include: • information and data supporting the decision of Non-Notifiable • summary of other applicable environmental approvals • summary of any Offsets that address critical and supporting habitats for the Program Matter (these may include Offsets provided under State legislation that address impacts to the Program Matter)
*As per Section 6 of the Program		

5.3 Pilbara Leaf-nosed Bat (*Rhinonicterus aurantia*)

The Pilbara Leaf-nosed Bat is listed as Vulnerable under the EPBC Act and BC 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 Pilbara Leaf-nosed Bat 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).

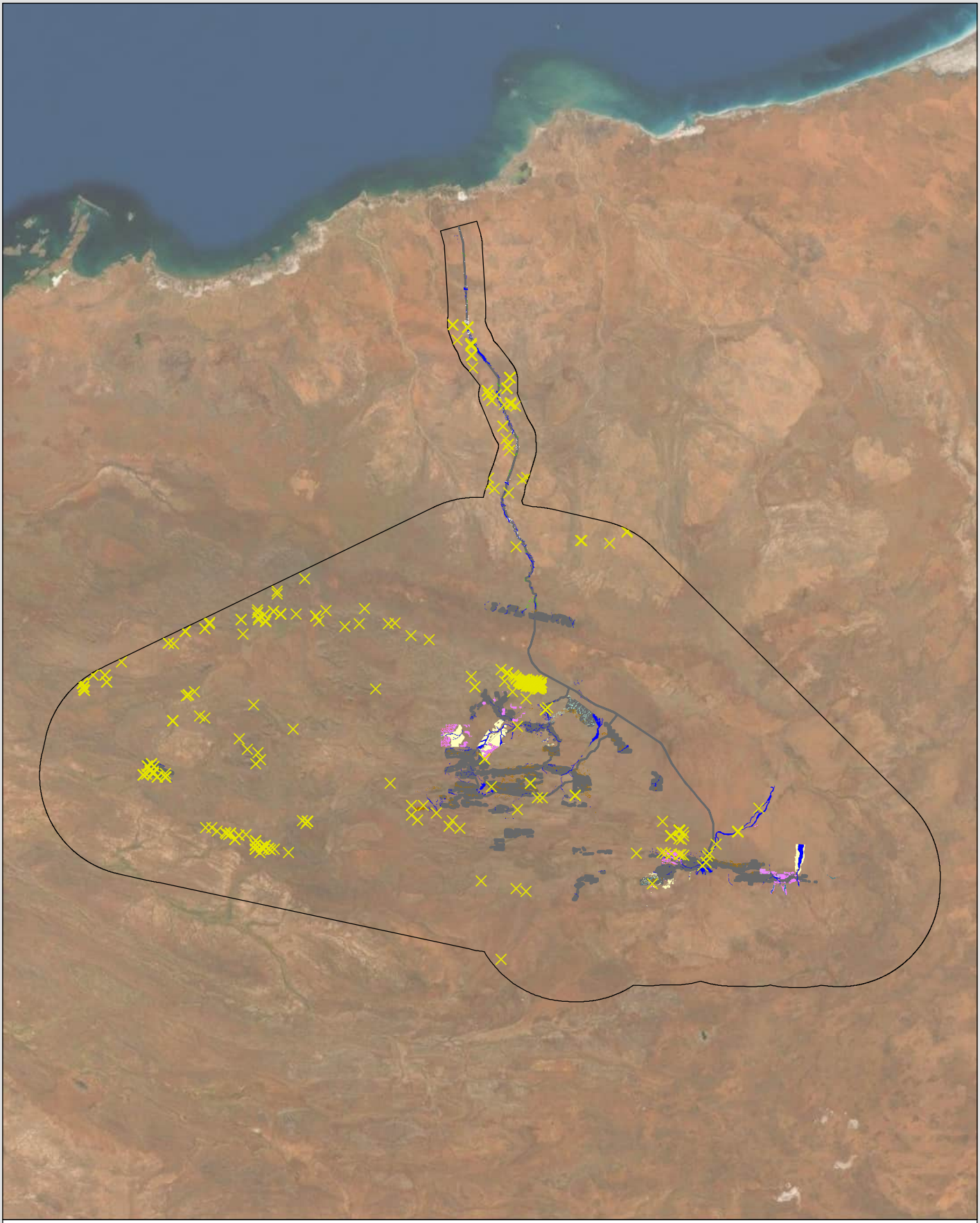
The current distribution of Pilbara Leaf-nosed Bat records in the SAA at the time of this Assurance Plan is shown on Figure 5.3. Current background information including species description and conservation status, species distribution, ecology and habitat for the Pilbara Leaf-nosed Bat is summarised in the Five Year Review Report (BHP 2022 - Section 7). Critical and supporting habitats for the Pilbara Leaf-nosed Bat are described in Table 5.7.

Program Matter Outcomes and Notifiable Action triggers for the preparation of a Validation Notice for the management of the Pilbara Leaf-nosed Bat are set out in Table 5.8. Circumstances where a Decision Report is required to be prepared are set out in Table 5.9.

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

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 Pilbara Leaf-nosed Bat 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 Pilbara Leaf-nosed Bat 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 Pilbara Leaf-nosed Bat** • **identify and protect sufficient high value foraging habitat around roost sites to support the long-term persistence of Pilbara Leaf-nosed Bat colonies** • **support coordinated research on the occurrence, population size and ecological requirements of the Pilbara Leaf-nosed Bat so best practice management options can be developed to minimise anticipated impacts from new and existing mining activity**

There is no adopted or drafted Recovery Plan for this species. No Threat Abatement Plan has been identified as being relevant for this species. Predation by feral cats was identified as an emerging threat for the Pilbara Leaf-nosed Bat in the Fortescue Metals sponsored Pilbara Leaf-nosed Bat Research Priorities Workshop in April 2022.



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ASSURANCE PLAN AND OFFSETS PLAN

Pilbara Leaf-nosed Bat distribution and habitat in the SAA

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Kilometres

Date:	3/11/2022	Project No:	A1108/009	Figure: 5.3
Prepared:	Spatial Data	Checked:	Env Approvals	

- *Rhinonicteris aurantia* (Pilbara Leaf-nosed Bat)
- Breakaway/ Cliff
- Drainage Area/ Floodplain
- Gorge/ Gully
- Granite Outcrops/ Domes
- Hillcrest/ Hillslope
- Major Drainage Line
- Medium Drainage Line
- Minor Drainage Line
- Waterhole
- BHP Full Conceptual Development Scenario
- Strategic Assessment Area (SAA)

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Table 5.7: Pilbara Leaf-nosed Bat Critical and Supporting Habitats

Program Matter	Habitat Type	Habitat Description	Possible BHP Habitat Name[4]	Reference
Pilbara Leaf-nosed Bat	Critical	Priority/Category 1 cave - permanent diurnal roost and maternity roost with seasonal presence of young	Cave	TSCC (2016b); Bat Call WA (2021b)
		Priority/Category 2 cave - permanent/semi-permanent possible breeding roosts that are used during some part of the breeding cycle (but without the proven presence of young)	Cave	TSCC (2016b); Bat Call WA (2021b)
		Priority/Category 3 cave - transitory diurnal roosts, occupied part of the year only, outside the breeding season (i.e. April-June) that facilitate long distance dispersal	Cave	TSCC (2016b); Bat Call WA (2021b)
		Permanent water sources within 8.7 km of a known Priority/Category 1-3 roosts	Cave	Bat Call WA (2021b)
		Foraging habitat within 10 km (1,000 ha) radius of these caves that include: • plain and low hill habitat that includes watercourses and other sites with semi-permanent or permanent surface water (natural or anthropogenic); three layers in vegetation structure • mesa side or long ridge line with south, east or west facing, deeply incised gullies with vertical walls; semi-permanent or permanent water pools present; vegetation is complex; also north facing gullies with permanent water • deep wet 'open' gorge with hills to the side; wet 'closed' gorge with one or two vertical walls; complex three layer, dense vegetation structure; semi-permanent or permanent water pools present	Major Drainage Line, Mulga Woodland, Water hole, Wetland	TSSC (2016b); Bat Call WA (2021b)
	Supporting	Priority/Category 4 cave - nocturnal refuge that are occupied at night for resting, feeding or other purpose, with perching not a requirement, which can be moderately deep caves and shallow abandoned mines	Cave	TSCC (2016b); Bat Call WA (2021b)
		Plains and low hills with three-layer, complex vegetation structure, or moderate two-layer non-complex vegetation structure; includes ephemeral watercourse	Drainage Area/Flood Plain, Minor Drainage Line	Bat Call WA (2021b)

[4] BHP will utilise fauna consultants and surveys to identify which BHP-named habitats correspond most closely to critical or supporting habitat of a Program Matter at a site. Habitats listed do not necessarily all display features corresponding to the describe critical and supporting habitats.

Program Matter	Habitat Type	Habitat Description	Possible BHP Habitat Name[4]	Reference
		Mesa side or long ridge line with north facing, deeply incised gullies with vertical walls, or Mesa side or long ridge line with deeply incised gullies in weathered strata (45º sloping walls); caves and overhangs present; shrubs and thin tree cover in gully base Ephemeral watercourse in gully or nearby (priority 2 foraging habitat)	Gorge/Gully, Breakaway/Cliff, Minor Drainage Line	TSCC (2016b); Bat Call WA (2021b)
		Dry deeply incised gorge into a ridge or mountain; complex three layer vegetation structure Ephemeral water course (priority 1 foraging habitat)	Gorge/Gully, Major Drainage Line, Minor Drainage Line, Water holes	TSCC (2016b); Bat Call WA (2021b)
		Rocky outcrop areas of exposed rock at the top of rocky outcrop and mesa hills that contain caves and overhangs, and boulder piles in the granite terrains (priority 3 foraging habitat)	Breakaway/Cliff, Hill Crest/Hill Slope	TSCC (2016b)
		Major watercourses that support riparian vegetation on flat land plus the main gravelly or sandy channel of the river bed, sometimes containing pools that persist for weeks or months, and generally supporting higher productivity of biomass than the surrounding habitats (priority 4 foraging habitat)	Major Drainage Line	TSCC (2016b)
		Open grassland and woodland dominated by Triodia, on lowland plains, colluvial slopes and hilltops (priority 5 foraging habitat)	Hill Crest/Hill Slope, Sand Plain	TSCC (2016b); DAWE SPRAT (2022)
		Large watercourses, around rocky outcrop, gullies, gorges and over pools	Gorge/Gully, Major Drainage Line, Minor Drainage Line, Water holes	TSCC (2016b); DAWE SPRAT (2022)

Table 5.8: Pilbara Leaf-nosed Bat Program Matter Objectives and Outcomes – Notifiable Actions

Program Matter Objective	Notifiable Action trigger	Example	Program Matter Outcomes	Validation Notice requirements
To support the long-term persistence and viability of the Pilbara Leaf-nosed Bat within the SAA	Within the activity area and or within a 500 m buffer of the activity boundary, there is: Presence of Pilbara Leaf-nosed Bat critical habitat and or supporting habitat **AND** Presence or sign/s of Pilbara Leaf-nosed Bat colony or residing individuals	Identified habitat with frequent or regular visitation and or evidence of use over time Evidence of breeding	Minimise loss of critical and supporting habitats of the Pilbara Leaf-nosed Bat as a result of Program Activities within the SAA **AND** No loss (or maintain) Pilbara Leaf-nosed Bat colony(s) as a result of program activities	Validation Notice will include the items outlined in Section 7 and the following items to meet the PMO: • describe habitat management activities • describe Pilbara Leaf-nosed Bat monitoring activities suitable to the type of bat occurrence • monitoring and management designed to include performance targets (including early warning) to demonstrate progress toward meeting the PMO, meeting the PMO and or to determine whether corrective actions or alternative management are required • corrective actions or alternative management that may be implemented in response to a performance target not being met
	Within the activity area there is: Presence of Pilbara Leaf-nosed Bat critical habitat and or supporting habitat **AND** Presence or sign of Pilbara Leaf-nosed Bat transient, infrequent or dispersing individual/s	Identified habitat with a single record or sign of the Pilbara Leaf-nosed Bat	Minimise loss of critical and supporting habitats of the Pilbara Leaf-nosed Bat as a result of Program Activities within the SAA	Validation Notice will include the items outlined in Section 7 and the following items to meet the PMO: • describe habitat management activities • management designed to include performance targets (including early warning) to demonstrate progress toward meeting the PMO, meeting the PMO and or to determine whether corrective actions or alternative management are required • corrective actions or alternative management that may be implemented in response to a performance target not being met

Table 5.9: Pilbara Leaf-nosed bat Program Matter Objectives and Outcomes – Non-Notifiable Actions

Program Matter Objective	Non-Notifiable Action* Scenario	Decision Report
To support the long-term persistence and viability of the Pilbara Leaf-nosed Bat within the SAA	Within the activity area there is: Presence of Pilbara Leaf-nosed Bat critical habitat and or supporting habitat only **AND** No current evidence of a population or individuals present or using or occupying the area	Decision Report to include: • information and data supporting the decision of Non-Notifiable • summary of other applicable environmental approvals • summary of any Offsets that address critical and supporting habitats for the Program Matter (these may include Offsets provided under State legislation that address impacts to the Program Matter)
*As per Section 6 of the Program		

5.4 Northern Quoll (*Dasyurus hallucatus*)

The Northern Quoll is listed as Endangered under the EPBC Act and BC Act, primarily because of the impact of the Cane Toads on populations in the Northern Territory and Queensland and the perceived threat associated with the arrival of Cane Toads in Western Australia.

The current distribution of Northern Quoll records in the SAA at the time of this Assurance Plan is shown on Figure 5.4. Current background information including species description and conservation status, species distribution, ecology and habitat for the Northern Quoll is summarised in the Five Yearly Review Report (BHP 2022 - Section 7). Critical and supporting habitats for the Northern Quoll are described in Table 5.10.

Program Matter Outcomes and Notifiable Action triggers for the preparation of a Validation Notice for the management of the Northern Quoll are set out in Table 5.11. Circumstances where a Decision Report is required to be prepared are set out in Table 5.12.

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

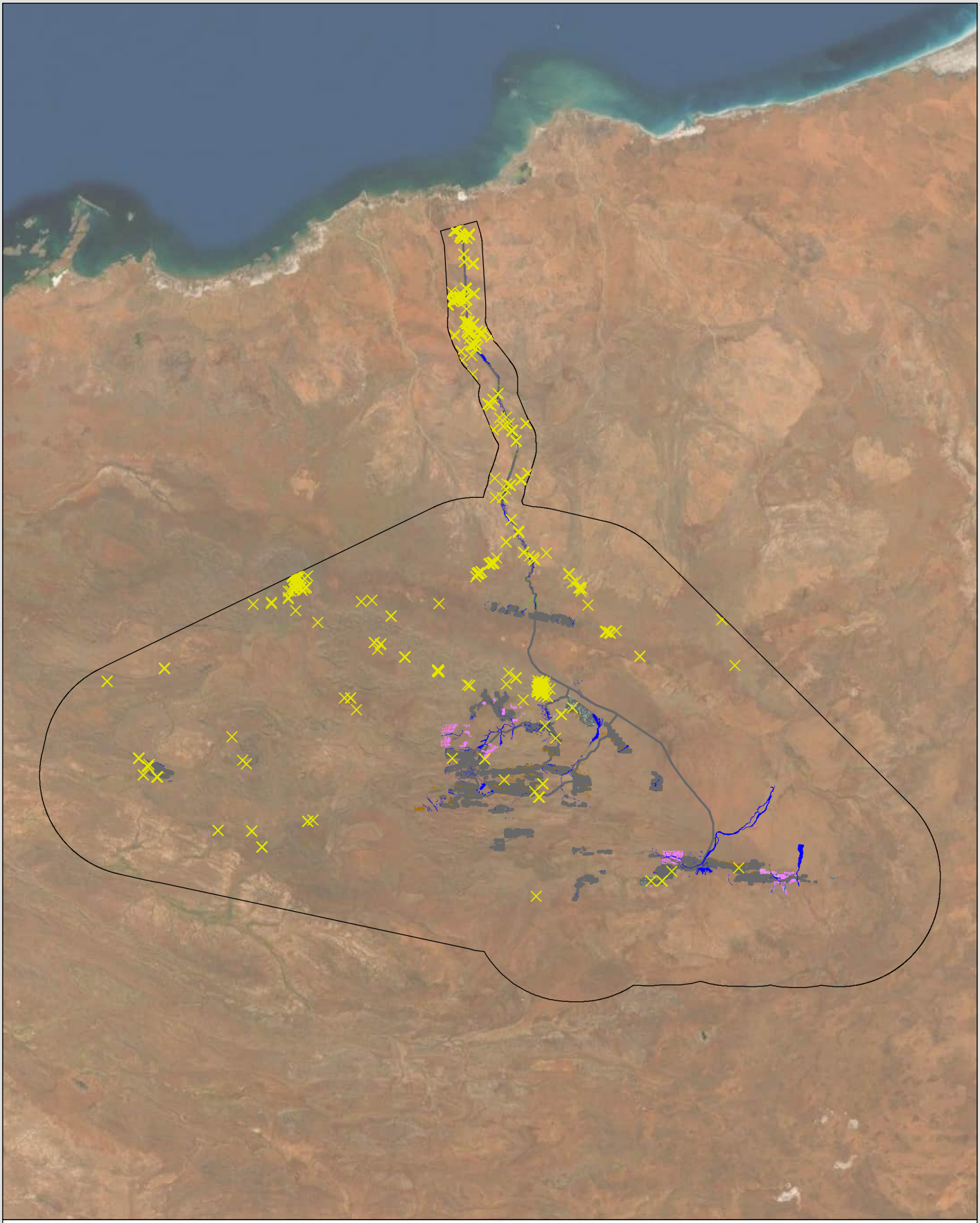
Commonwealth Listing Advice on Northern Quoll (*Dasyurus hallucatus*) (Threatened Species Scientific Committee 2005)	**The advice lists the priority recovery and threat abatement actions required for Northern Quoll as being to:**
	• **minimise the impact of colonising Cane Toads on the species by:**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

As part of its approach to adaptive management of the Northern Quoll, BHP has considered, and will continue to consider 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).



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ASSURANCE PLAN AND OFFSETS PLAN

Northern Quoll distribution and habitat in the SAA

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Date:	3/11/2022	Project No:	A1108/011	Figure: 5.4
Prepared:	Spatial Data	Checked:	Env Approvals	

- *Dasyurus hallucatus* (Northern Quoll)
- Artificial Quoll Habitat
- Boulders/ Rockpiles
- Breakaway/ Cliff
- Gorge/ Gully
- Granite Outcrops/ Domes
- Hillcrest/ Hillslope
- Major Drainage Line
- Medium Drainage Line
- Minor Drainage Line
- Waterhole
- BHP Full Conceptual Development Scenario
- Strategic Assessment Area (SAA)

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Table 5.10: Northern Quoll Critical and Supporting Habitats

Program Matter	Habitat Type	Habitat Description	Possible BHP Habitat Name[4]	Reference
Northern Quoll	Critical	Denning and foraging habitat within the home range of low rocky hills - mesas, gorges, escarpments, ranges, breakaways, and boulder fields	Gorge/Gully, Breakaway/Cliff	Hill and Ward (2010); DotE (2016)
		Denning and foraging within the home range of major drainage lines and tree-lined creeks	Major Drainage Line	Hill and Ward (2010); DotE (2016)
		Denning and foraging within the home range of structurally diverse woodland or forest areas containing large diameter trees, termite mounds or hollow logs	Eucalypt Woodland	Hill and Ward (2010); DotE (2016)
		Dispersal and foraging habitat associated with or connecting populations important for the long-term survival of the Northern Quoll	Major Drainage Line	DotE (2016)
	Supporting	Variable foraging habitats since opportunistic foragers that feed on a range of items determined by availability and seasonality The following habitat types have been identified to support foraging: • basalt hills, mesas (and buttes of limonites), high and low plateaus and lower slopes • tor fields and stony plains supporting either hard or soft spinifex grasslands • sandstone and dolomite hills and ridges, shrublands, sandy plains, clay plans and tussock grasslands and coastal fringes including dunes islands and beaches	Hill Crest/Hill Slope, Stony Plain, Sand Plain	Hill and Ward (2010); DAWE SPRAT (2022)

[4] BHP will utilise fauna consultants and surveys to identify which BHP-named habitats correspond most closely to critical or supporting habitat of a Program Matter at a site. Habitats listed do not necessarily all display features corresponding to the describe critical and supporting habitats.

Table 5.11: Northern Quoll Program Matter Objectives and Outcomes – Notifiable Actions

Program Matter Objective	Notifiable Action trigger	Example	Program Matter Outcomes	Validation Notice requirements
To support the long-term persistence and viability of the Northern Quoll within the SAA	Within the activity area and or within a 500 m buffer of the activity boundary, there is: Presence of Northern Quoll critical habitat and or supporting habitat **AND** Presence or sign/s of Northern Quoll colony or residing individuals	Identified habitat with frequent or regular visitation and or evidence of use over time Evidence of breeding	Minimise loss of critical and supporting habitats of the Northern Quoll as a result of Program Activities within the SAA **AND** No loss (or maintain) Northern Quoll colony(s) as a result of program activities	Validation Notice will include the items outlined in Section 7 and the following items to meet the PMO: • describe habitat management activities • describe Northern Quoll monitoring activities suitable to the type of Northern Quoll occurrence • monitoring and management designed to include performance targets (including early warning) to demonstrate progress toward meeting the PMO, meeting the PMO and or to determine whether corrective actions or alternative management are required • corrective actions or alternative management that may be implemented in response to a performance target not being met
	Within the activity area there is: Presence of Northern Quoll critical habitat and or supporting habitat **AND** Presence or sign of Northern Quoll transient, infrequent or dispersing individual/s	Identified habitat with a single record or sign of the Quoll	Minimise loss of critical and supporting habitats of the Northern Quoll as a result of Program Activities within the SAA	Validation Notice will include the items outlined in Section 7 and the following items to meet the PMO: • describe habitat management activities • management designed to include performance targets (including early warning) to demonstrate progress toward meeting the PMO, meeting the PMO and or to determine whether corrective actions or alternative management are required • corrective actions or alternative management that may be implemented in response to a performance target not being met

Table 5.12: Northern Quoll Program Matter Objectives and Outcomes – Non-Notifiable Actions

Program Matter Objective	Non-Notifiable Action* Scenario	Decision Report
To support the long-term persistence and viability of the Northern Quoll within the SAA	Within the activity area there is: Presence of Northern Quoll critical habitat and or supporting habitat only **AND** No current evidence of a population or individuals present or using or occupying the area	Decision Report to include; • information and data supporting the decision of Non-Notifiable • summary of other applicable environmental approvals • summary of any Offsets that address critical and supporting habitats for the Program Matter (these may include Offsets provided under State legislation that address impacts to the Program Matter)
*As per Section 6 of the Program		

5.5 Ghost Bat (*Macroderma gigas*)

The Ghost Bat is listed as Vulnerable under both the EPBC Act and BC Act (2015 and 2016, respectively). 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 sub-regions, 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. As well as disused mines, natural caves in gorge/gully habitat and drainage lines are important for this species as are foraging habitats on productive plain areas with thin mature woodland over patchy or clumped tussock or hummock grass (*Triodia* spp.) on sand or stony ground (Bullen 2021).

The current distribution of Ghost Bat records in the SAA at the time of this Assurance Plan is shown on Figure 5.5. Current background information including species description and conservation status, species distribution, ecology and habitat for the species is summarised in the Five Yearly Review Report (BHP 2022 Section 7). Critical and supporting habitats for the Ghost Bat are described in Table 5.13.

Program Matter Outcomes and Notifiable Action triggers for the preparation of a Validation Notice for the management of the Ghost Bat are set out in Table 5.14. Circumstances where a Decision Report is required to be prepared are set out in Table 5.15.

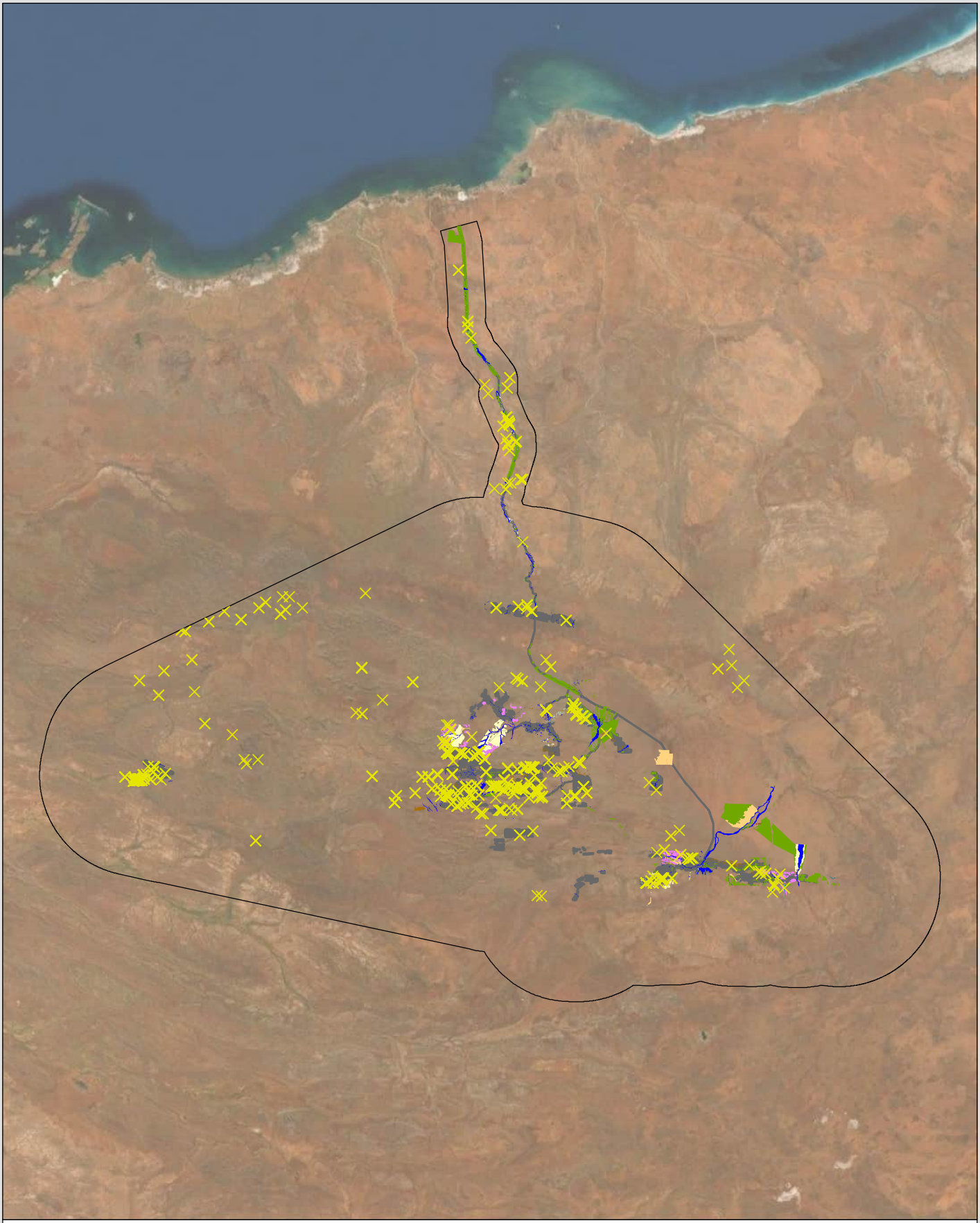
The Program Matter Objectives and Outcomes are consistent with the following information sources, in that BHP are seeking to maintain the current distribution and conservation status for this species and minimise the loss or modification to its habitat.

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 drafted Recovery Plan for this species at this time. However, the Threatened Species Scientific Committee has recommended a Recovery Plan be developed.

As part of its approach to adaptive management of the Ghost Bat, BHP has considered, and will continue to consider 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)
- Threat Abatement Plan for predation by feral cats (Department of the Environment 2015). Bat Call WA 2021 also recognised predation by feral cats as a potential threat to the Ghost Bat.



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ASSURANCE PLAN AND OFFSETS PLAN

Ghost Bat distribution and habitat in the SAA

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Kilometres

Date:	3/11/2022	Project No: A1108/008	Figure: 5.5
Prepared:	Spatial Data	Checked: Env Approvals	

- *Macroderma gigas* (Ghost Bat)
- Sand Dune
- Sand Plain
- Breakaway/ Cliff
- Drainage Area/ Floodplain
- Gorge/ Gully
- Granite Outcrops/ Domes
- Hillcrest/ Hillslope
- Major Drainage Line
- Medium Drainage Line
- Minor Drainage Line
- Mulga Woodland
- Waterhole
- BHP Full Conceptual Development Scenario
- Strategic Assessment Area (SAA)

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Table 5.13: Ghost Bat Critical and Supporting Habitats

Program Matter	Habitat Type	Habitat Description	Possible BHP Habitat Name[5]	Reference
Ghost Bat	Critical	Category 1 - Maternity/Diurnal roost caves with permanent Ghost Bat occupancy. These may be abandoned underground mines	Cave	Bat Call WA (2021a)
		Category 2 - Maternity/Diurnal roost caves with regular (but not continuous) Ghost Bat occupancy that is capable of supporting one or more reproducing females and their habitat; these may be abandoned underground mines	Cave	Bat Call WA (2021a)
		Category 3 - Diurnal roost caves with occasional occupancy if adjacent to one or more Category 2 cave(s); these may be abandoned underground mines	Cave	Bat Call WA (2021a)
		Rocky outcrops in geological formations such as the following: • Brockman and Marra Mamba banded iron formation (BIF) • Robe Pisolite channel iron deposit (CID) geology • ironstone geology and granite rockpiles	Gorge/Gully, Breakaway/Cliff	TSSC (2016c); Bat Call WA (2021a)
		Foraging habitat within 12 km radius of these caves or habitat surrounding each of these caves	NA	Bat Call WA (2021a)
	Supporting	Category 3 - Diurnal roost caves with occasional occupancy if isolated from Category 1 and 2 caves	Cave	Bat Call WA (2021a)
		Category 4 - shallow caves, shelters and deep overhangs that support opportunistic usage for resting and feeding	Cave	Bat Call WA (2021a)
		Productive plain areas with thin mature woodland over patchy or clumped tussock or hummock grass (*Triodia* spp.) on sand or stony ground	Sand Plain, Stony Plain, Mulga Woodland, Drainage Area/Flood Plain	Bat Call WA (2021a)
		Isolated trees and trees on the edge of thin thickets on the plains		Bat Call WA (2021a)
		Trees along the edges of watercourse woodlands	Major Drainage Line	Bat Call WA (2021a)
		Prefer gully or gorge system that opens onto a plain or riparian line	Minor Drainage Line	Ghost Bat Conservation Advice (2016)

[5] BHP will utilise fauna consultants and surveys to identify which BHP-named habitats correspond most closely to critical or supporting habitat of a Program Matter at a site. Habitats listed do not necessarily all display features corresponding to the described critical and supporting habitats.

Table 5.14: Ghost Bat Program Matter Objectives and Outcomes – Notifiable Actions

Program Matter Objective	Notifiable Action trigger	Example	Program Matter Outcomes	Validation Notice requirements
To support the long-term persistence and viability of the Ghost Bat within the SAA	Within the activity area and or within a 500 m buffer of the activity boundary, there is: Presence of Ghost Bat critical habitat and or supporting habitat **AND** Presence or sign/s of Ghost Bat colony or residing individuals	Identified habitat with frequent or regular visitation and or evidence of use over time Evidence of breeding	Minimise loss of critical and supporting habitats of the Ghost Bat as a result of Program Activities within the SAA **AND** No loss (or maintain) Ghost Bat colony(s) as a result of program activities	Validation Notice will include the items outlined in Section 7 and the following items to meet the PMO: • describe habitat management activities • describe Ghost Bat monitoring activities suitable to the type of Ghost Bat occurrence • monitoring and management designed to include performance targets (including early warning) to demonstrate progress toward meeting the PMO, meeting the PMO and or to determine whether corrective actions or alternative management are required • corrective actions or alternative management that may be implemented in response to a performance target not being met
	Within the activity area there is: Presence of Ghost Bat critical habitat and or supporting habitat **AND** Presence or sign of Ghost Bat transient, infrequent or dispersing individual/s	Identified habitat with a single record or sign of the Ghost Bat	Minimise loss of critical and supporting habitats of the Ghost Bat as a result of Program Activities within the SAA	Validation Notice will include the items outlined in Section 7 and the following items to meet the PMO: • describe habitat management activities • management designed to include performance targets (including early warning) to demonstrate progress toward meeting the PMO, meeting the PMO and or to determine whether corrective actions or alternative management are required • corrective actions or alternative management that may be implemented in response to a performance target not being met

Table 5.15: Ghost Bat Program Matter Objective and Outcomes – Non-Notifiable Actions

Program Matter Objective	Non-Notifiable Action* Scenario	Decision Report
To support the long-term persistence and viability of the Ghost Bat within the SAA	Within the activity area there is: Presence of Ghost Bat critical habitat and or supporting habitat only **AND** No current evidence of a population or individuals present or using or occupying the area	Decision Report to include • information and data supporting the decision of Non-Notifiable • summary of other applicable environmental approvals • summary of any Offsets that address critical and supporting habitats for the Program Matter (these may include Offsets provided under State legislation that address impacts to the Program Matter)
*As per Section 6 of the Program		

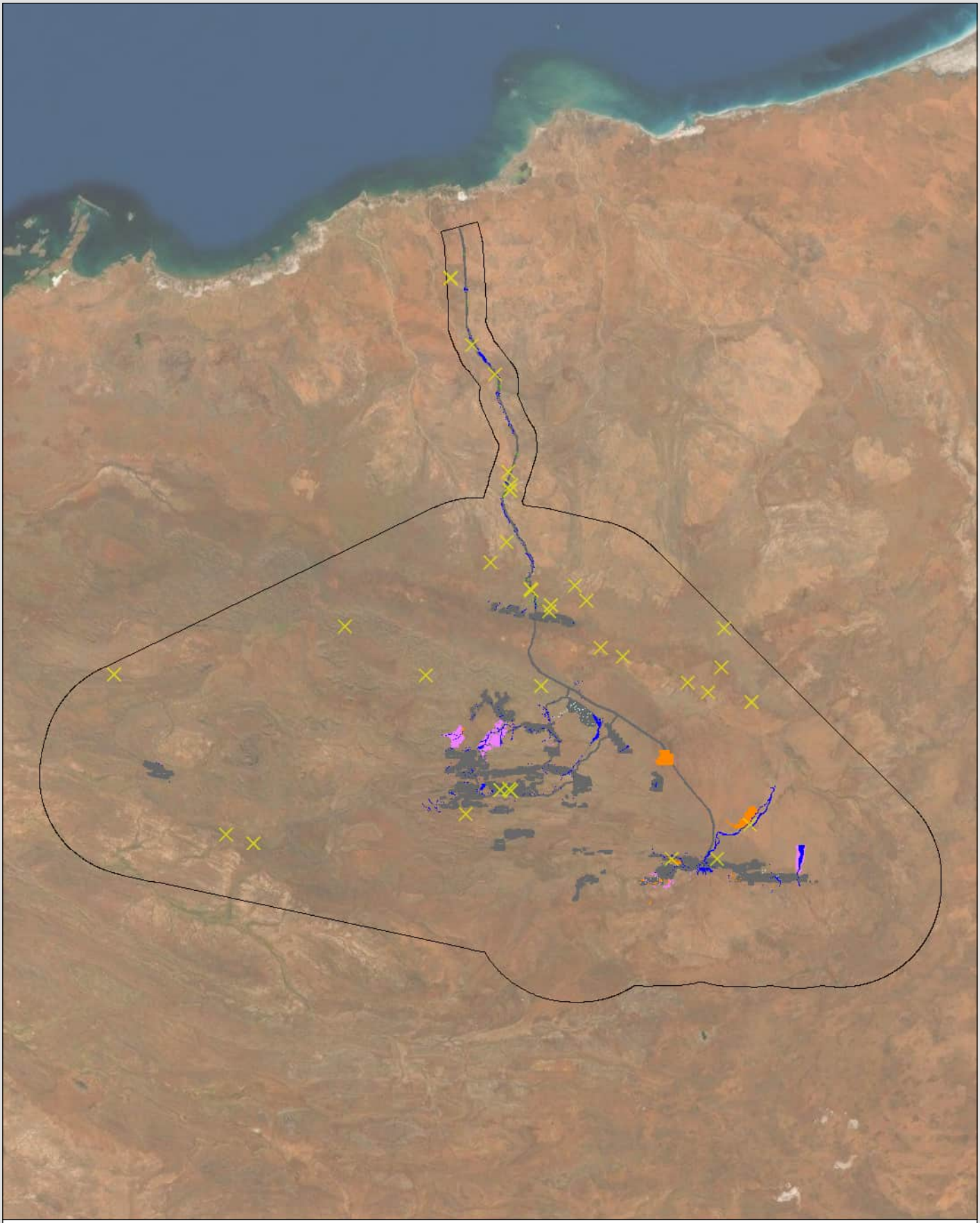
5.6 Grey Falcon (*Falco hypoleucos*)

The Grey Falcon occurs at low densities in arid and semi-arid regions of Australia, including the Murray-Darling Basin, Eyre Basin, central Australia and Western Australia (Marchant and Higgins 1993 as cited in TSSC 2020). The species is typically confined to the arid and semi-arid zones where annual rainfall is less than 500 mm (Schoenjahn 2018 as cited in TSSC 2020). The species frequents timbered lowland plains, particularly *Acacia* shrublands that are crossed by tree-lined water courses (Garnett *et al.* 2011; Watson 2011; Schoenjahn 2013, 2018; Janse *et al*. 2015; Ley and Tynan 2016 as cited in TSSC 2020). The species has been observed hunting in treeless areas and frequents tussock grassland and open woodland (Olsen and Olsen 1986; Schoenjahn 2018 as cited in TSSC 2020). Eggs are laid in the old nests of other birds, usually in the tallest trees along watercourses or in telecommunication towers (Marchant and Higgins 1993; Schoenjahn 2013, 2018; Falkenberg 2010 as cited in TSSC 2020) or other similar artificial structures. River Red Gum (*Eucalyptus camaldulensis*) and Coolibah (*E. coolabah*) are favoured nesting trees.

There are 52 records of the Grey Falcon in the SAA Figure 5.6. Current background information including a detailed description and conservation status, distribution, ecology and habitat for the species is summarised in the Five Yearly Review Report (BHP 2022 - Section 7). Critical and supporting habitats for the Grey Falcon are described in Table 5.16. Program Matter Outcomes and Notifiable Action triggers for the preparation of a Validation Notice for the management of the Grey Falcon are set out in Table 5.17. Circumstances where a Decision Report is required to be prepared are set out in Table 5.18. The Program Matter Objectives and Outcomes were also informed by and are consistent with the following information sources in that BHP are seeking to maintain the current distribution and conservation status for this species and minimise the loss or modification to its habitat.

Conservation Advice for *Falco hypoleucos*, Grey Falcon (Threatened Species Scientific Committee 2020)	**Regional and local priority actions:** • **habitat loss, disturbance and modifications** • **invasive species** • **stakeholder engagement** • **survey, monitoring and research priorities**

There is currently no Threat Abatement Plan listed as relevant to the Grey Falcon, and there is no Recovery Plan for the species. If plans such as these are developed/deemed to be relevant in future, BHP will take them into consideration as part of its approach to adaptive management of the Grey Falcon.



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ASSURANCE PLAN AND OFFSETS PLAN

Grey Falcon Habitat and Records in the SAA

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Kilometres

Date:	3/11/2022	Project No: A1108/012	Figure: 5.6
Prepared:	Spatial Data	Checked: Env Approvals	

- *Falco hypoleucos* (Grey Falcon)
- Major Drainage Line
- Medium Drainage Line
- Minor Drainage Line
- Mulga Woodland
- Waterhole
- Drainage Area/ Floodplain
- BHP Full Conceptual Development Scenario
- Strategic Assessment Area (SAA)

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Table 5.16: Grey Falcon Critical Habitat.

Program Matter	Habitat Type	Habitat Description	Possible BHP Habitat Name[6]	Reference
Grey Falcon	Critical	The nests chosen are usually in the tallest trees along watercourses, particularly River Red Gum (*Eucalyptus camaldulensis*) and Coolibah (*E. coolabah*)	Major Drainage Line	Marchant and Higgins (1993); Schoenjahn (2013, 2018); Falkenberg (2010)
	Supporting	Timbered lowland plains, particularly acacia shrublands that are crossed by tree-lined water courses The species has been observed hunting in treeless areas and frequents tussock grassland and open woodland	Clay Pan, Drainage Area/Flood Plain, Eucalypt Woodland, Mulga Woodland, Sand Plain, Stony Plain, Hardpan Plain, Undulating Low Hills	TSSC (2020); Garnett *et al*. (2011); Watson (2011); Schoenjahn (2013, 2018); Janse *et al.* (2015); Ley and Tynan (2016); Olsen and Olsen (1986); Schoenjahn (2018)

[6] BHP will utilise fauna consultants and surveys to identify which BHP-named habitats correspond most closely to critical or supporting habitat of a Program Matter at a site. Habitats listed are not necessarily all display features corresponding to the describe critical and supporting habitats.

Table 5.17: Grey Falcon Program Matter Objectives and Outcomes – Notifiable Actions

Program Matter Objective	Notifiable Action trigger	Example	Program Matter Outcomes	Validation Notice requirements
To support the long-term persistence and viability of the Grey Falcon within the SAA	Within the activity area and or within a 500 m buffer of the activity boundary, there is: Presence of Grey Falcon critical habitat and or supporting habitat **AND** Presence or sign/s of Grey Falcon colony or residing individuals	Identified habitat with frequent or regular visitation and or evidence of use over time	Minimise loss of critical and supporting habitats of the Grey Falcon as a result of Program Activities within the SAA **AND** No loss (or maintain) Grey Falcon population(s) as a result of program activities	Validation Notice will include the items outlined in Section 7 and the following items to meet the PMO: • describe habitat management activities • describe Grey Falcon monitoring activities suitable to the type of Grey Falcon occurrence • monitoring and management designed to include performance targets (including early warning) to demonstrate progress toward meeting the PMO, meeting the PMO and or to determine whether corrective actions or alternative management are required • corrective actions or alternative management that may be implemented in response to a performance target not being met
	Within the activity area there is: Presence of Grey Falcon critical habitat and or supporting habitat **AND** Presence or sign/s of Grey Falcon transient, infrequent or dispersing individual/s	Identified habitat with a single record or sign of the Grey Falcon	Minimise loss of critical and supporting habitats of the Grey Falcon as a result of Program Activities within the SAA	Validation Notice will include the items outlined in Section 7 and the following items to meet the PMO: • describe habitat management activities • management designed to include performance targets (including early warning) to demonstrate progress toward meeting the PMO, meeting the PMO and or to determine whether corrective actions or alternative management are required • corrective actions or alternative management that may be implemented in response to a performance target not being met

Table 5.18: Grey Falcon Program Matter Objectives and Outcomes – Non-Notifiable Actions

Program Matter Objective	Non-Notifiable Action* Scenario	Decision Report
To support the long-term persistence and viability of the Grey Falcon within the SAA	Within the activity area there is: Presence of Grey Falcon critical habitat and or supporting habitat only **AND** No current evidence of a population or individuals present or using or occupying the area	Decision Report to include: • information and data supporting the decision of Non-Notifiable • summary of other applicable environmental approvals • summary of any Offsets that address critical and supporting habitats for the Program Matter (these may include Offsets provided under State legislation that address impacts to the Program Matter)
*As per Section 6 of the Program		

5.7 Night Parrot (*Pezoporus occidentalis*)

The Night Parrot has long been considered one of Australia's most mysterious birds. The species was presumed extinct until 2013 when, after more than a century since the last widely accepted sighting of a live individual, a population was discovered in south-west Queensland. Since then, the species has been recorded from isolated populations in south-west Queensland and northern inland WA (TSSC 2016d).

The Night Parrot requires access to reliable food sources, shelter for breeding, protection from predators and the elements, and access to either free water or water-rich plant foods (Burbidge 2020). The spatial configuration requirements of Night Parrot habitat features have become increasingly evident through recent records of the species by Paruku Rangers and Birriliburu Rangers and others (Davis & Metcalfe 2008; Jackett et al. 2017; Murphy et al. 2017; Michelmore and Birch 2020 as cited in Burbidge 2020). The records have occurred at locations where productive feeding habitat (such as ephemeral grasslands, herb-fields or samphire, gilgais, run-on areas, flood plains, or salt lake systems), is interspersed or juxtaposed (at a scale of tens of square kilometres) with old-growth, dense hummock-forming spinifex for roosting/nesting that is broken up into fire-isolated patches by ironstone, rocky bars, salt lakes or samphire flats, within 50 km of free water (Burbidge 2020). The species also appears to rely on roosting/nesting in dense clumps of vegetation that are long-unburnt (TSSC 2016d).

There are two known records of the Night Parrot in the SAA from 1967 (DBCA) and 2005 (Birdlife) (Figure 5.7). The 1967 record is located in the far south-western portion of the SAA. The 2005 record is from Minga Well in the northern portion of the SAA, approximately 2.5 km north of the Fortescue Marsh. These are unlikely to be the only records in the SAA, based on the reported increase in Night Parrot discoveries in Australia. Due to confidentiality issues the location of any other records within the SAA boundary are unable to be sourced from external databases.

Current background information including a detailed description and conservation status, distribution, ecology and habitat for the species is summarised in the Five Yearly Review Report. Critical and supporting habitats for the Night Parrot are described in Table 5.19. Program Matter Outcomes and Notifiable Action triggers for the preparation of a Validation Notice for the management of the Night Parrot are set out in Table 5.20. Circumstances where a Decision Report is required to be prepared are set out in Table 5.21. The Program Matter Objectives and Outcomes are consistent with the following information sources in that BHP are seeking to maintain the current distribution and conservation status for this species and minimise the loss or modification to its habitat.

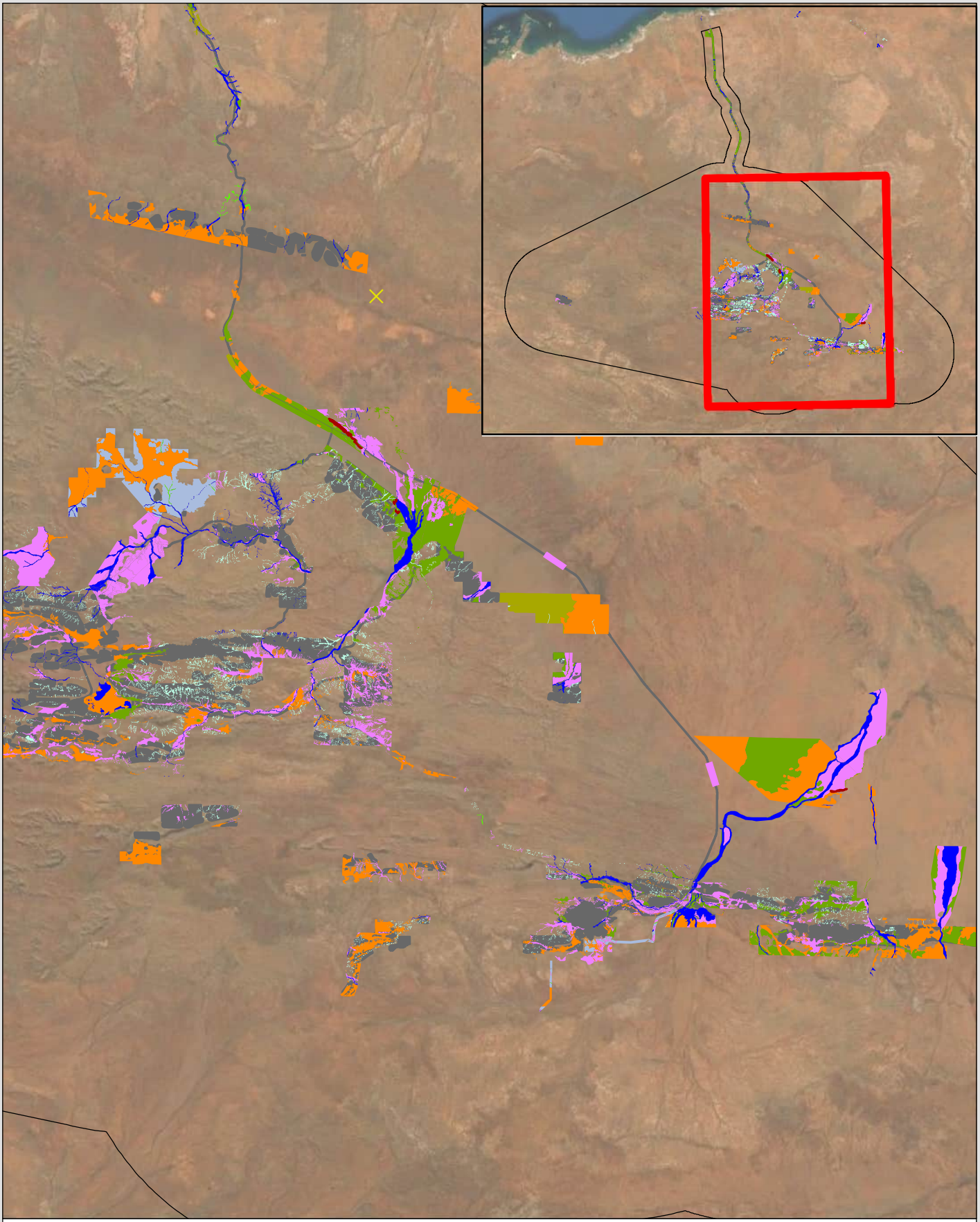
Conservation Advice: *Pezoporus occidentalis*, Night Parrot (Threatened Species Scientific Committee 2016d)	**Regional and local priority actions:** • **invasive species** • **fire** • **disease** • **illegal collection and habitat loss disturbance and modifications** • **impacts of domestic species** • **stakeholder engagement** • **survey, monitoring and research priorities**

A draft Recovery Plan for the Night Parrot is currently being developed by DCCEEW and will be consulted in addition to the Conservation Advice with regard to minimising potential impacts to the Night Parrot.

As part of its approach to adaptive management of the Night Parrot, BHP has considered, and will continue to consider the following Threat Abatement Plans as listed on the Species Profile and Threats Database for the Night Parrot (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).



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ASSURANCE PLAN AND OFFSETS PLAN

Night Parrot Habitat and Records in the SAA

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Kilometres

Date:	20/10/2022	Project No:	A1108/013	Figure: 5.7
Prepared:	Spatial Data	Checked:	Env Approvals	

- *Pezoporus occidentalis* (Night Parrot)
- Major Drainage Line
- Medium Drainage Line
- Minor Drainage Line
- Mulga Woodland
- Waterhole
- Drainage Area/ Floodplain
- Sand Dune
- Sand Plain
- Sandy/ Stony Plain
- Stony Plain
- BHP Full Conceptual Development Scenario
- Strategic Assessment Area (SAA)

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Table 5.19: Night Parrot Critical and Supporting Habitats

Program Matter	Habitat Type	Habitat Description	Possible BHP Habitat Name[7]	Reference
Night Parrott	Critical	Nesting and foraging in areas that can support multiple to many occurrences of dense roosting habitat such as old-growth dense hummock-forming spinifex (*Triodia* spp.), thickets of lignum, or dense shrubby samphire	Sandy/ Stony Plain	TSCC (2016d); Interim Night Parrot Habitat Statement (2020); Jackett *et al.* (2017); Horton *et al.* (2021)
		Nesting and foraging in old-growth spinifex (*Triodia* spp.) in close proximity to ephemeral water sources, which may be associated with the following: • hummock grasslands (unburnt) in stony or sand plain environments • paleo-drainage features in a landscape mosaic with spinifex (*Astrebla* spp.) and *Acacia aneura* (Mulga) woodland • treeless areas and bare gibber	Sand Plain, Stony Plain, Minor Drainage Line, Mulga Woodland	TSCC (2016d); Hamilton *et al*. (2017); Murphy *et al*. (2017); Horton *et al*. (2021)
	Supporting	Areas that are likely to be of relatively high vegetative or seed productivity such as run-on areas, flood plains, salt or clay pans, salt-lake margins	Drainage Area/Flood Plain	Kanyirninpa Jukurrpa Indigenous Rangers (2020)
		Paleo-drainage systems, salt lakes and pans	Saline Flats and Marsh, Gilgai Plain	TSCC (2016d); Interim Night Parrot Habitat Statement (2020); Murphy *et al*. (2017)
		Permanent or ephemeral sources of free water, or areas where high soil moisture ephemerally or permanently support vegetation that offers a source of water	Drainage Area/Flood Plain	Interim Night Parrot Habitat Statement (2020); Kimberley Land Council / Paruku Indigenous Rangers (2020); Jackett *et al*. (2017); Davis & Metcalfe (2008); Kearney *et al*. (2016)
		Flyways varying from river and creek drainage systems, surrounding dune-fields, forb–grasslands on mainly ironstone gravel-covered plains, low ranges and low dissected tablelands supporting	Drainage Area/Flood Plain, Sand Dune, Hardpan, Stony Plain, Clay Pan	Interim Night Parrot Habitat Statement (2020);

[7] BHP will utilise fauna consultants and surveys to identify which BHP-named habitats correspond most closely to critical or supporting habitat of a Program Matter at a site. Habitats listed are not necessarily all display features corresponding to the describe critical and supporting habitats.

Program Matter	Habitat Type	Habitat Description	Possible BHP Habitat Name[7]	Reference
		sparse shrublands, undulating stony clay plains supporting Mitchell Grass, and Gidgee		McDougall *et al*. (2009)

Table 5.20: Night Parrot Program Matter Objectives and Outcomes – Notifiable Actions

Program Matter Objective	Notifiable Action trigger	Example	Program Matter Outcomes	Validation Notice requirements
To support the long-term persistence and viability of the Night Parrot within the SAA	Within the activity area and or within a 500 m buffer of the activity boundary there is: Presence of Night Parrot critical habitat and or supporting habitat **AND** Presence or sign(s) of Night Parrot population(s) or residing individuals	Identified habitat with frequent or regular visitation and or evidence of use over time	Minimise loss of critical and supporting habitats of the Night Parrot as a result of Program Activities within the SAA **AND** No loss (or maintain) Night Parrot population(s) as a result of program activities	Validation Notice will include the items outlined in Section 7 and the following items to meet the PMO: • describe habitat management activities • describe Night Parrot monitoring activities suitable to the type of occurrence • monitoring and management designed to include performance targets (including early warning) to demonstrate progress toward meeting the PMO, meeting the PMO and or to determine whether corrective actions or alternative management are required • corrective actions or alternative management that may be implemented in response to a performance target not being met
	Within the activity area there is: Presence of Night Parrot critical habitat and or supporting habitat **AND** Presence or sign(s) of Night Parrot transient, infrequent or dispersing individual/s	Identified habitat with a single record or sign of the Parrot.	Minimise loss of critical and supporting habitats of the Night Parrot as a result of Program Activities within the SAA	Validation Notice will include the items outlined in Section 7 and the following items to meet the PMO: • describe habitat management activities • management designed to include performance targets (including early warning) to demonstrate progress toward meeting the PMO, meeting the PMO and or to determine whether corrective actions or alternative management are required • corrective actions or alternative management that may be implemented in response to a performance target not being met

Table 5.21: Night Parrot Program Matter Objectives and Outcomes – Non-Notifiable Actions

Program Matter Objective	Non-Notifiable Action* Scenario	Decision Report
To support the long-term persistence and viability of the Night Parrot within the SAA	Within the activity area there is: Presence of Night Parrot critical habitat and or supporting habitat only **AND** No current evidence of a population or individual using or occupying the area	Decision Report to include • information and data supporting the decision of Non-Notifiable • summary of other applicable environmental approvals • summary of any Offsets that address critical and supporting habitats for the Program Matter (these may include Offsets provided under State legislation that address impacts to the Program Matter)
*As per Section 6 of the Program		

6 Strategic Assessment Pathways for Validation

6.1 Validation Decision Making Process

In order to meet the defined purposes of the Program and Assurance Plan, BHP reviews all its activities to determine whether they are within or excluded from the scope of the SAA and the Approval (refer Section 1 of this document);

- if they are excluded, whether a separate referral or consideration under EPBC Act is required
- if they are included, determine the appropriate pathway for assessment and management of impacts in relation to these activities within the scope of the SAA.

For activities within the scope of the SAA and the Approval, the decision-making process on the appropriate assessment pathway involves review of existing baseline data available for an activity area in relation to Program Matters, and/or undertaking field surveys within the proposed activity area if existing data is not sufficient or contemporary (refer section 7.1 of the Program). This information, together with information on the footprint and potential impacts of the proposed activity, taking into account avoidance measures, is then used to:

- identify Program Matters applicable to the activity proposed
- calculate potential impacts in relation to Notifiable Action triggers for those Program Matters (as outlined in Section 3 of this document)
- make a decision on whether an action is a Notifiable Action.

An overview of this decision-making process and its outputs is as shown in Figure 6.1.

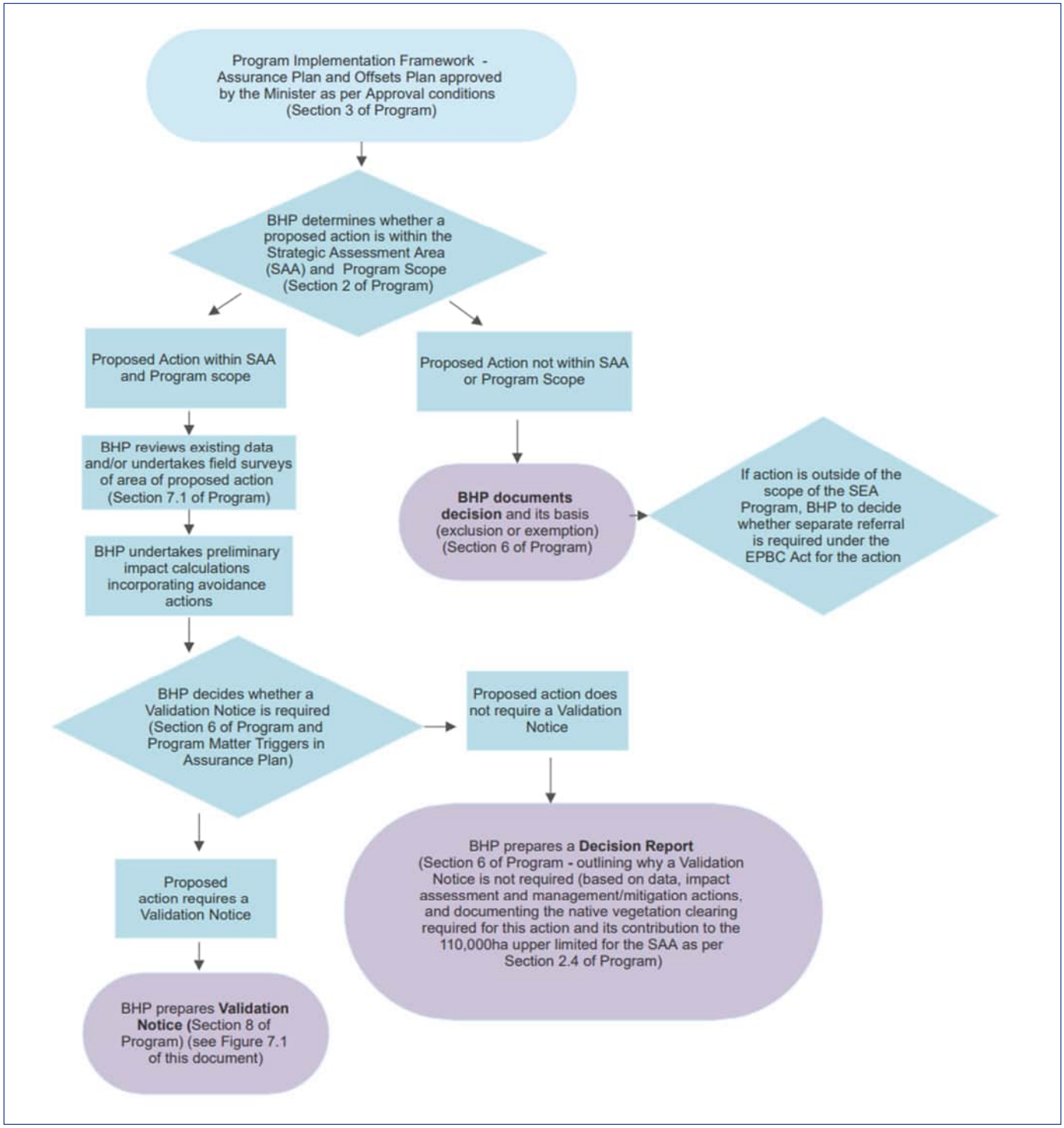


Figure 6.1: Strategic Assessment Area Validation Decision Process

6.2 Validation Decision Making Outcomes

BHP will utilise the decision-making process described in Section 6.1 to determine whether an action is either excluded, a Non-Notifiable Action or a Notifiable Action. BHP will report its decisions in relation to its activities within the SAA, and its compliance in relation to the upper disturbance limit of 110,000 hectare (ha) specified in Section 2.4 of the Program in its Annual Environmental Report (refer Sections 8.10 and 8.11 of this document).

Non-Notifiable Actions

In the instances where Notifiable Action triggers are not met, a Decision Report will be prepared for the purposes of auditing (as per section 6 of the Program) and these activities will be managed in accordance with the applicable Western Australian environmental approvals legislation and BHP's environmental management systems. Clearing allocated in the Decision Report will contribute will count towards the upper disturbance limit of the Program (110,000 ha). The Decision Report will include:

- described proposed activities included in the action
- document the native vegetation clearing required for the action and its contribution to the 110,000 ha disturbance limit for the SAA
- document the total impacts (in hectares) to critical and supporting habitats for each Program Matter
- specify and describe the relevant potential Notifiable Action trigger(s) used in the decision-making process and provide rationale for why Notifiable Action trigger(s) are not met
- describe activities used to assess and determine Program Matter's habitats and population(s) within and adjacent to the activity area, and findings of the associated surveys
- calculate impacts from proposed action incorporating avoidance and mitigation actions
- outline other applicable environmental approvals and any associated offsets (including offsets required under other legislation).

Notifiable Actions

In instances where Notifiable Action triggers are met, a Validation Notice will be prepared to ensure that the activities are consistent with the Program Matter Objectives and Outcomes at the local scale over the life of the Program (refer to Section 7 for further detail on this process).

7 Validation Process for Notifiable Actions

The key requirements of the Validation Process are as outlined in Sections 3, 6, 7 and 8 of the Program. An overview of this Validation Process is shown in Figure 7.1, with further detail of each step in this process outlined below.

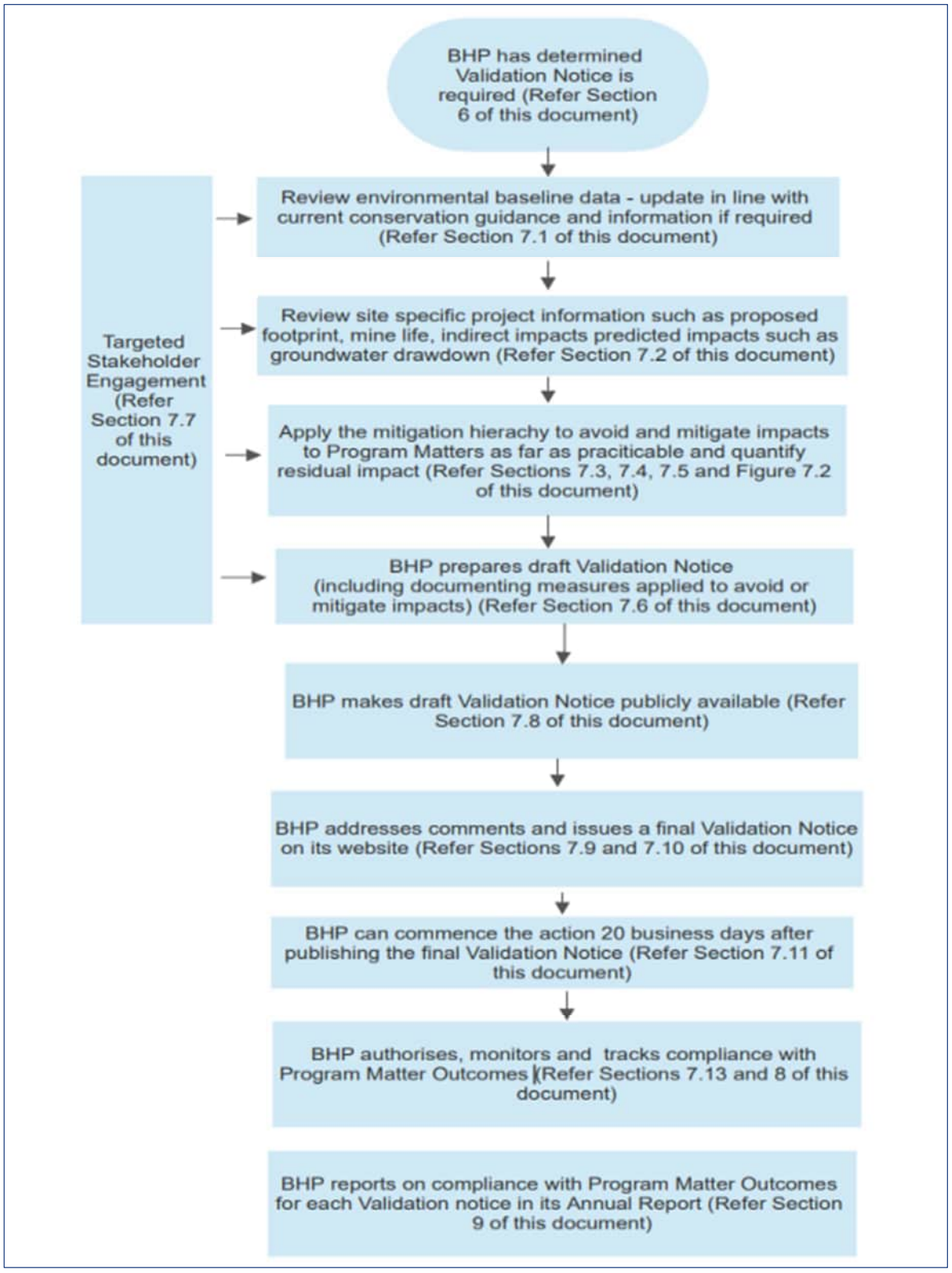


Figure 7.1: Validation Notice Process

7.1 Review Baseline Environmental Data

In accordance with section 7.1 of the Program, BHP will consider historic and contemporary information and data related to all Program Matters related to a Notifiable Action. This consideration ensures that contemporary data, scientific and species-management information and changes to the environment are addressed in the Validation Notice and inform decision-making.

BHP's 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. BHP will supplement and update relevant environmental data where required to support the Validation Notice, via desktop reviews and on-ground surveys (including targeted surveys where required).

The data will be used:

- to identify Program Matters applicable to the activity proposed
- to validate direct and indirect impacts to Program Matters
- to inform application of the mitigation hierarchy and development of appropriate mitigation measures
- as part of a reference data set for monitoring programs associated with the activity.

7.2 Review Proposed Activity Information

Information about the proposed activity will be reviewed to consider whether the relevant Program Matters Outcomes will be met as specified in section 7.1 of the Program.

This information will include the following:

- proposed disturbance area associated with construction, mining, infrastructure and processing, with figures as appropriate
- any construction or operational activities that could result in indirect impacts to Program Matters
- water supply source or network, or water management required to access ore below the water table
- any other relevant information specific to the proposed activity and Program Matters.

The activity information will be overlayed with environmental data to inform the application of the mitigation hierarchy (Section 7.3). 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 will seek to avoid and mitigate impacts on Program Matters during the process through improved project design and project planning.

7.3 Apply Mitigation Hierarchy

For each Notifiable Action, BHP will apply the mitigation hierarchy to avoid and mitigate impacts to Program Matters as far as practicable, and ensure that Program Matter Outcomes (Section 5 of this document) are met. The mitigation hierarchy is to avoid, mitigate and as a last resort, offset impacts to Program Matters.

Direct impacts relate to direct disturbance of areas relevant to Program Matters. Indirect impacts may include, but are not limited to, changes to groundwater regimes or quality, changes to surface water regimes or quality, light and noise pollution, increased human access to bat roosts, vibration, and habitat fragmentation.

Avoid

Impacts to Program Matters will be avoided where practicable through activity planning and design measures, selecting alternative mining methods, or through placement and design of infrastructure that avoid areas of important habitat. Critical habitats to be avoided through the application of the mitigation hierarchy are described in Table 7.1.

Table 7.1: Critical Habitats to avoid

Program Matter	Critical Habitat Description	Reference
Pilbara Leaf-nosed Bat	Priority/Category 1 cave - permanent diurnal roost and maternity roost with seasonal presence of young	TSCC (2016b); Bat Call WA (2021b)
	Priority/Category 2 cave – permanent/semi-permanent possible breeding roosts that are used during some part of the breeding cycle (but without the proven presence of young)	TSCC (2016b); Bat Call WA (2021b)
	Priority/Category 3 cave - transitory diurnal roosts, occupied part of the year only, outside the breeding season (i.e. April-June) that facilitate long distance dispersal	TSCC (2016b); Bat Call WA (2021b)
Northern Quoll	Habitat supporting high density Northern Quoll populations	Commonwealth of Australia (2016)
Ghost Bat	Category 1 cave - maternity/diurnal roost caves with permanent Ghost Bat occupancy (these may be abandoned underground mines)	Bat Call WA (2021a)
	Category 2 cave - maternity/diurnal roost caves with regular (but not continuous) Ghost Bat occupancy that is capable of supporting one or more reproducing females and their habitat (these may be abandoned underground mines)	Bat Call WA (2021a)
	Category 3 - Diurnal roost caves with occasional occupancy if adjacent to one or more Category 2 cave(s); these may be abandoned underground mines	Bat Call WA (2021a)

Mitigation

Impacts to Program Matters will be minimised through measures taken to reduce the duration, intensity and/or extent of impacts, such as the staging or timing of activities to mitigate cumulative or seasonal impacts, implementing water management controls to provide environmental flows, feral animal control strategies, establishing appropriate separation distances/buffers between activity and important habitat, traffic control, signage and retaining movement corridors.

7.4 Determine Residual Impacts

Residual impacts are the unavoidable impacts which remain after avoidance and mitigation measures have been implemented (Commonwealth of Australia, 2012).

Residual impacts to Program Matters will be determined as part of the validation process and reported in the Validation Notice, having regard to:

- the Program Matters relevant to the Notifiable Action
- identification of direct and indirect impacts associated with the Notifiable Action
- application of the mitigation hierarchy

- the estimated area of impacted habitat via direct disturbance to the relevant Program Matter/s using BHP ground disturbance tracking systems
- the ecological value of impacted habitat of the relevant Program Matter/s
- the estimated residual impact based on the area of impacted habitat for the relevant Program Matter/s which remains after all practical avoidance and mitigation measures have been implemented
- the requirement of an offset based on the estimated residual impact.

The steps included in the calculation of residual impacts are presented in Figure 7.2.

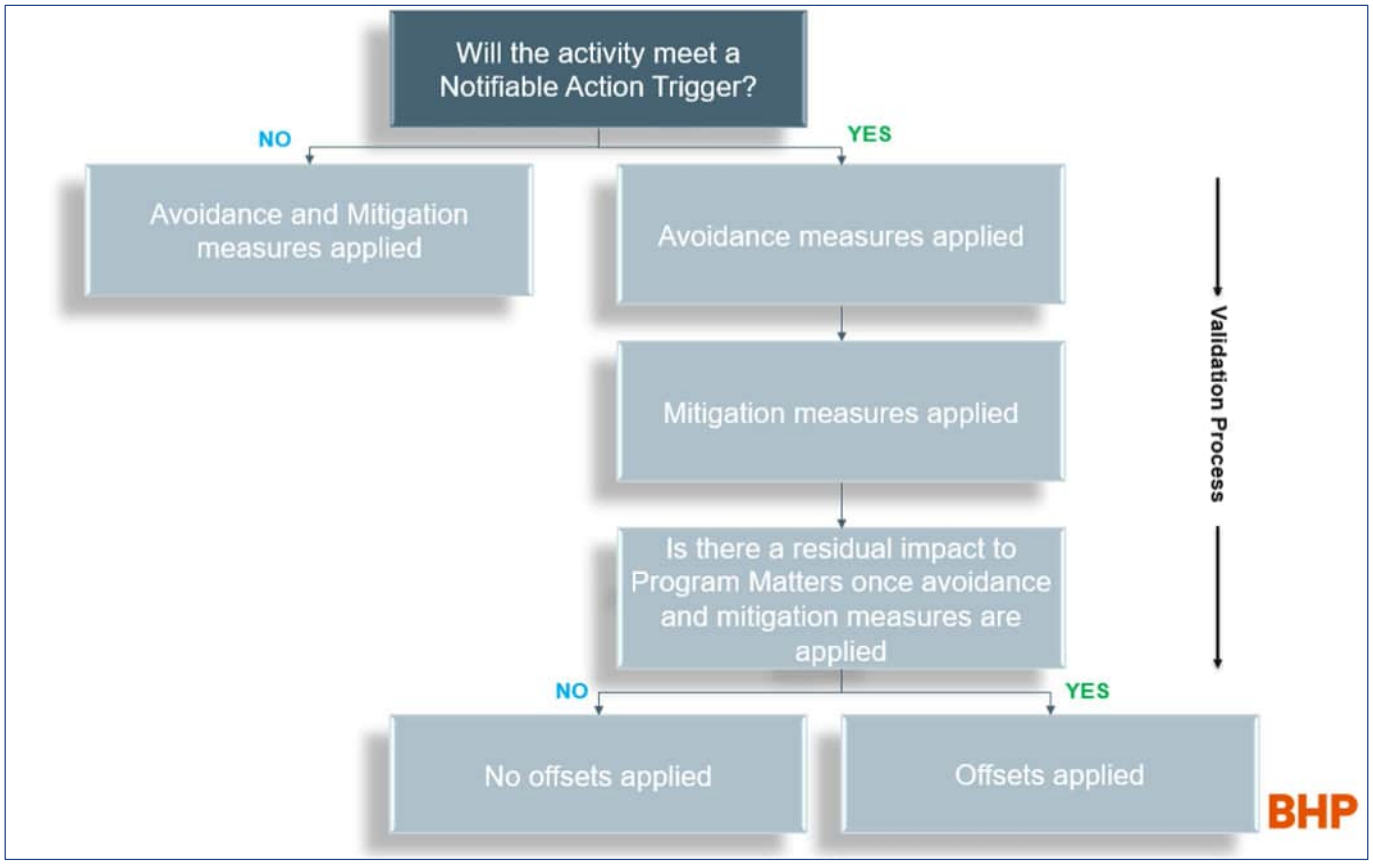


Figure 7.2: Residual impact assessment process in Validation Notice

7.5 Identification of Offsets

If residual impacts to a Program Matter cannot be avoided or mitigated to an acceptable level (i.e. residual impacts present an unacceptable risk to achievement of Program Matter Outcomes and Objectives), an Offsets Proposal will be developed and implemented in accordance with the Offsets Plan (refer Part C of this document). The Offsets Proposal will be included in the Validation Notice.

7.6 Develop a Draft Validation Notice

Validation Notices are to be prepared prior to activities associated with a Notifiable Action being undertaken. The matters that must be addressed in a Validation Notice are detailed in section 8 of the Program and include:

- a date that the Validation Notice will take effect, as identified by the date and signature of a BHP authorised person
- location of the action

- description of activities planned as part of the action
- expected end date of activities associated with the action
- estimate of direct disturbance area, including residual impact estimate
- Program Matters relevant to the action
- map illustrating the boundary of the action and area of direct disturbance
- discussion of direct and indirect impact using contemporary information, threat abatement plans and data, and demonstration that the Program Matters Outcomes can be met through application of the mitigation hierarchy, including details of offsets proposed, specifically:
    - description of activities used to assess and determine Program Matter(s)' habitat and population(s) within and adjacent to the activity area and findings of associated surveys
    - description of relevant Notifiable Action triggers, for example, the nature and extent of the Program Matter habitat or recorded presence
    - detail actions to avoid impacts on the Program Matter(s), for example, through road design or placement of infrastructure/waste dumps to create exclusion zones and record the reduction in impact as a result
    - detail actions to mitigate impacts to the Program Matter(s), for example, the design and implementation of surface water and groundwater management controls to minimise direct or indirect impacts to habitat, control traffic speeds with road signage, feral animal control, design and locate barbed wire fences so as to minimise unintentional mortality from entanglement and record the associated reduction in potential impact
    - detail how residual impacts to the Program Matter(s) are calculated
    - description of Program Matter(s) monitoring activities and performance targets
    - corrective and contingency actions that may be implemented
    - outline actions to offset residual impacts on Program Matter(s)
- discuss the stakeholder consultation conducted and the outcomes.

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.

7.7 Undertake Targeted Stakeholder Engagement

BHP will undertake targeted stakeholder consultations during the development of the draft Validation Notice with community members, Traditional Owners, regulatory authorities and other interested parties. The stakeholders consulted and level of stakeholder consultation undertaken will depend on the location, complexity, size and risk of the particular activity, and the level of stakeholder interest indicated. Information shared by BHP during consultation relates to the nature of the proposed activity, impacts to Program Matters, and management and monitoring of the Program Matters. To facilitate understanding of the activity, consultations can take many forms including meetings, workshops, on-country engagements, site visits and participation in Program Matter surveys and monitoring. The consultations are to identify and respond to any concerns in relation to the activity, and to work together to identify priorities for management. The consultation will be documented in the draft Validation Notice.

7.8 Public Consultation

The draft Validation Notice will be made publicly 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.

BHP is required under section 9 of the Program to consider comments received on the draft Validation Notice prior to issuing a final Validation Notice. BHP will document how the comments have been addressed and include a summary of this in the final Validation Notice.

7.9 Issue Final Validation Notice

The final Validation Notice will be issued a minimum of 20 business days prior to undertaking activities associated with the Notifiable Action. This period is to allow DCCEEW to undertake an audit of the Validation Notice process, if required.

7.10 Commencement of the Action

Where BHP has issued a final Validation Notice, the action must commence within five years of the date of the Validation Notice, but no earlier than 20 business days after its issue. The action, avoidance, mitigation and offset measures must be undertaken in accordance with the final Validation 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 or the Approval Holder
- BHP issues a new Validation Notice for that action in accordance with the Program (the issuing of a new Validation Notice would extend the commencement timeframe of the action for another five years).

7.11 Variation to a Validation Notice

Under section 8 of 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.

The revised Validation Notice will be issued with the document versions captured in the Document Control table at the start of the Validation Notice. This table will also contain a short description of the amendment for each version and dates each version was finalised, effective from and expires. Validation Notices will document the original activity and outcomes of the original validation process and the change or addition from the variation.

8 Implementation, Review, Adaptive Management and Reporting

8.1 Governance

BHP has an internal environmental governance hierarchy (Figure 8.1) 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'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'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's Environmental Management System (EMS). BHP reports its corporate-wide sustainability performance in the BHP Annual Sustainability Report.

At the Asset level, BHP's EMS, which includes regional strategies and plans, is the governance system that addresses environmental outcomes for the Pilbara region. The Program, Approval, Assurance Plan and Offset Plan are examples of Asset level governance.

Site-specific Validation Notices include management, monitoring and reporting that is undertaken in a manner consistent with Corporate and Asset level governance documents and systems. Procedures and registers are examples of the internal controls that underpin day-to-day operational activities. BHP publicly reports its environmental compliance performance in its Annual Environmental Report (AER) (Section 8.10).

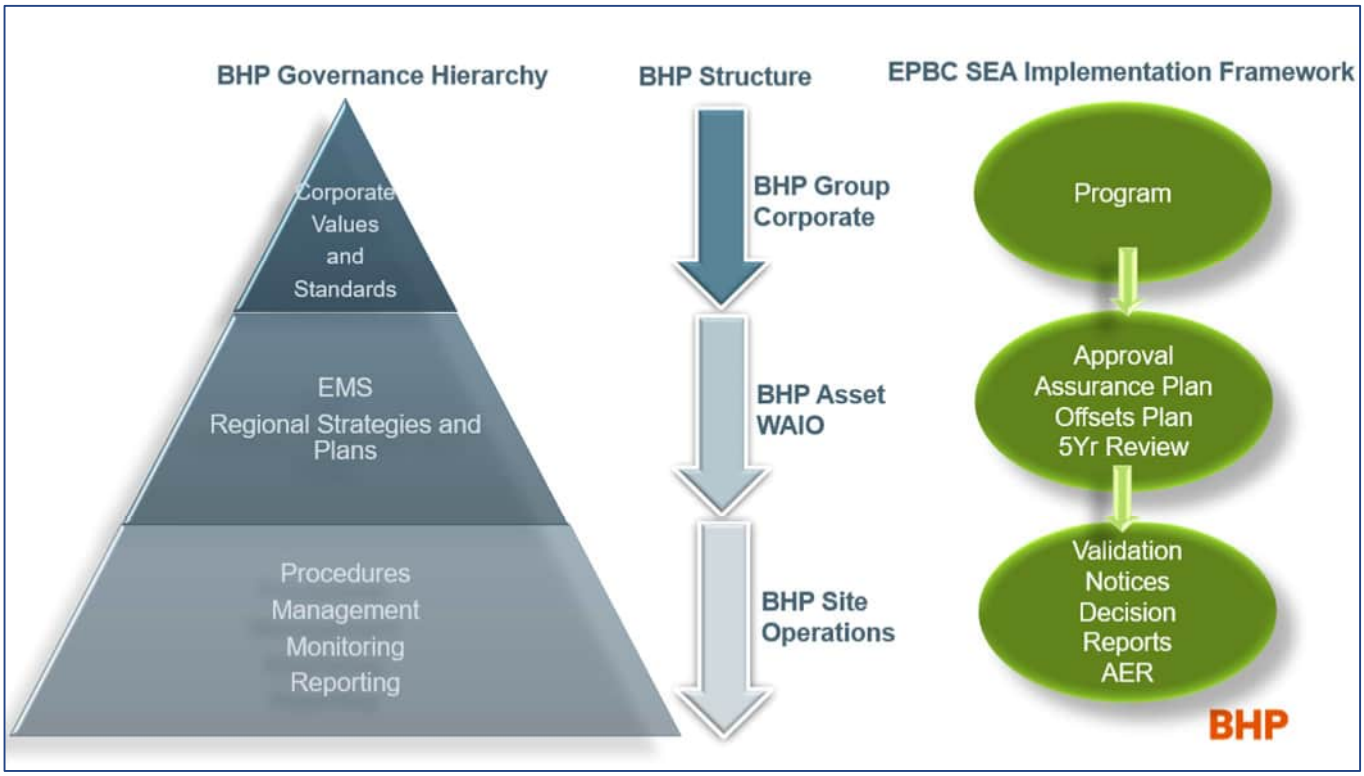


Figure 8.1: BHP environmental governance hierarchy and Strategic Assessment Alignment

8.2 Authorisation Process

Section 3.1 of the Program requires BHP 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.

8.2.1 Projects

The BHP Iron Ore Projects Internal Standards (the Standards) sets out the minimum environmental criteria that must be met in delivery of BHP 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 Standards requires a Project Management Plan (PMP) be prepared prior to and implemented for the duration of each activity. PMPs are required to include any obligations and requirements described in applicable Validation Notices to ensure compliance with the Program. The BHP Project Lead is responsible for preparation, implementation, ongoing review/update and audit of the PMP. The BHP Project Lead may assign the responsibility to prepare the overall PMP to a contractor which is appointed by BHP to oversee the completion of the activity; however, in such circumstances the BHP Project Lead will remain accountable for ensuring a PMP is in place which is fit-for-purpose, effective and compliant with the BHP Standards, through conducting verification activities.

The Standards require the contractor or sub-contractor to 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 Validation Notices and/or other obligations under the Strategic Assessment which will be reviewed. The BHP Project Lead is responsible for ensuring the persons and/or the contractor is aware of all their environmental obligations, including those under the Program, and to review the project obligation register.

8.2.2 Operational Readiness

Every project that introduces changes to existing site operational external approvals and compliance obligations (i.e. to the Validation Notice and its associated monitoring programs, management activities), must have a plan in place that demonstrates the understanding, agreement and hand over of this information between the Project, Operations Readiness Team, HSE Business Partners, and relevant Subject Matter Experts (SME) and Functions. The BHP Project Lead is accountable for the transfer of external approvals and compliance obligations information, including the Program and Validation Notices. This ensures a smooth handover of any additional requirements that the project may introduce to the Operation, and that any new Validation Notice obligations associated with the project and its cumulative interaction with existing operations (i.e. business as usual) are met in accordance with Program.

8.2.3 Operations

In addition to legal obligations registers, BHP also has an internal land management and ground disturbance permitting process (the Permit). The purpose of the process is to manage implementation of environmental, Aboriginal heritage, land tenure and legal commitments prior to and during land disturbance. All ground disturbance activities will meet the requirements of the process procedure, all relevant legislative and regulatory requirements (including the Program and applicable Validation Notices), the BHP Charter, industry standards, and codes of practice. It is the responsibility of the Permit Project Owner to ensure that the conditions of the Permit are applied during project planning and execution, as well as consideration and inclusion of environment, heritage and tenure related risks into task based risk assessments. Conditions imposed as part of the Permit approval are a reflection of obligations from legal and other requirements, including the Program and Validation Notices and therefore must be adhered to. Permit conditions must be clearly communicated to and understood by all relevant personnel prior to the commencement of work covered by the Permit. It is every employee and contractors responsibility to ensure that these are adhered to. A process must be in place to ensure all Permit conditions are fully complied with during the

execution of the land disturbance activities. It is the responsibility of the Permit Project Owner to conduct regular verification activities to ensure the controls implemented are effective and meet the Permit conditions.

8.3 Monitoring

Program Matter monitoring programs will be implemented to demonstrate how BHP is meeting the applicable population-based Program Matter Outcomes (defined in Section 5). Program Matters can vary in behaviour and ecology, which is further complicated by a lack of data and understanding of the species. This results in complexity when monitoring the Program Matters and uncertainty in understanding the data obtained. For example, Pilbara Olive Pythons are cryptic in nature and difficult to find on a reoccurring basis. Ghost Bats can vacate a roost if disturbed by humans entering caves undertaking monitoring. The Grey Falcon occurs in low numbers across its range may use an area sporadically or infrequently as they move in response to food availability, as will the Greater Bilby. As a result, the monitoring programs will be tailored to each Program Matter and their occurrence in the SAA. The design of the programs will include a range of performance targets, that when considered collectively can assist in demonstrating the Program Matter Outcomes are being met. These may vary in duration (long, mid and short time horizons), the metrics they apply (presence/absence, population or colony size, presence of breeding) and the monitoring techniques they use, informed by the monitoring locations characteristics (e.g. scat collection may be replaced with cameras or echolocation where access to a roost cave is considered unsafe).

Survey data on presence and type of populations of Program Matters including any assumptions and descriptions of the monitoring program, and performance targets will be included in the Validation Notice. Survey data, monitoring data, assessment against the performance targets and Program Matter Outcomes will be included in the AER and five yearly review as relevant.

8.4 Management

Avoidance, monitoring, management and mitigation measures implemented to minimise direct and indirect impacts of activities with the scope of the Program will be described in Validation Notices. Where the management commitments outline in the Validation Notice are considered key activities to assist BHP in meeting a Program Matter Outcome, implementation of these actions will be included in the AER.

8.5 Compliance Tracking

BHP maintains an ISO 14001 compliant EMS which is independently certified. BHP has set out its approach to managing environmental compliance and risk in its internal procedures which have been developed to comply with the requirements of Clause 4.3.1 of ISO 14001. The procedures apply to all environment risks/impacts whether strategic, operational, compliance or technical in nature.

Key processes outlined in the procedures include:

- risk management
- baseline and impact assessment
- legal and corporate obligations
- land disturbance approval process
- internal and external audits.

BHP currently uses software packages and online database tool(s) to administer and report against its legal and corporate obligations, including the requirements of the Strategic Assessment.

8.6 Compliance Audits

The controls for environmental risk are verified through both internal and external audits. In line with Approval conditions, independent compliance audits will be conducted by BHP, 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. BHP typically undertakes selective internal audits, including legal audits and layered audits, on individual operations, internal assurance processes (monitoring and reporting data, corporate policy compliance, procedures) and sustainability reporting on an annual basis. BHP tracks audit findings and corrective actions in its internal systems. Any non-compliances with Strategic Assessment obligations (including the Program, Approval, Assurance Plan, Offset Plan and Validation Notices) identified during audits are reported in the EPBC Annual Report.

Table 8.1 outlines the types of audits and associated schedule for the Strategic Assessment.

Table 8.1: Audit Types and Schedule

Name	Timing	Type	Indicative Description
Compliance audit	Annual	Internal	Focused audit on compliance with a set of obligations in the SEA An example may be implementation of the obligations in a Validation Notice
Layered audit	Annual	Internal	Focused audit on a single aspect of the SEA An example may be implementation of a monitoring program or management action
Implementation and Compliance Audit	One every five years	External	Detailed audit on implementation of the SEA Examples may be audits that covers implementation of the Program, Approval Conditions, Assurance Plan, Offsets Plan, Validation Notices, Decision Reports and Reporting

8.7 Data Management

BHP has a standardised approach for the collection, management and storage of biodiversity data related to the implementation of the Program.

All biodiversity survey data is required to be submitted to BHP in a standard and consistent format, enabling effective QA/QC and efficient upload into BHP systems. Effective data standards enable comparison and analysis of data between survey areas and within areas over time. The standardised approach also 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's GIS database
- vertebrate fauna survey standards to ensure consistency of survey methodology across different surveys.

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

BHP reporting requirements for environmental data verification and assurance and reporting of environmental monitoring data state that 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 reporting requirements 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 to 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
- an investigation is required for any values that are above triggers and thresholds.

8.8 Data Sharing

BHP has provided the Western Australian Department of Biodiversity, Conservation and Attractions (DBCA) 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 has strongly supported, through the WA Biodiversity Science Institute, the establishment of environmental data and sharing infrastructure in WA that ensures effective data management and custodianship.

BHP submits all data associated with state environmental approvals processes to the Index of Biodiversity Surveys for Assessment (IBSA). This data is administered by the Department of Environment and Water Regulation and is endorsed by BHP to be made publicly available.

Biodiversity data collected by BHP is submitted to the Dandjoo biodiversity data platform. Dandjoo is hosted by the Biodiversity Information Office (BIO) of the DBCA. The purpose of this platform is to mobilise data from all environment-related sectors, including government, industry, research, and the community. In 2022 Western Australia became the first State to deliver data for the Commonwealth's new Biodiversity Data Repository as a part of this initiative.

8.9 Adaptive Management Overview

BHP applies an adaptive management framework for implementing management measures. Adaptive management is a structured, iterative process to decision making. The framework embeds a cycle of monitoring, reporting and implementing change where required. It allows an evaluation of the management and mitigation measures so that they are progressively improved and refined, or alternative solutions adopted, to ensure that environmental objectives and outcomes are achieved. The key steps of the adaptive management approach are outlined in Figure 8.2.

Adaptive management for impacts to Program Matters and the achievement of Program Matter Outcomes applies at two hierarchical levels. These are locally via the Validation Notice monitoring and annual reviews and regionally at the SAA scale via the five yearly review of the Assurance and Offset Plans.

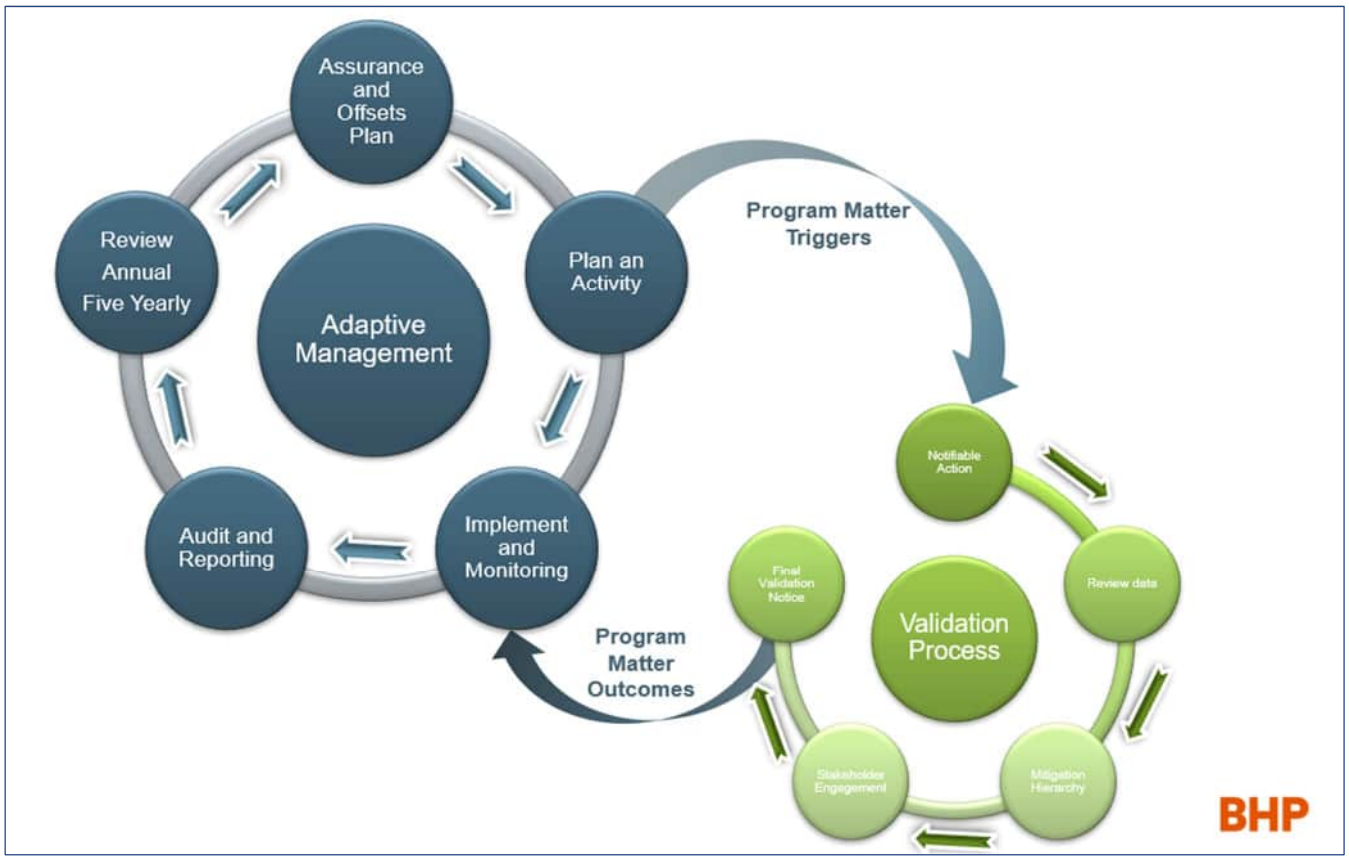


Figure 8.2 BHP's adaptive management approach

Key aspects of the approach are shown in Figure 8.2 and include:

- triggers identified and assessed for each Program Matter (Section 5)
- the validation process triggered by a Notifiable Action requires the preparation of a Validation Notice for the activity and incorporates avoidance, management, mitigation and corrective measures (Section 7)
- implementing management and monitoring described in Validation Notice (Section 7 and Section 8)
- annual reporting evaluates implementation of the activities over the life of the Program (Section 8.10), and includes 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, allows for adopting of learnings from new information and research (Section 8.11) and the identification of future threats and implementation of management. These reviews ensure that the implementation and Validation Framework remains fit for purpose, and continues to contribute to achievement of Program Matter Outcomes and Objectives, over the life of the Program.

8.10 Annual Environmental Report

BHP produces an AER for its environmental obligations under Commonwealth legislation.

As a minimum, the AER will contain:

- BHP decisions (Notifiable Actions and Non-notifiable Actions) in relation to its activities within the SAA, and its compliance in relation to the upper disturbance limit of 110,000 ha specified in section 2.4 of the Program. An outline of offsets applicable to the decision, including offsets required under other legislation will be specified in the AER.

- 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 to be 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, with both the annual disturbance and the total disturbance (since the Approval) included
- monitoring, management and corrective actions implemented during the reporting period to avoid, mitigate and offset impacts to Program Matters
- outcomes of compliance audits undertaken during the period covered by the report
- attainment of Program Matter Objectives and Outcomes
- summary of any exceedances of the Program Matter Outcomes relevant to each Notifiable Action, and corrective actions taken
- the effectiveness of management and corrective actions to avoid, mitigate and/or offset impacts to Program Matters
- deviations from the Program or from information and management commitments contained in a Validation Notice for a Notifiable Action
- a summary of Pilbara Environmental Offsets Fund Impact Reconciliation Report submitted (refer Section 15.1 of this document)
- outcomes of the five yearly reviews where these reviews occur within the reporting period (refer Section 8.12).

8.11 Reporting in Relation to Notifiable Action and Non-Notifiable Action Decisions

The decision-making process for determining a Notifiable Action within the SAA is described in Section 6 of this document.

Decision Reports that outline the basis for BHP concluding that an activity is not a Notifiable Action will be produced each time BHP makes such a decision (Section 6.2). The Decision Reports will be retained by BHP and made available to the Department for auditing purposes. BHP will report its decisions in relation to its activities within the SAA, associated offsets and its compliance in relation to the upper disturbance limit of 110,000 hectare (ha) specified in Section 2.4 of the Program in its Annual Environmental Report (refer Sections 8.10 and 8.11 of this document).

Validation Notices will be prepared for Notifiable Actions, as described in Section 7 of this document.

The AER will include a summary of the all decisions (Notifiable Action, Non-Notifiable Action and exclusions) made throughout the annual period.

8.12 Five Yearly Review

Section 4.1 of the Program and condition 3 of the Approval requires BHP to review and revise the Assurance Plan and Offsets Plan every five years from the date of the Approval (19 June 2017). It has been agreed with the

department that these reviews would be submitted within a six month range of the anniversary date of the Approval (as outlined in Table 8.2).

Table 8.2: Scheduled Five Yearly Review of the Assurance Plan and Offsets Plan

Review number	Date Range for Submission of Reviewed Assurance Plan and Offset Plan
1	19 December 2021 to 19 December 2022
2	19 December 2026 to 19 December 2027
3	19 December 2031 to 19 December 2032
4	19 December 2036 to 19 December 2037
5	19 December 2041 to 19 December 2042 and so forth

8.12.1 Technical Review

In accordance with section 4.1.1 of the Program, BHP will consider the following plans and advice as they apply to relevant Program Matters in conducting its five yearly review:

- threat abatement plans
- conservation advice
- recovery plans
- equivalent guidance material.

The above documents, along with contemporary data, the findings of new studies and research, new listings, new EPBC Act protected matters, monitoring and reporting data from implemented activities and data from existing BHP projects 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 are being met if the Notifiable Action is taken. These reviews will include a review of Program Matters and their Objectives and Outcomes.

Monitoring data on Program Matters will be evaluated and reported on in the five yearly review to demonstrate the effectiveness of the Program in achieving Program Matter Outcomes.

Based on these reviews, the Assurance Plan and Offsets Plan will be updated and submitted to the Minister for approval.

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 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.

8.12.2 Voluntary Consideration of New Program Matters

Listing advice is released from the Department periodically advising whether a listing event has created a new Matters of National Environmental Significance (MNES), or affected an existing MNES under the EPBC Act. Under section 4.1.2 of the Program, BHP has voluntarily committed to consider these new listing events as relevant to the Controlling Provisions as part of its five yearly review process. That is, BHP will consider 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.

In addition to this voluntary consideration, the Program requires that BHP must undertake this type of review at Year 35 (from the date of Approval).

If there are any new MNES listings identified in these reviews, BHP will:

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

BHP will implement the Assurance Plan and Offsets Plan to protect new matters as if those new matters are Program Matters.

8.12.3 Consultation Requirements During the Five Yearly Review

BHP is required to undertake stakeholder engagement during the five yearly review of the Assurance Plan and Offsets Plan. Stakeholders include members of the community and groups that have been included on a register of interested parties identified through the Strategic Assessment public consultation period, or other stakeholder engagement activities undertaken by BHP. Relevant Western Australian regulatory agencies are included on the register of interested parties.

BHP will also consult with the Department during 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.

The draft revised Assurance Plan and Offsets Plan will be made publicly available for a period of 28 days with instructions on how to provide comment. A record of any comments from stakeholder engagement on these documents, and how they have been addressed within the revised Assurance Plan and Offsets Plan will be provided to the Department when the revised plans are submitted for approval by the Minister.

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

Part C: Offsets Plan

9 Purpose and Offset Plan Requirements

9.1 Purpose and Scope

The purpose of the Offsets Plan is to ensure that appropriate offsets are applied to address residual impact(s) of actions as close as practicable to the time of impact (section 3.2 of the Program). The Offsets Plan, as varied from time to time, will have the effect for 100 years from the date of the Approval, and applies to any Notifiable Action taken under the endorsed Program that has a residual impact following application of avoidance and mitigation measures. The scope of the Offsets Plan is outlined in Section 1 of this document.

If residual impacts to Program Matters cannot be avoided or mitigated to an acceptable level (i.e. residual impact is likely to occur), an Offsets Proposal will be developed and implemented in accordance with this Offsets Plan and will be included in the Validation Notice (refer Section 7 of this document).

9.2 Offsets Plan Requirements

Section 3.2 of the endorsed Program specifies the requirements for and content of the Offsets Plan. Table 9.1 outlines these requirements and cross references to sections of this document which address these.

Table 9.1: Offsets Plan Requirements

	Strategic Assessment Program Offset Plan requirements	Sections which address these requirements
1	Program Matters Outcomes to be achieved	5, 10
2	A method for calculating significant residual impact that may result from undertaking a notifiable action, and an approach to converting the results of these significant residual impact estimate into a quantifiable offsets outcomes	7
3	An implementation plan to apply and track offsets over time including identification and prioritisation of offsets	11, 12, 13, 14, 15
4	Monitoring, reporting, adaptive management process for changing offsets identification and priorities and evaluation mechanisms	15
5	Timeframes and responsibilities for implementation	15,16
6	Funding schedule and financial arrangements	14
7	Governance arrangements to deliver	16

10 Objectives and Outcomes

10.1 Program Matter Outcomes and Objectives

Program Matters, their objectives and outcomes are set out in Sections 3, 4, and 0 of this document.

10.2 Offsets Objectives

BHP shall compensate for any residual impacts to Program Matters, as specified in section 3.2 of the Program, through the application of appropriate, effective and enduring offsets for the affected Program Matters with the aim of achieving the Program Matter Objectives and Outcomes as captured in the Offset Proposal included within the Validation Notice. The Program describes an approach to addressing environmental offsets that:

- is at the regional or landscape scale and relevant to the SAA
- where possible, meets the requirements of both the Commonwealth and State offset obligations
- implements conservation actions in a coordinated way based on specific and clear investment decisions and achievement of measurable outcomes for the respective Program Matters
- focuses on the highest-priority biodiversity issues (key threatening processes) in the region through the delivery of on-ground initiatives that are proportionate to potential residual impacts
- provides opportunities for partnerships between government, industry, landholders and Aboriginal communities
- is transparent, with robust governance arrangements that ensure offset outcomes can be readily measures, monitored and audited
- will have success measures set for each Program Matter Objective
- will be applied with an adaptive management framework.

11 Offset Methods

As set out in the Assurance Plan (Section 7 of this document), any residual impacts of Notifiable Actions, remaining after avoidance and mitigation measures, will be offset. Typical offset methods available in the Pilbara that BHP may use include, financial, land management and research offsets (Table 11.1). Further information describing when each offset method would be applied is outlined in Sections 11.1, 11.2 and 12.

Table 11.1: Offset Methods

Offset Pathway	Description	Type of Offset	Offset Managed by
Contributions to the Pilbara Environmental Offset Fund (PEOF)	A payment made to the agency managing the PEOF, currently the Department of Water and Environmental Regulation (DWER), based on the type and scale of the impact ($x per ha disturbed). Rates may vary for disturbance critical and supporting habitat as agreed with the Department. Offset activities may include threat abatement for Program Matters at the regional scale or protection of equivalent quantity of habitat type as determined by the PEOF.	Direct Offset	DWER and third party providers
BHP Program Matter Habitat Restoration	Restoring Offset Sites with proven methods to improving habitat quantity/quality. The conservation gain achieved will be new or additional to what is already required by any duty of care of environmental planning laws at any level of government.	Direct Offset	BHP and third party providers
BHP Program Matter Threat Abatement	Threat abatement for Program Matters. Offset activities may include feral animal management	Direct Offset	BHP and third party providers
BHP Offset Time-bound Trial	Restoring Offset Sites with not yet proven methods to improving habitat quantity/quality. Offset activities may include recreation of pools or water holes, artificial Ghost Bat caves or rock piles for Northern Quoll.	Direct Offset	BHP and third party providers
Research and Education	Targeting gaps in knowledge to address impacts or improve management of impacted biodiversity values.	Indirect (other compensatory measures – no greater than 10% of an offset as per EPBC Offset Policy)	BHP in collaboration with third parties and institutions

11.1 Financial Offsets

The Pilbara Environmental Offsets Fund (PEOF) will be used to offset residual impacts to critical and supporting habitat of Program Matters. The PEOF was established in response to the difficulties of implementing effective offsets in the Pilbara due to the region's unique land tenure (all Crown land with overlapping mining, native title and pastoral

interests). The PEOF combines money from individual offset payments required under Part IV of the *Environmental Protection Act 1986* (EP Act), and contributions required under Part 9 or 10 of the Commonwealth EPBC Act. This money is then combined into the PEOF's special purpose account. The Fund is administered and offset projects are managed by the DWER.

Financial contributions to the PEOF will maintain or enhance the distribution and conservation status of the Program Matters through investment into one or more conservation projects conducted at various scales by the PEOF:

- landscape-scale programs address threats like weeds, feral animals, and inappropriate fire across the landscape
- priority area programs build on the landscape-scale outcomes to further improve and protect vegetation and species habitat in identified priority areas
- site-specific projects protect and improve specific environmental matters such as Priority Ecological Communities or a particular habitat with unique attributes.

Generally, the contributions to the PEOF will address clearing for the entire project footprint and including critical and supporting habitat. The PEOF may not be suitable for offsetting impacts to some critical habitats such as Priority 1 and 2 Ghost Bat and Pilbara Leaf-nosed Bat roosts. All offset pathways in relation to Program Matters are outlined in Section 12. BHP will continue to commit funds to the PEOF where the validation process identifies a residual impact to Program Matters as a result of actions within the scope of the Strategic Assessment.

11.2 Land Management Offsets

Land management offsets include where an area of land can be managed or improved to an agreed standard. These types of offsets are likely to be implemented on BHP held tenure and other leases, as appropriate, and may include:

- habitat restoration within proximity to existing Program Matter populations
- threat abatement
- offset time-bound trials.

BHP is likely to utilise land management offsets where the validation process identifies a residual impact to Program Matters localised critical habitat features (e.g. caves).

12 Offset Pathways

Offsets will apply where the validation process identifies residual impacts to Program Matters as a result of actions within the scope of the SEA. Offsets proposed may utilise a single pathway or a combination of pathways to compensate a residual impact. All offsets will need to achieve the appropriate Program Matter Objective and Outcomes. Based on a consideration of the Program Matter Objectives, Offset Objectives, and Offset Methods, the offset pathways for each Program Matter are as shown in Table 12.1. This table may be modified in consultation with DCCEEW if new offset opportunities present themselves prior to the next five yearly review of this plan.

Table 12.1: Program Matters and Offset Pathways

Program Matter	Habitat Type	Habitat Description	Possible BHP Habitat Name[8]	Reference	Primary Offset Pathway
Greater Bilby	Critical	Denning and foraging within the home range of plain habitat with isolated dunes and dune fields that support soils from coarse sand to light medium clay with vegetation types • Woodlands of low trees (<10m) with *Eucalyptus* and *Acacia* spp. • Shrub-steppe communities over *Triodia* hummock grasslands • Pindan woodland with hummock and tussock grasses	Sand Dune, Sand Plain	DCCEEW (2023); Cramer *et al.* (2017)	Financial contributions to PEOF BHP Threat Abatement BHP Offset Time-bound Trial
		Denning and foraging within the home range of rises, breakaways, plateaus, granitic hills and rises that support sandy soils, sandy loams and red earths often with lateritic, small gravel, stony matrix with vegetation types of low shrub cover of *Acacia* spp. including mulga (*A. aneura*) over hummock and tussock grasses.	Sand Plain, Stony Plain	DCCEEW (2023); Cramer *et al.* (2017)	
		Denning and foraging within the home range of creeklines and palaeodrainage systems that support sandy and sandy loam soils, alluvial and calcareous areas, and salt channels and lakes with vegetation types of Spinifex grasslands (mainly *Triodia basedowii*, *T. pungens* and *T. schinzii*) with low shrub cover of *Acacia* spp. and *Melaleuca* spp.	Drainage Area/ Flood Plain, Saline Flats and Marsh	DCCEEW (2023); Cramer *et al.* (2017)	
	Supporting	Open tussock grasslands on uplands and hills		DCCEEW (2023)	Financial contributions to PEOF
		Mulga (*Acacia aneura*) woodland/shrubland (both pure mulga and mixed stands of mulga/witchetty bush) growing on ridges and rises	Mulga woodland	DCCEEW (2023); TSSC (2016a)	
		Hummock grassland growing on sand plains and dunes, drainage systems, salt-lake systems, and other alluvial areas	Sand Plain, Stony Plain, Drainage Area/Flood	DCCEEW (2023); TSSC (2016a)	

[8] BHP will utilise fauna consultants and surveys to identify which BHP-named habitats correspond most closely to critical or supporting habitat of a Program Matter at a site. Habitats listed are not necessarily all display features corresponding to the describe critical and supporting habitats.

Program Matter	Habitat Type	Habitat Description	Possible BHP Habitat Name[8]	Reference	Primary Offset Pathway
			Plain, Saline Flats and Marsh		
		Laterite and rock feature substrates that support *Acacia kempeana*, *Acacia hilliana* and *Acacia rhodophylla* shrub species and spinifex hummocks with open runways between the hummocks for easy movements		Southgate *et al.* (2007)	
Pilbara Olive Python	Critical	Rocky outcrops in proximity to deep gorges, gullies, and water holes	Gorge and Gully, Breakaway/Cliff, Water holes	DEWHA (2008)	Financial contributions to PEOF
		Permanent water holes	Water holes		BHP Program Matter Habitat Restoration
	Supporting	Deep gorges, gullies, drainage lines and water courses	Gorge/Gully, Major Drainage Lines, Minor Drainage Lines	DEWHA (2008)	Financial contributions to PEOF
		Under rock piles, on top of rocks or under spinifex to ambush prey	Boulders/Rockpiles	Tutt *et al.* (2004)	BHP Program Matter Habitat Restoration
Pilbara Leaf-nosed Bat	Critical	Priority/Category 1 cave - permanent diurnal roost and maternity roost with seasonal presence of young	Cave	TSCC (2016b); Bat Call WA (2021b)	Cannot be offset until artificial roosts are proven to be effective
		Priority/Category 2 cave - permanent/semi-permanent possible breeding roosts that are used during some part of the breeding cycle (but without the proven presence of young)	Cave	TSCC (2016b); Bat Call WA (2021b)	Cannot be offset until artificial roosts are proven to be effective
		Priority/Category 3 cave - transitory diurnal roosts, occupied part of the year only, outside the breeding season (i.e. April-June) that facilitate long distance dispersal	Cave	TSCC (2016b); Bat Call WA (2021b)	Cannot be offset until artificial roosts are proven to be effective, then the following may apply

Program Matter	Habitat Type	Habitat Description	Possible BHP Habitat Name[8]	Reference	Primary Offset Pathway
					BHP Program Matter Habitat Restoration BHP Program Matter Threat abatement and/or BHP Offset Time-bound Trial
		Permanent water sources within 8.7 km of a known Priority/Category 1-3 roosts	Cave	Bat Call WA (2021b)	BHP Program Matter Habitat Restoration BHP Offset Time-bound Trial
		Foraging habitat within 10 km radius of these caves that include: • plain and low hill habitat that includes watercourses and other sites with semi-permanent or permanent surface water (natural or anthropogenic); three layers in vegetation structure • mesa side or long ridge line with south, east or west facing, deeply incised gullies with vertical walls; semi-permanent or permanent water pools present; vegetation is complex; also north facing gullies with permanent water • deep wet 'open' gorge with hills to the side; wet 'closed' gorge with one or two vertical walls; complex three layer, dense vegetation structure; semi-permanent or permanent water pools present	Major Drainage Line, Mulga Woodland, Water holes	TSSC (2016b); Bat Call WA (2021b)	Financial contributions to PEOF
	Supporting	Priority/Category 4 cave - nocturnal refuge that are occupied at night for resting, feeding or other purpose, with perching not a requirement, which can be moderately deep caves and shallow abandoned mines	Cave	TSCC (2016b); Bat Call WA (2021b)	BHP Program Matter Habitat Restoration BHP Offset Time-bound Trial
		Plains and low hills with three-layer, complex vegetation structure, or moderate two-layer non-complex vegetation structure; includes ephemeral watercourse	Drainage Area/Flood Plain, Minor Drainage Line	Bat Call WA (2021b)	Financial contributions to PEOF

Program Matter	Habitat Type	Habitat Description	Possible BHP Habitat Name[8]	Reference	Primary Offset Pathway
		Mesa side or long ridge line with north facing, deeply incised gullies with vertical walls, or mesa side or long ridge line with deeply incised gullies in weathered strata (45^{o} sloping walls); caves and overhangs present; shrubs and thin tree cover in gully base Ephemeral watercourse in gully or nearby (priority 2 foraging habitat)	Gorge/Gully, Breakaway/Cliff, Minor Drainage Line	TSCC (2016b); Bat Call WA (2021b)	
		Dry deeply incised gorge into a ridge or mountain; complex three layer vegetation structure Ephemeral water course (priority 1 foraging habitat)	Gorge/Gully, Major Drainage Line, Minor Drainage Line, Water holes	TSCC (2016b); Bat Call WA (2021b)	
		Rocky outcrop areas of exposed rock at the top of rocky outcrop and mesa hills that contain caves and overhangs, and boulder piles in the granite terrains (priority 3 foraging habitat)	Breakaway/Cliff, Hill Crests/Hill Slope	TSCC (2016b)	Financial contributions to PEOF BHP Program Matter Habitat Restoration BHP Offset Time-bound Trial
		Major watercourses that support riparian vegetation on flat land plus the main gravelly or sandy channel of the river bed, sometimes containing pools that persist for weeks or months, and generally supporting higher productivity of biomass than the surrounding habitats (priority 4 foraging habitat)	Major Drainage Line	TSCC (2016b)	Financial contributions to PEOF
		Open grassland and woodland dominated by *Triodia*, on lowland plains, colluvial slopes and hilltops (priority 5 foraging habitat)	Hill Crest/Hill Slope, Sand Plain	TSCC (2016b); DAWE SPRAT (2022)	Financial contributions to PEOF
		Large watercourses, around rocky outcrop, gullies, gorges and over pools	Gorge/Gully, Major Drainage Line, Minor Drainage Line, Water holes	TSCC (2016b); DAWE SPRAT (2022)	Financial contributions to PEOF

Program Matter	Habitat Type	Habitat Description	Possible BHP Habitat Name[8]	Reference	Primary Offset Pathway
Northern Quoll	Critical	Denning and foraging habitat within the home range of low rocky hills - mesas, gorges, escarpments, ranges, breakaways, and boulder fields	Gorge/Gully, Breakaway/Cliff	Hill and Ward (2010); DotE (2016)	Financial contributions to PEOF BHP Offset Time-bound Trial BHP Program Matter Habitat Restoration BHP Program Matter Threat abatement
		Denning and foraging within the home range of major drainage lines and tree-lined creeks	Major Drainage Line	Hill and Ward (2010); DotE (2016)	Financial contributions to PEOF
		Denning and foraging within the home range of structurally diverse woodland or forest areas containing large diameter trees, termite mounds or hollow logs	Eucalypt Woodland	Hill and Ward (2010); DotE (2016)	
		Dispersal and foraging habitat associated with or connecting populations important for the long-term survival of the Northern Quoll		DotE (2016)	
	Supporting	Variable foraging habitats since opportunistic foragers that feed on a range of items determined by availability and seasonality. The following habitat types have been identified to support foraging: • basalt hills, mesas (and buttes of limonites), high and low plateaus and lower slopes • tor fields and stony plains supporting either hard or soft spinifex grasslands • sandstone and dolomite hills and ridges, shrublands, sandy plains, clay plans and tussock grasslands and coastal fringes including dunes islands and beaches	Hill Crest/Hill Slope, Stony plain, Sand Plain	Hill and Ward (2010); DAWE SPRAT (2022)	Financial contributions to PEOF

Program Matter	Habitat Type	Habitat Description	Possible BHP Habitat Name[8]	Reference	Primary Offset Pathway
Ghost Bat	Critical	Category 1 - Maternity/Diurnal roost caves with permanent Ghost Bat occupancy; these may be abandoned underground mines	Cave	Bat Call WA (2021a)	Cannot be offset until artificial roost are proven to be effective
		Category 2 - Maternity/Diurnal roost caves with regular (but not continuous) Ghost Bat occupancy that is capable of supporting one or more reproducing females and their habitat; these may be abandoned underground mines	Cave	Bat Call WA (2021a)	Cannot be offset until artificial roost are proven to be effective
		Category 3 - Diurnal roost caves with occasional occupancy if adjacent to one or more Category 2 cave(s); these may be abandoned underground mines	Cave	Bat Call WA (2021a)	Cannot be offset until artificial roost are proven to be effective, then the following may apply BHP Program Matter Habitat Restoration BHP Offset Time-bound Trial BHP Program Matter Threat abatement
		Rocky outcrops in geological formations such as the following: • Brockman and Marra Mamba banded iron formation (BIF) • robe Pisolite channel iron deposit (CID) geology • ironstone geology and granite rockpiles	Gorge/Gully, Breakaway/Cliff	TSSC (2016c); Bat Call WA (2021a)	Financial contributions to PEOF
		Foraging habitat within 12 km radius of these caves or habitat surrounding each of these caves		Bat Call WA (2021a)	Financial contributions to PEOF

Program Matter	Habitat Type	Habitat Description	Possible BHP Habitat Name[8]	Reference	Primary Offset Pathway
	Supporting	Category 3 - Diurnal roost caves with occasional occupancy if isolated from Category 1 and 2 caves	Cave	Bat Call WA (2021a)	BHP Program Matter Habitat Restoration BHP Offset Time-bound Trial BHP Program Matter Threat abatement
		Category 4 - shallow caves, shelters and deep overhangs that support opportunistic usage for resting and feeding	Cave	Bat Call WA (2021a)	Financial contributions to PEOF
		Productive plain areas with thin mature woodland over patchy or clumped tussock or hummock grass (*Triodia* spp.) on sand or stony ground	Sand Plain, Stony Plain, Mulga Woodland, Drainage Area/Flood Plain	Bat Call WA (2021a)	Financial contributions to PEOF
		Isolated trees and trees on the edge of thin thickets on the plains		Bat Call WA (2021a)	
		Trees along the edges of watercourse woodlands	Major Drainage Line	Bat Call WA (2021a)	
		Prefer gully or gorge system that opens onto a plain or riparian line	Minor Drainage Line	Ghost Bat Conservation Advice (2016)	
Night Parrot	Critical	Nesting and foraging in areas that can support multiple to many occurrences of dense roosting habitat such as old-growth dense hummock-forming spinifex (*Triodia* spp.), thickets of lignum, or dense shrubby samphire		TSCC (2016d); Interim Night Parrot Habitat Statement (2020); Jackett *et al.* (2017); Horton et al. 2021	Financial contributions to PEOF BHP Program Matter Threat abatement BHP Offset Time-bound Trial
		Nesting and foraging in old-growth spinifex (*Triodia* spp.) in close proximity to ephemeral water sources, which may be associated with the following: • hummock grasslands (unburnt) in stony or sand plain environments	Sand Plain, Stony Plain Minor Drainage Line, Mulga Woodland	TSCC (2016d); Hamilton *et al.* (2017); Murphy *et al.* (2017); Horton *et al.* (2021)	Financial contributions to PEOF BHP Program Matter Threat abatement BHP Offset Time-bound Trial

Program Matter	Habitat Type	Habitat Description	Possible BHP Habitat Name[8]	Reference	Primary Offset Pathway
		• paleo-drainage features in a landscape mosaic with spinifex (*Astrebla* spp.) and *Acacia aneura* (Mulga) woodland • treeless areas and bare gibber			
	Supporting	Areas that are likely to be of relatively high vegetative or seed productivity such as run-on areas, flood plains, salt or clay pans, salt-lake margins	Drainage Area/Flood Plain,	Kanyirninpa Jukurrpa Indigenous Rangers (2020)	Financial contributions to PEOF
		Paleo-drainage systems, salt lakes and pans	Salt Lake Clay Pan	TSCC (2016d); Interim Night Parrot Habitat Statement (2020); Murphy *et al*. (2017)	Financial contributions to PEOF
		Permanent or ephemeral sources of free water, or areas where high soil moisture ephemerally or permanently support vegetation that offers a source of water	Drainage Area/Flood Plain	Interim Night Parrot Habitat Statement (2020); Kimberley Land Council / Paruku Indigenous Rangers (2020); Jackett *et al*. (2017); Davis & Metcalfe (2008); Kearney *et al*. (2016)	Financial contributions to PEOF
		Flyways varying from river and creek drainage systems, surrounding dune-fields, forb–grasslands on mainly ironstone gravel-covered plains, low ranges and low dissected tablelands supporting sparse shrublands, undulating stony clay plains supporting Mitchell Grass, and Gidgee	Drainage Area/Flood Plain, Sand Dune, Hardpan, Stony Plain, Clay Pan	Interim Night Parrot Habitat Statement (2020) and McDougall *et al*. 2009	Financial contributions to PEOF BHP Program Matter Habitat Restoration BHP Offset Time-bound Trial
Grey Falcon	Critical	The nests chosen are usually in the tallest trees along watercourses, particularly River Red Gum (*Eucalyptus camaldulensis*) and Coolibah (*Eucalyptus coolabah*)	Major Drainage Lines	Marchant and Higgins (1993); Schoenjahn (2013, 2018); Falkenberg (2010)	BHP Program Matter Habitat Restoration BHP Offset Time-bound Trial

Program Matter	Habitat Type	Habitat Description	Possible BHP Habitat Name[8]	Reference	Primary Offset Pathway
	Supporting	Timbered lowland plains, particularly *Acacia* shrublands that are crossed by tree-lined water courses; the species has been observed hunting in treeless areas and frequents tussock grassland and open woodland	Clay Pan, Drainage Area/Flood Plain, Eucalypt Woodland, Mulga Woodland, Sand Plain, Stony Plain, Hardpan Plain, Undulating Low Hills	TSSC (2020); Garnett *et a*l. (2011); Watson (2011); Schoenjahn (2013, 2018); Janse *et a*l. (2015); Ley and Tynan (2016); Olsen and Olsen (1986); Schoenjahn (2018)	Financial contributions to PEOF BHP Program Matter Habitat Restoration BHP Offset Time-bound Trial

13 Offsets Calculation

The method of calculating residual impacts is as shown in the Assurance Plan, specifically, Section 7.4 of this document. These are the impacts that remain after all practicable avoidance and mitigation measures have been applied.

13.1 Offsets Calculation – PEOF

Offsets to be applied through financial contributions to the PEOF for calculated residual impacts to supporting habitat for Program Matters will be applied through PEOF impact reconciliation process (EPA, 2021).

The outcome of this process allows BHP to calculate its financial contribution to the PEOF for actions within the scope of the SEA.

13.1.1 Identify of Program Matter to be Offset

Table 12.1 identifies when contributions to the PEOF may be used to offset residual impacts to Program Matters. The Validation Notice and/or Offset Proposal will specify which Program Matter will required to be offset by the PEOF.

13.1.2 Establish Baseline Condition

BHP evaluates historic and contemporary information and data related to all Program Matters during the Validation Notice process, as described in Section 7.1.

During the assessment, fauna habitat baseline survey data for each Program Matter is collected. A component of the biological survey information is the identification and mapping of critical and suitable habitats for each Program Matter. The habitat mapping data is mapped spatially and stored in an internal spatial database.

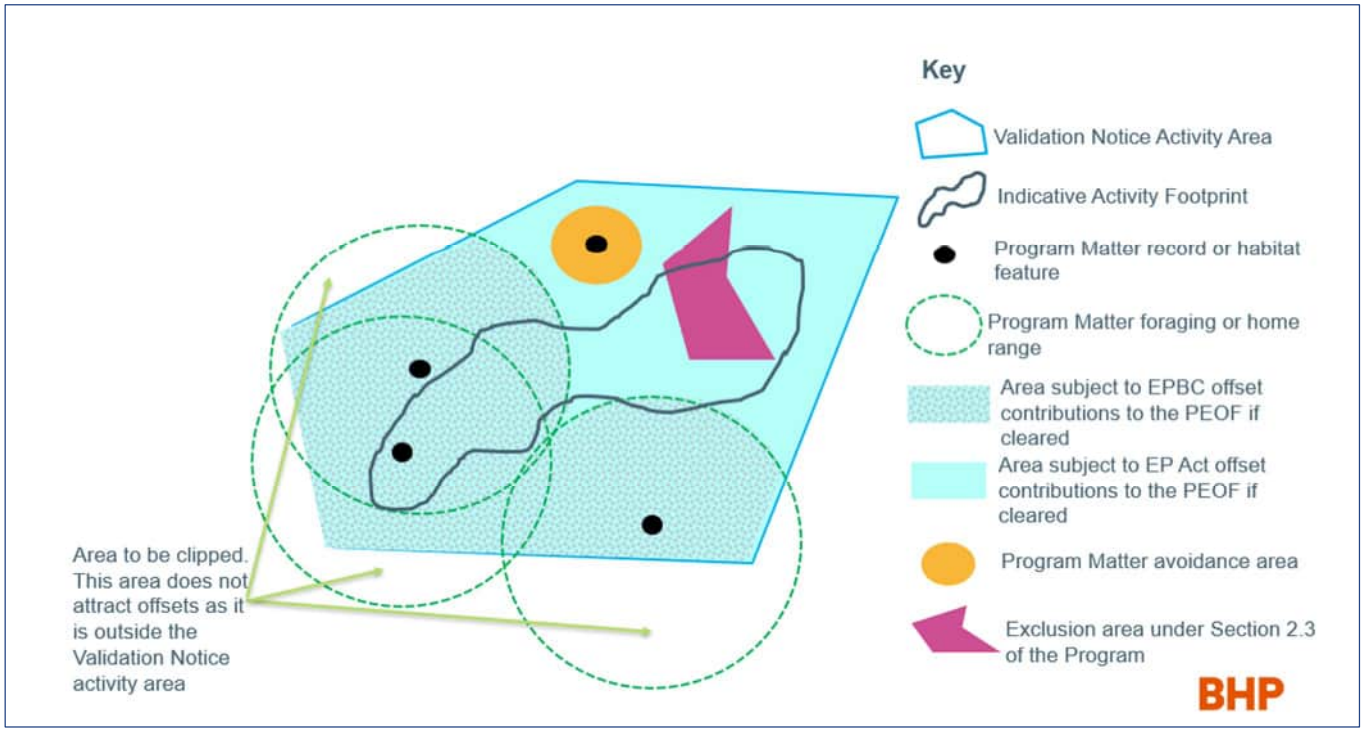
Foraging and home ranges (Table 13.1) may also be spatially overlaid to determine the extent of critical and suitable habitats during the validation notice process. Where the foraging and home ranges extend further than the Validation Notice activity area, for the purposes of calculating offsets this area will be clipped to the extent of the activity area.

Maps illustrating the spatial extent of the areas to be offset will be included in the Validation Notice and/or Offset Proposal. Figure 13.1 shows the key information that would be included on the maps.

Table 13.1: Home Ranges

Program Matter	Type	Description	Reference
Greater Bilby	Home Range (averages)	18 ha (female) to 316 ha (male)	DCCEEW (2023); Greater Bilby Conservation Advice (2016); Moseby & O'Donnell (2003)
Pilbara Olive Python	Home Range	88 to 450 ha	Tutt *et al.* (2004)
Pilbara Leaf-nosed Bat	Home Range	>10 km to 30 km from permanent/semi-permanent roosts	Bat Call WA (2021b)
Northern Quoll	Home Range	34 ha to 436 ha	Hernandez-Santin *et al.* (2021)
Ghost Bat	Home Range	>12 km to 30 km	Bat Call WA (2021a)

Program Matter	Type	Description	Reference
Night Parrot	Home Range	10 ha to 100's of ha (depending on the size of either permanent or ephemeral food resource habitat in the landscape that is surrounding breeding habitat)	Night Parrot Conservation Advice (2016); Interim Night Parrot Habitat Statement (2020)
Grey Falcon	Home Range	Undescribed	



Note: *'Indicative Activity Footprint' is provided to show the likely known impact area at time of issuing the final Validation Notice. This footprint may be subject to minor changes.*

Figure 13.1: Spatial Representation of Areas that Attract Offsets to PEOF

13.1.3 Offset Rates

The Validation Notice and/or Offset proposal will set out the Australian Dollar rate per hectare ($/ha) that BHP must pay and the applicable commencement financial year for the rate. These rates will consider the rates set in the implementation conditions of any state related Ministerial Statements for the project. Application of a $/ha rate of offset required for habitat for Program Matters will be as per published PEOF website (https://www.wa.gov.au/service/environment/business-and-community-assistance/program-pilbara-environmental-offsets-fund), or as agreed with the Department. These rates are based on the level of biodiversity protection in the region, and cumulative impacts to environmental values, including high quality vegetation and the conservation of significant-species habitat.

A base dollar rate applies for impacts to native vegetation in good to excellent condition, which may include impacts to fauna habitat. A higher dollar rate may apply for impacts to Program Matter habitats.

From the commencement of the financial year, the rates will be adjusted annually each subsequent financial year in accordance with the percentage change in the Consumer Price Index applicable to that financial year. DWER will apply the rate adjustments via the offset payment invoice.

13.1.4 Method to Determine Offset Value

BHP uses the following methodology to calculate the direct impacts to the Program Matter values that require offset utilising PEOF:

1) Land disturbance data is captured

   BHP captures and prepares a land disturbance dataset to demonstrate the impacts that have occurred within the reporting period, via the following steps:

   - throughout the financial year periodic aerial imagery of the Validation Notice activity area is captured
   - using the aerial imagery closest to the end and beginning of each financial year, the land disturbance within each reporting period is digitised
   - land disturbance data is then categorised and attributed with data according to the standards set out in the Instructions and associated templates
   - the land disturbance data further digitised and captured at 1:1,000, meaning that 1 millimetre on the computer screen is equivalent to 1 metre on the ground[9]; this is consistent with the precision of all BHP datasets
   - a land disturbance dataset is then available for reconciliation and validation processing.

2) Data reconciliation and validation

   Reconciliation and validation of the land clearing dataset is undertaken to ensure that all land disturbance activities for the reporting period have been streamlined, categorised and attributed according to the IRP, Instructions requirements and from prior feedback from DWER.

3) Processing of datasets

   BHP has developed a methodology which automates the process of comparing the land clearing dataset against the baseline dataset, for calculating the hectares of land disturbance for each area of environmental value (areas subject to offsets), and those with Offset Exclusions.

   The automated methodology ensures the process of deriving the final product is consistent and repeatable, across other approvals and reporting periods.

4) Production of final Impact Reconciliation Report dataset

   An EPBC Act Impact Reconciliation Report (EPBC Act IRR) dataset for each financial year within the reporting period is then developed.

   The EPBC Act IRR dataset will be used for calculating and reporting the total number of hectares with the Program Matter offset requirements within the reporting period and the cumulative totals, in the EPBC Act IRR.

   This EPBC Act IRR dataset and aerial imagery, is submitted to the DWER with the IRR for review and assessment, and will be maintained on record for auditing purposes.

13.2 Offsets Calculation – Land Management Offsets

Land based offsets may be possible for the Program Matters, as specified in Table 12.1. Offsets are required to meet the Program Matter Outcomes or are to complement Program Matter as described in the Program Section:

9 BHP captures baseline land disturbance at 1:1,000 (i.e. +/- 0.5m on the ground) hence any polygon slivers or gaps in the dataset under one square metre are ignored and are considered acceptable in the context of analysing datasets at vastly different scales.

The calculation of on ground offsets for residual impacts to critical habitat of Program Matters for unavoidable impacts will involve:

- definition of types and numbers of and/or area (ha) of critical habitat impacted (see Table 12.1)
- a 1 to “X” ratio can be applied to habitat restoration projects for localised habitat features, where appropriate; ratio should include an allowance for failure and be supported by proven science and data (ratios will be described in the Validation Notice)
- all selection criteria utilised to determine the size of the proposed offset, will be described in the Validation Notice; information and rationales supporting the decision making process and the development of the offset will also be included.

Where an offset approach may be untried, or success is not documented a time-based trial may be more appropriate. Here the successful demonstration of an offset activity within a prescribed timeframe is the focus of the project.

14 Offsets Funding

Based on Offsets agreed with the Department, specific funding allocations will be made within either the activity project capital expenditure budget for offsets scheduled to be delivered during project construction or in the activity operation budget for offsets scheduled to be delivered during project operation. BHP will ensure the appropriate budgets are provided to allow for timely implementation of the offset and for the duration that funding for the offset is required.

15 Commencement of Offsets

At most, offset measures will commence no more than 12 months (or sooner) from the Validation Notice becoming effective. Offset measures are to be implemented in way that minimises any potential time difference between commencement of the activity and commencement of the associated offset. Suitable commencement of offsets milestones will be defined in the Validation Notice and will be informed by the type of offsets that are proposed to compensate the described residual impact. Table 15.1 outlines some of commencement milestones that may apply to each offset pathway. This table is not limiting, and other commencement milestones may be identified as more appropriate to an offset through the validation process. Justification for the selection of the offset commencement milestone will be included in the Validation Notice.

Table 15.1: Potential Offset Commencement

Offset Pathway	Description	Type of Offset	Potential Commencement Milestone
Contributions to the Pilbara Environmental Offset Fund (PEOF)	A payment made to the agency managing the PEOF, currently the Department of Water and Environmental Regulation (DWER), based on the type and scale of the impact ($x per ha disturbed). Rates may vary for disturbance critical and supporting habitat as agreed with the Department.	Direct Offset	• 10% Upfront payment complete within one month of the Validation Notice becoming effective
BHP Program Matter Habitat Restoration	Restoring Offset Sites with proven methods to improving habitat quantity/quality. The conservation gain achieved will be new or additional to what is already required by any duty of care of environmental planning laws at any level of government.	Direct Offset	• Commencement of earthworks or on-ground activities
BHP Program Matter Threat Abatement	Threat abatement for Program Matters.	Direct Offset	• Commencement of threat abatement activity
BHP Offset Time-bound Trial	Restoring Offset Sites with not yet proven methods to improving habitat quantity/quality.	Direct Offset	• Commencement of earthworks or on-ground activities
Research and Education	Targeting gaps in knowledge to address impacts or improve management of impacted biodiversity values.	Indirect (other compensatory measures – no greater than 10% of an offset as per	• Endorsed research agreement with research provider

Offset Pathway	Description	Type of Offset	Potential Commencement Milestone
		EPBC Offset Policy)	

16 Monitoring, Reporting and Adaptive Management

16.1 PEOF Offsets

16.1.1 Reporting for Payment of Financial Contributions

The reporting period and frequency of the Impact Reconciliation Reports (IRRs) will align with any applicable Ministerial Statement requirements and time periods for submission will be provided in the Validation Notice and Strategic Assessment Offsets Proposal. Generally IRRs will be submitted biannually.

Where a Validation Notice or Offset Proposal is amended and superseded by a new version, a part-year reconciliation will be undertaken for the superseded approval to coincide with the start of the first reporting period.

The following information will be submitted in the IRRs to the DWER PEOF administration team and kept on record for auditing purposes:

- clearing undertaken for each financial year of the reporting period, separated by environmental value and rate
- supporting information to validate clearing including the aerial imagery, digitised polygons and ground-truthing surveys (undertaken in accordance with DWER and DCCEEW guidance) used to determine clearing in each financial year
- information regarding exempt clearing, other approvals or reductions to contributions to the fund, where relevant
- where applicable, information regarding part-year reconciliations required due to a Validation Notice and Strategic Assessment Offsets Proposal being superseded
- a forward estimate of clearing.

16.1.2 Reporting for Implementation of PEOF Projects

BHP will provide a progress summary of the offsets implemented and achievement of outcomes from the funding provided to the PEOF in the AER. Annual reports, evaluations or other progress reports provided by the PEOF and its delivery agents to BHP will be retained for auditing purposes.

16.2 On-ground Created Habitats Offsets Monitoring and Reporting

BHP will prepare an Offset Proposal that is based on on-ground land management for Program Matters in BHP tenure, to be included in the Validation Notice. The Validation Notice will include:

- management actions to be implemented, including location, timing and duration
- actions that will be restricted or prohibited at the Offset Site
- performance targets, including specific and measurable ecological parameters that will be monitored to ensure the offset is on track to achieve the required outcomes
- success criteria, including specific and measurable outcomes that the offset needs to attain
- triggers for when corrective actions that need to be applied, with specific and measurable values used to forewarn of the need for corrective actions

- list corrective actions that may be used and timeframes for starting implementation of a corrective action once a trigger is identified
- monitoring program designed to detect triggers and track the progress of the offset against performance targets, success criteria and applicable Program Matter Outcome/s
- an adaptive management and review program to ensure uncertainty will reduce over time and that the performance target and success criteria will be met
- completion criteria that is longer term time-bound values, specified for measurable parameters, that is attained and maintained ensure the Program Mater Outcome's and environmental objectives are achieved.

16.3 Annual Environmental Report

BHP will prepare an AER as outlined in Section 8.10 of this document.

16.4 Five Yearly Review of Offsets Plan

As outlined in section 4.1 of the Program, and discussed in Section 8.12 of this document, BHP will undertake a comprehensive five yearly review of this Offsets Plan as part of the adaptive management process.

The Offsets Plan will be reviewed against contemporary offsets policy and practice and MNES guidance to ensure that it remains an effective framework for identifying, quantifying and meeting offsets requirements for Notifiable Actions so as to achieve/maintain Program Matter 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 is not required to consider that guidance in delivering the offset but may have regard to that material in implementation of the action where practicable and possible.

This will include review and update of methods for offsetting each of the habitat types for the Program Matters as outlined in Sections 12 and 13 of this document.

17 Governance

BHP's general governance arrangements are as described in Section 8 of this document.

18 References

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Appendix 1

Appendix 1: Amendments to Threatened Species List Relevant to Assurance Plan as of Nov 2022

Species and Category Listed	Type of Change to Listing	EPBC Listing	Ramifications for SAA
Macroderma gigas (Ghost Bat)	Addition	05/05/2016	The Ghost Bat was included in the Vulnerable category on May 2016 as the IAR was being developed. Habitat preference modelling was not undertaken for the Ghost Bat as had been done for the other Program Matters. Instead of a modelled assessment, BHP Billiton Iron Ore undertook an impact assessment based on a regional data, including publicly available species records and best available knowledge regarding the species in the Strategic Assessment Area.
Lepidium catapycnon (Hamersely Lepidium)	Removal	15/02/2018	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 has elected to discontinue with specific management measures for this species. *Lepidium catapycnon* is no longer considered a Program Matter.
Falco hypoleucos (Grey Falcon)	Addition	09/07/2020	Grey Falcon added as a Program Matter to Assurance Plan and Offset Plan through the first Five Yearly Review Process.