







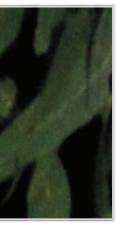

SOUTH32

GROOTE EYLANDT MINING COMPANY (GEMCO)

EASTERN LEASES PROJECT (EPBC 2014/7228)

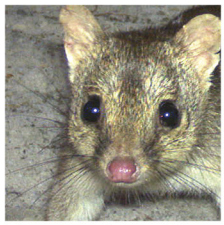
BIODIVERSITY OFFSETS MANAGEMENT PLAN

APRIL 2024



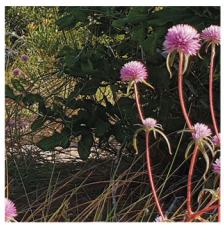






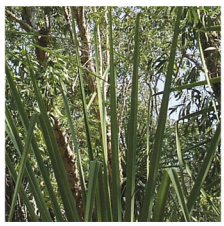









DOCUMENT CONTROL

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VERSION HISTORY:

VERSION	DATE	AMENDED BY	DETAILS
1	11 May 2023	-	Original submission to the Department of Climate Change, Energy, the Environment and Water
2	28 February 2024	GEMCO, Hansen Environmental Consulting	Updated to address feedback on Version 1 from the Department of Climate Change, Energy, the Environment and Water
3	10 April 2024	GEMCO, Hansen Environmental Consulting	Updated to address feedback on Version 2 from the Department of Climate Change, Energy, the Environment and Water

PERSONS INVOLVED IN THE REVIEW OF THIS PLAN INCLUDE:

NAME	TITLE	COMPANY
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PERSONS AUTHORISING THIS PLAN:

NAME	TITLE	SIGNATURE	DATE
Mike Chapman	Project Studies & Approvals Manager		10 April 2024

COVER PAGE AND DECLARATION OF ACCURACY

EPBC NUMBER	EPBC 2014/7228
PROJECT NAME	Eastern Leases Project
PROPONENT/APPROVAL HOLDER AND ACN OR ABN	Groote Eylandt Mining Company Pty Ltd (GEMCO) ABN: 26 004 618 491
THE APPROVED ACTION	Developing an open cut mine in the Eastern Leases (ML31219 and ML31220) and linking the Eastern Leases to the existing GEMCO Mine via new haul roads on Access Authority AA31711
LOCATION OF THE ACTION	Groote Eylandt, Northern Territory
DATE OF PREPARATION OF THE BIODIVERSITY OFFSETS MANAGEMENT PLAN	10 April 2024
PERSON ACCEPTING RESPONSIBILITY FOR THE BIODIVERSITY OFFSETS MANAGEMENT PLAN	Steven Hedges, VP Operations GEMCO

I declare that:

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

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

3. I am aware that Section 491 of the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act) makes it an offence in certain circumstances to knowingly provide false or misleading information or documents to specified persons who are known to be performing a duty or carrying out a function under the EPBC Act or the *Environment Protection and Biodiversity Conservation Regulations 2000* (Cth). The offence is punishable on conviction by imprisonment or a fine, or both.

Signed

Steven Hedges

Full name (please print)

Steven John HEDGES

Organisation (please print)

Vice President Operations
Groote Eylandt Mining Company (G.E.M.C.O)

Date 10 / 4 / 24

EXECUTIVE SUMMARY

INTRODUCTION

This Biodiversity Offsets Management Plan (BOMP) describes the program of work that is planned to be undertaken by the Groote Eylandt Mining Company Pty Ltd (GEMCO) to implement the approved Biodiversity Offsets Strategy (BOS) for the Eastern Leases Mining Project (the project). Biodiversity offsets are required to be provided in accordance with the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act) approval for the project (EPBC 2014/7228).

The EPBC Act approval for the project requires GEMCO to provide offsets by funding conservation programs that benefit the threatened species predicted to be impacted by the project (termed "impacted species" in the EPBC Act approval). The impacted species are the Northern Hopping-mouse (*Notomys aquilo*), Brush-tailed Rabbit-rat (*Conilurus penicillatus*), Northern Quoll (*Dasyurus hallucatus*) and Masked Owl (northern) (*Tyto novaehollandiae kimberli*).

The BOS, which was approved by the Department of Climate Change, Energy, the Environment and Water (DCCEEW) on 6 July 2021, commits to offsets being delivered through GEMCO funding weed management actions on Groote Eylandt. This BOMP details these weed management actions, including timeframes, resourcing and targets for the work. The BOMP has been prepared in accordance with Condition 12 of the EPBC Act approval and is being submitted to DCCEEW for its approval. This BOMP supersedes the BOMP that was submitted to DCCEEW in May 2023. This BOMP meets the conditions in the EPBC Act approval, with Section 9 of the BOMP listing the approval requirements and indicating the way in which the conditions have been met.

BACKGROUND

GROOTE EYLANDT

The project is located on Groote Eylandt, a remote island in the Gulf of Carpentaria, approximately 650 km south-east of Darwin in the Northern Territory (NT). GEMCO has operated a manganese mine and associated facilities (e.g. port, township of Alyangula) on Groote Eylandt for approximately 60 years. GEMCO's mine is the main development on the island. There are two other townships on Groote Eylandt, namely Angurugu and Umbakumba, and several small, rural Aboriginal settlements (termed "outstations") (Figure 1).

The full extent of Groote Eylandt is Aboriginal land under the *Aboriginal Land Rights (Northern Territory) Act 1976* (Cth) (ALRA). The Anindilyakwa Land Council (ALC) is the land council responsible for this land. The Groote Eylandt Archipelago is an Indigenous Protected Area (IPA) (the Anindilyakwa IPA), which is administered by the ALC. The ALC Land & Sea Rangers (ALC Rangers) undertake a range of management activities for the IPA.

EXISTING WEED SITUATION

Weeds have the potential to degrade habitat, lead to productivity loss in ecosystems and facilitate a changed fire regime. For this reason, weeds are rated in the *Groote Archipelago Threatened Species Management Plan 2019-2028* as being a high threat on Groote Eylandt for all the impacted species (DENR, ALC, DoEE, & GEMCO, 2019). Several transforming weeds have established/are establishing on Groote Eylandt and are of

particular concern because of their ability to significantly alter fire regimes and vegetation structure. These weeds pose a direct threat to the threatened fauna of Groote Eylandt, including the impacted species.

Although the ALC Rangers undertake some routine weed management work on Groote Eylandt, they have confirmed that they do not have the resources to control or eradicate the transforming weeds that have emerged as a threat on Groote Eylandt. There is also the potential for additional transforming weeds to be introduced to the island and the current level of weed surveillance is not sufficient to detect these weeds, nor is there is a plan in place in the event of an incursion of a new transforming weed species. The ALC Rangers have identified the need for a surge in additional resources to be put towards the management of transforming weeds to effectively manage this emerging threat to Groote Eylandt's threatened species. The weed management actions described in this BOMP address this need.

GEMCO undertakes weed management within areas of Groote Eylandt that are under its control, such as the port, Alyangula, the Rowell Highway, and areas related to its mining and exploration activities. These areas are referred to in this BOMP as the GEMCO weed management area (Figure 1). Offsets funding will not be used for routine management work in the GEMCO weed management area, given GEMCO's existing responsibilities in this area. Areas of Groote Eylandt outside of GEMCO's weed management area are referred to in this BOMP as the offset management area (Figure 1). Offsets funding will be used for weed management activities in the offset management area.

DEVELOPMENT OF BOMP

STAKEHOLDER ENGAGEMENT

As required by Condition 12(b) of the EPBC Act, the BOMP has been prepared in consultation with the ALC and Northern Territory Department of Environment, Parks and Water Security (DEPWS).

Engagement with the ALC and ALC Rangers in relation to offsets commenced at the time that the BOS was prepared, and both parties were supportive of the concept of offsets funding being used for weed management activities. Since the BOS was approved in 2021, GEMCO has engaged with the ALC and ALC Rangers to further develop the offsets program. Engagement has predominantly been through face-to-face meetings and there have been approximately 20 meetings with the ALC and ALC Rangers over the past two years in which offsets were discussed. Many of the key steps in the preparation of the BOMP have been undertaken collaboratively with the ALC, including an audit of existing weed management practices, a workshop to confirm actions to be included in the BOMP, field surveys as part of a baseline weed mapping exercise, and review of earlier draft versions of the BOMP. The ALC is supportive of the work proposed to be undertaken and has provided a letter of endorsement of the BOMP (attached as Appendix C).

DEPWS had a key role in developing the concept of the offsets program at the time that the BOS was prepared. Since that time, there have been several meetings with DEPWS in relation to offsets, and DEPWS also reviewed and endorsed an earlier draft of the BOMP. DEPWS is supportive of the BOMP and has provided a letter of endorsement of the BOMP (Appendix D).

SELECTION OF HIGH PRIORITY WEEDS AND BASELINE WEED MAPPING

As per the requirements of the BOS, the offsets program will focus on high priority weeds. High priority weed species, for the purpose of the offsets program, were selected based on advice from specialist botanists engaged by GEMCO, as well as consultation with ALC Ranger staff. The high priority weed species were chosen because of their known ability to transform natural habitats/ecosystems, the detrimental impact of such habitat transformations to the impacted species, and the high likelihood of these weed species spreading out of control on Groote Eylandt. Eleven weed species were identified, all of which are transforming grasses (see Appendix E for a list of the high priority weed species and the threat posed by each species).

As part of preparing the BOMP, and as one of the first tasks of the offsets program, GEMCO undertook a baseline weed mapping exercise on Groote Eylandt. Baseline weed mapping was undertaken for the purpose of guiding the development of BOMP actions and providing a baseline map of weed populations against which to measure future progress in controlling and eradicating weeds. It also provided information that enabled GEMCO to finalise the list of high priority weeds. Baseline weed mapping was undertaken in two parts, namely a preliminary weed mapping survey and the more detailed baseline island-wide weed survey. These surveys are collectively referred to as the "BOMP weed surveys".

The BOMP weed surveys were undertaken over multiple survey rounds in 2022 and 2023 and included surveying areas considered to be high risk for weeds (e.g. sites where weed infestations had been recorded previously, roads, powerlines and other disturbed areas). The surveys were undertaken by experienced botanists, with assistance from the ALC Rangers. The participation of the ALC Rangers provided an opportunity for them to share local knowledge, as well as allow for informal training of the Rangers.

All weed records from the BOMP weed surveys were recorded in Survey123, a live ArcGIS database, accessible by GEMCO and the ALC Rangers. Over 1,500 weed infestations were recorded and the BOMP includes figures showing the distribution of the weed species that were rated as being high priority weeds for the purpose of the BOMP. Records of other weed species have been made available to the ALC Rangers.

Following the completion of the BOMP weed surveys, maps showing the distribution of high priority weed species were prepared, and strategies for controlling these weeds were recommended for the BOMP. These strategies are:

- 'Eradicate', for species that are present on Groote Eylandt at levels such that eradication within the offset program timeframe is possible (five species);
- 'Control' for species that are present in such high numbers that they are unlikely to be able to be fully eradicated within the offset program timeframe (two species); and
- 'Prevent', for species not recorded during the BOMP surveys but which would pose a serious biosecurity threat if they were to be introduced to Groote Eylandt (four species).

OFFSETS PROGRAM

INTRODUCTION

Offsets are required to be provided via GEMCO spending funds on conservation programs that meet specific requirements outlined in the EPBC Act approval. The value of the offsets funding is calculated based on the clearing undertaken, with $4,500 (excluding GST) to be spent on offsets per hectare of native vegetation cleared as part of the project. The EPBC Act approval authorises the clearing of up to 1,525 ha of native vegetation, which equates to approximately $7 million to be spent on offsets over the life of the project, assuming that the full extent of clearing is undertaken.

As specified in the BOS, the offsets funds will be spent on weed management actions focussing on high priority weeds. These actions will be undertaken within the offset management area (Figure 1). The actions to be undertaken as part of the offsets program are over and above the routine weed management work currently undertaken on Groote Eylandt.

The BOS specified that the offsets program would be undertaken over a ten-year period, as follows:

- Foundation period (first 2 years), i.e. work from the project commencement date (17 June 2022) to 16 June 2024;
- Short-term period (2-5 years), i.e. work undertaken between 17 June 2024 to 16 June 2027; and
- Medium-term period (5-10 years), i.e. work undertaken between 17 June 2027 to 17 June 2032.

The table below provides a summary of the weed management actions to be undertaken as part of the offsets program and indicates the timeframes for each action. The BOMP provides a detailed description of each action. The weed control and monitoring work is the cornerstone of the offsets program and hence a brief description of this work is provided in the section below.

OFFSET MANAGEMENT ACTIONS

Offset Management Action	BOMP Section	Foundation[1]		Short-term[1]			Medium-term[1]				
		Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Weed Mapping											
Undertake island-wide weed mapping survey[2]	5 & 6.4										
Audit of Existing Weed Management Systems											
Undertake audit	6.3										
Weed Management Plan											
Prepare a Weed Management Plan	6.5										
Plant Biosecurity Officer											
Recruit Plant Biosecurity Officer	6.6.1										
Employ Plant Biosecurity Officer	6.6.3										
Weed Control and Monitoring of High Priority Weeds											
Treat weeds, as per targets for each species	6.7										
Weed monitoring (part of routine weed treatment)	6.7										
Quarantine System											
Undertake detailed audit of quarantine system	6.8.1										
Quarantine inspections (freight, vehicles etc.)	6.8.2										
Develop risk profiles of high priority weed species	6.8.2										

Offset Management Action	BOMP Section	Foundation[1]		Short-term[1]			Medium-term[1]				
		Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Trigger Action Response Plan (TARP)											
Develop standalone procedure for TARP	6.9										
Implement TARP	6.9										
Community Awareness in Relation to Weeds											
Run awareness sessions and events	6.10.3 & 6.10.4										
Create and distribute awareness materials	6.10.5										
Evaluate the community's understanding of weeds	6.10.6										
Training and Capacity Building											
Develop and implement training courses	6.11.2										
Develop and utilise training materials	6.11.3										
Monitoring-Planning-Reporting											
Undertake annual planning	7.3										
Submit Impact Reconciliation Report	7.4										

Notes:

1 – = Approximate timing in which the action will be undertaken

2 – Weed mapping will generally be undertaken during the late wet season to the post-wet season and so may fall across two offset years. The year shown is the year in which surveys will commence

WEED CONTROL AND MONITORING

As noted above, the high priority weeds have been divided into three management categories, based on the current presence of the species and the size of existing populations. The table below describes the three management categories, identifies the high priority weeds that have been allocated to each and provides a brief overview of the management approach. The BOMP includes targets for each individual weed species, aligned to the management approach and the timeframes from the BOS.

MANAGEMENT APPROACH OF HIGH PRIORITY WEEDS

Species	Status on Groote Eylandt	Management Approach
Eradicate known infestations on Groote Eylandt and prevent new infestations.		
• Gamba Grass (*Andropogon gayanus*) • Grader Grass (*Themeda quadrivalvis*) • Perennial Mission Grass (*Cenchrus polystachios*) • Para Grass (*Urochloa mutica*) • Buffel Grass (*Cenchrus ciliaris*)	These species: • Currently occur on Groote Eylandt or have been recorded in the past. • Have only ever occurred in small populations, and so it is feasible to entirely eradicate these species.	• Any existing populations will be treated, with the aim of eradicating the population to prevent it spreading to additional locations. • Any new infestations that are detected during the term of the offsets program will be eradicated to ensure that the weed does not establish on Groote Eylandt. • During the term of the offsets program, treated populations will be monitored for five years post treatment to provide confidence that the population has been eradicated.
Control current infestations and prevent new infestations on Groote Eylandt.		
• Annual Mission Grass (*Cenchrus pedicellatus*) • Guinea Grass (*Megathyrsus maximus var. maximus*)	These species are: • Already present on Groote Eylandt and occur in large populations, generally near populated areas and along roads. • Not yet widespread throughout the island.	• It is not feasible to completely eradicate these species, but current infestations in the offset management area will be controlled and pushed-back to major core infestations (generally near townships). • Minor infestations and isolated outbreaks that occur beyond the core populations will be eradicated. • Any new infestations that are detected during the term of the offsets program will be eradicated to ensure that the weed does not establish in other areas on Groote Eylandt. • During the term of the offsets program, treated populations will be monitored for five years post treatment.

Species	Status on Groote Eylandt	Management Approach
Prevent the introduction and establishment of the weed species to Groote Eylandt.		
• Fountain Grass (*Cenchrus setaceus*) • Olive Hymenachne (*Hymenachne amplexicaulis*) • Thatch Grass (*Hyparrhenia rufa*) • Molasses Grass (*Melinis minutiflora*)	• These species were not detected on Groote Eylandt during the BOMP weed surveys and there are no records of them having occurred on Groote Eylandt in the past four years (the period during which reliable weed records exist).	• Biosecurity measures will be adopted to minimise the risk of these species being introduced to Groote Eylandt. • If an infestation of any of these species is detected, it will be eradicated to ensure that the weed does not establish on Groote Eylandt. • During the term of the offsets program, treated populations will be monitored for five years post treatment.

MONITORING, PLANNING, REPORTING AND ADAPTIVE MANAGEMENT

As part of the offsets program, data on the presence of weeds and the effectiveness of weed treatment will be collected. Monitoring will occur at an operational level, whereby weed infestations will be regularly monitored as part of routine weed treatment. In addition, a thorough, systematic search for weed infestations will take place as part of an island-wide weed mapping survey every second year. Weed monitoring data will:

- Be used to track performance against the overall outcomes of the offset and targets for individual weed species.
- Provide crucial operational data on the success of weed treatment practices, allowing for any adjustments to be made to the practices.

An annual planning process will occur as part of the offsets program, with planning for future offsets activities being guided by monitoring results. As part of the planning process, works completed in the previous 12 months will be reviewed (e.g. whether they were completed as scheduled) and the impact of the works will be assessed (e.g. whether targets were met). A rolling workplan for the subsequent two years will be developed, including a schedule of work, resources and targets to be achieved.

As required by Condition 13 of the EPBC Act approval, GEMCO will prepare and submit an impact reconciliation report to DCCEEW every second year. These reports will contain a summary of native vegetation cleared as part of the project, the offset monies generated as a result of the clearing, the offset works completed in the preceding two years and the outcomes achieved, and a work program for the subsequent two year period.

The offsets program will be undertaken within an adaptive management framework, with adjustments being made in response to monitoring data. Monitoring data will provide valuable feedback on the success of weed treatment, as well as progress made towards achieving weed management targets and offsets outcomes. This feedback will enable GEMCO to adjust the offsets program to ensure success (i.e. to adaptively manage it). Adjustments may range from operational issues, such as the preferred treatments for individual weed species, to strategic elements of the offsets program. Any adjustments to the offsets program will be addressed via the impact reconciliation report prepared every two years.

The BOS described potential conservation actions, beyond weed management actions (e.g. actions related to fire management). It noted that although the weed management actions described in the BOS were more suitable as offsets than these other actions, the offsets program would need to be adaptive and other actions may be considered in future (e.g. in the event of offset funds being surplus to the cost of implementing the BOMP). This issue will be considered when the impact reconciliation reports are prepared. In the event of GEMCO determining that offsets funding should be used for other conservation actions (i.e. beyond weed management), a revised BOMP would be submitted to DCCEEW for review and approval.

ROLES AND RESPONSIBILITIES

The actions described in the BOMP will be funded by the offsets program, with the work coordinated by a Plant Biosecurity Officer, who will be employed by the ALC Rangers, with the position funded by GEMCO's offsets program. Situating the role within the organisational framework of the ALC Rangers will allow the Plant Biosecurity Officer to work seamlessly with other personnel in the ALC Rangers. However, the Plant Biosecurity Officer will also have a reporting line to GEMCO's Biodiversity Offsets Principal, given that GEMCO will have overall responsibility for ensuring that the offsets program is delivered as per the commitments made in the BOS and the BOMP, and that the specified outcomes and targets are met.

On-ground weed control and monitoring work will predominantly be undertaken by weed management contractors, who will be engaged and managed by the Plant Biosecurity Officer. The two-yearly island-wide weed survey will be undertaken by appropriately qualified specialists. The ALC Rangers will be encouraged to participate in this work for the purpose of capacity building.

The Plant Biosecurity Officer will manage the community awareness, and training and capacity building programs described in the BOMP, although it will be necessary to obtain assistance from specialist contractors (e.g. a stakeholder engagement specialist to assist with developing materials or a training contractor to assist with delivering accredited training sessions). Quarantine and biosecurity programs are in place on Groote Eylandt as part of GEMCO's Cane Toad Management Plan (implemented by ALC Rangers biosecurity staff who are funded by GEMCO). The Plant Biosecurity Officer will work closely with the ALC Rangers biosecurity staff to ensure that the biosecurity procedures that are implemented are also effective for high priority weeds.

The annual planning process will be undertaken as a collaborative process between GEMCO's Biosecurity Offsets Principal, the ALC Land and Sea Manager and the Plant Biosecurity Officer.

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GLOSSARY

Term/Abbreviation	Description
2023 BOMP	The BOMP that was submitted to DCCEEW in May 2023.
2024 BOMP	This document, which supersedes the 2023 BOMP.
ALC	Anindilyakwa Land Council. This is the land council responsible for Groote Eylandt.
ALC Rangers	Anindilyakwa Land Council Land & Sea Rangers. This is the Ranger group responsible for land and sea management activities in the Anindiyakwa IPA.
ALRA	*Aboriginal Land Rights (Northern Territory) Act 1976* (Cth)
Aminjarrinja Enterprises	Aminjarrinja Enterprises Aboriginal Corporation. This is an Indigenous Corporation that undertakes social and economic development projects on Groote Eylandt, including construction projects.
BOMP	Biodiversity Offsets Management Plan
BOMP weed surveys	The preliminary weed mapping and baseline island-wide weed survey undertaken as part of the development of the BOMP.
BOS	Biodiversity Offsets Strategy
Class A weed	A weed declared as being Class A under the WM Act, meaning that the NT Government has determined that the species should be eradicated in the NT.
Class B weed	A weed declared as being Class B under the WM Act, meaning that the NT Government has determined that growth and spread of the species should be controlled in the NT.
Commencement Date	17 June 2022. The date on which construction activities first commenced within the Eastern Leases project area.
Darwin CPI	Darwin Consumer Price Index
DCCEEW	Department of Climate Change, Energy, the Environment and Water
DEPWS	Department of Environment, Parks and Water Security
EARC	East Arnhem Regional Council
EIS	Environmental Impact Statement
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999* (Cth)
EPBC Act Environmental Offsets Policy	*Environment Protection and Biodiversity Conservation Act 1999 Environmental Offsets Policy*

Term/Abbreviation	Description
GEBIE	Groote Eylandt and Bickerton Island Enterprises. This is an Indigenous Corporation that undertakes social and economic development projects on Groote Eylandt, including construction projects.
GEMCO	Groote Eylandt Mining Company Pty Ltd
GEMCO weed management area	The area in which GEMCO undertakes weed management activities. Offsets funding will not be used for routine weed management work within this area.
Offset management area	The area of Groote Eylandt beyond the GEMCO weed management area. Offsets programs will be undertaken within this area.
Impacted Species	Northern Hopping-mouse (*Notomys aquilo*), Brush-tailed Rabbit-rat (*Conilurus penicillatus*), Northern Quoll (*Dasyurus hallucatus*) and Masked Owl (northern) (*Tyto novaehollandiae kimberli*).
IPA	Indigenous Protected Area
IPA Management Plan	Anindilyakwa IPA Plan of Management
MLC	Mining Liaison Committee
NT	Northern Territory
Survey123	A live ArcGIS database of weed distribution and management activities, used by GEMCO and now the ALC Rangers.
the project	GEMCO's Eastern Leases Mining Project
TAP	Threat Abatement Plan. This is a plan developed under the EPBC Act that describes research, management and other activities to reduce the impact of key threatening processes on native species and ecological communities.
TARP	Trigger Action and Response Plan
Transforming weeds	Weeds that have the ability to substantially change the character or condition of ecosystems, e.g. through altering fire regimes and vegetation structure.
TSMP	Groote Archipelago Threatened Species Management Plan 2019-2028
TPWC Act	*Territory Parks and Wildlife Conservation Act 2006* (NT)
WM Act	*Weeds Management Act 2001* (NT)
WoNS	Weed of National Significance. These are weed species listed by the Australian Government as being of the highest priority for management in Australia.

1 INTRODUCTION

1.1 PURPOSE OF THE DOCUMENT

This Biodiversity Offsets Management Plan (BOMP) describes the program of work that is planned to be undertaken by the Groote Eylandt Mining Company Pty Ltd (GEMCO) to implement the approved Biodiversity Offsets Strategy (BOS) for the Eastern Leases Mining Project (the project). Biodiversity offsets are required to be provided in accordance with the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act) approval for the project (EPBC 2014/7228).

The EPBC Act approval for the project requires GEMCO to provide offsets by funding conservation programs that benefit the threatened species predicted to be impacted by the project (termed "impacted species" in the EPBC Act approval). The impacted species are:

- Northern Hopping-mouse (*Notomys aquilo*) – Vulnerable under both the EPBC Act[1] and *Territory Parks and Wildlife Conservation Act 2006* (NT) (TPWC Act);
- Brush-tailed Rabbit-rat (*Conilurus penicillatus*) – Vulnerable under the EPBC Act and Endangered under the TWPC Act;
- Northern Quoll (*Dasyurus hallucatus*) – Endangered under the EPBC Act and Critically Endangered under the TPWC Act; and
- Masked Owl (northern) (*Tyto novaehollandiae kimberli*) – Vulnerable under both the EPBC Act and TPWC Act.

Condition 11 of the EPBC Act approval requires the BOS to evaluate the suitability of a suite of conservation actions that could benefit the impacted species and, following this evaluation, describe the strategy to be adopted for providing offsets. The BOS, which was approved by the Department of Climate Change, Energy, the Environment and Water (DCCEEW) on 6 July 2021, identified weed management as being the most suitable offsets program for the project. This BOMP describes the weed management actions proposed to be undertaken to satisfy the requirements of the BOS and the conditions of the EPBC Act approval. The BOMP has been prepared in accordance with Condition 12 of the EPBC Act approval and is being submitted to DCCEEW for its approval.

1.2 PREPARATION OF THE BOMP

This BOMP was prepared by Dr Rohan Wilson from GEMCO. Dr Wilson has completed a PhD in ecology, and has worked as an ecologist, with both fauna and flora, across northern Australia for over 15 years. Dr Wilson has experience in weed management and biosecurity strategies and programs in the Kimberley and Torres Strait Islands prior to working with GEMCO, including Indigenous ranger-led weed management and biosecurity programs.

[1] The conservation status of the Northern Hopping-mouse was listed as Vulnerable at the time the EPBC Act referral for the project was decided, and hence this is the status relevant to the BOMP. The status of the Northern Hopping-mouse was upgraded to Endangered in March 2021.

Laura Knowles and Jesse Scherer from Hansen Environmental Consulting assisted with the preparation of the documentation. The BOMP also draws on work undertaken by specialist consultants, including AECOM and Cumberland Ecology.

This BOMP supersedes the BOMP that was submitted to DCCEEW in May 2023 (termed the "2023 BOMP"). This BOMP addresses DCCEEW's feedback on the 2023 BOMP and includes the results of the baseline island-wide weed survey, which were not available at the time that the 2023 BOMP was prepared. The 2023 BOMP provided a high level overview of the proposed management actions, whereas the 2024 BOMP (this document) provides additional implementation detail for these management actions.

1.3 PROJECT DESCRIPTION

GEMCO operates a manganese mine (termed the "existing GEMCO mine" or the "Western Leases") on Groote Eylandt in the Gulf of Carpentaria, approximately 650 km south-east of Darwin in the Northern Territory (NT) (Figure 1). Operations at the existing GEMCO mine involve mining manganese by open cut mining methods, processing the ore in a concentrator to produce washed ore, and then transporting the washed ore by road train along the Rowell Highway to GEMCO's port facility at Milner Bay (Figure 1). The existing GEMCO mine has been operating for approximately 60 years. GEMCO is undertaking the project in order to access additional mining areas, termed the "Eastern Leases", located to the east of the existing GEMCO mine (Figure 1). The project will use the same open cut mining methods as the existing GEMCO mine. Construction of the project commenced on 17 June 2022 (the commencement date for the purposes of the EPBC Act approval).

1.4 GROOTE EYLANDT

Groote Eylandt is Australia's third largest island, with a land area of approximately 2,285 km^2, and is largely undeveloped. The existing GEMCO mine is the main development on the island. There are three townships on Groote Eylandt, namely Alyangula, Angurugu and Umbakumba (Figure 1). They have a combined population of approximately 2,050 people (Australian Bureau of Statistics 2021). There are also several small, rural Aboriginal settlements (termed "outstations" or satellite communities) on Groote Eylandt (Figure 1)[2]. Groote Eylandt falls within the East Arnhem Regional Council (EARC) area. A separate Groote Eylandt Regional Council, associated with the ALC, is proposed to be established to replace the EARC.

The full extent of Groote Eylandt is Aboriginal land under the *Aboriginal Land Rights (Northern Territory) Act 1976* (Cth) (ALRA). The Anindilyakwa Land Council (ALC) is the land council responsible for this land. The Groote Eylandt Archipelago is an Indigenous Protected Area (IPA) (the Anindilyakwa IPA), which is administered by the ALC. The ALC Land & Sea Rangers (ALC Rangers) undertake a range of management activities for the IPA. The ALC Rangers receive funding from the Australian Government through the IPA. Groote Eylandt is free of Cane Toads and there are quarantine and biosecurity measures in place, aimed at preventing the introduction of Cane Toads.

[2] The name and location of outstations shown on figures and maps throughout this BOMP have been obtained from the following source: Anindilyakwa Housing Aboriginal Corporation (n.d).

Being Aboriginal land under ALRA, the majority of Groote Eylandt is only open to Traditional Owners. However, the ALC has nominated several recreation areas that can be accessed by the general public, subject to a permitting system (current map: Recreation Permit » Anindilyakwa Land Council).

GEMCO holds several tenements on Groote Eylandt (Figure 1), including:

- Mineral tenements and access authorities related to the Western and Eastern Leases;
- An exploration licence (EL 2455), termed the "Southern Lease", in the southern part of the island; and
- Special purposes leases over Alyangula (the township that houses GEMCO's residential workshop), the port facility and the Rowell Highway (a public road that provides access to the port, Alyangula, airport, and other locations).

1.5 DOCUMENT STRUCTURE

This BOMP is structured as follows:

- Section 1 – Introduces the document.
- Section 2 – Provides background information on weed management on Groote Eylandt, with this information being included as context for the weed management actions to be undertaken as offsets.
- Section 3 – Describes the requirements that must be met by the offsets program, as per the conditions of the EPBC Act approval and the requirements of the BOS.
- Section 4 – Provides an overview of the stakeholder engagement undertaken as part of the preparation of the BOMP.
- Section 5 – Describes the baseline island-wide weed mapping that has been undertaken, and identifies the weed species that have been selected as high priority species for the purpose of the BOMP.
- Section 6 – Describes the management actions that will be undertaken as part of the offsets program.
- Section 7 – Describes the monitoring, reporting and adaptive management elements of the offsets program, and the planning process that will be adopted.
- Section 8 – Outlines the roles and responsibilities for the implementation of the BOMP.
- Section 9 – Lists the EPBC Act approval requirements for the BOMP and indicates the way in which the conditions have been met in the BOMP.
- Appendix A – Provides an overview of relevant regulatory requirements.
- Appendix B – Provides detail on the stakeholder engagement undertaken as part of the preparation of the BOMP.
- Appendix C – Provides the ALC's endorsement of the BOMP.
- Appendix D – Provides the DEPWS' endorsement of the BOMP.
- Appendix E - Provides further detail on the high priority weed species selected for the purpose of the BOMP.

2 BACKGROUND INFORMATION ON WEED MANAGEMENT

2.1 INTRODUCTION

As per the requirements of the BOS, offsets will be provided via weed management actions. This section of the BOMP provides background information relevant to weed management, including a description of the current situation on Groote Eylandt in relation to weeds, and the entities responsible for weed management. It also describes the reason that the approved BOS nominated weed management as the offsets program for the project. The information in this section is provided as context to the subsequent sections of the BOMP that describe the weed management actions that will be undertaken.

Appendix A provides an overview of regulatory requirements and policy considerations in relation to weed management.

2.2 WEEDS ON GROOTE EYLANDT

The *Groote Archipelago Threatened Species Management Plan 2019-2028* (TSMP) was prepared as a collaborative project between the Department of Environment and Natural Resources (DENR), the ALC, the Department of the Environment and Energy (DoEE) and GEMCO in 2019. It contains the most recent published account of the status of weeds on Groote Eylandt and the threat posed by them (refer to Appendix A for a more detailed outline of the TSMP).

At the time the TSMP was published (i.e. 2019), approximately 130 non-native flora species had been recorded in the Groote archipelago, of which 19 are declared weeds in the NT. The TSMP lists weed invasion as a high threat for all the impacted species and notes that potential impacts from weeds include habitat degradation, productivity loss and the facilitation of a changed fire regime. The TSMP notes that transforming weeds such as Gamba Grass (*Andropogon gayanus*), Grader Grass (*Themeda quadrivalvis*) and Mission Grass (*Cenchrus pedicellatus*) pose significant threats to threatened species on Groote Eylandt because they have the potential to significantly alter fire regimes and vegetation structure. The TSMP rates Gamba Grass as possibly being the biggest threat to threatened species in the Groote archipelago because of its transforming abilities. The threat posed by transforming weeds is identified in the TSMP as being an "emerging" situation in the Groote Archipelago.

The TSMP concluded that it may be feasible to contain some existing weed species and stop new species from establishing. The TSMP noted that some weed species, once established, will be difficult to eradicate or control with current technology. It provided a range of strategies to manage weeds, but there is no funding associated with implementing the weed management strategies identified in the TSMP and consequently they have not been adopted to date.

In consultation undertaken in 2021 as part of the development of the BOS, the ALC and ALC Rangers indicated that there is a significant weed problem in some locations on Groote Eylandt and that weed management is a significant conservation issue for Groote Eylandt. The ALC noted that areas near communities and other disturbed areas are of particular concern in terms of the presence of weeds. The highest risk of weed introduction to Groote Eylandt is via the transportation of vehicles, equipment and freight. Other pathways include weed seeds being introduced via people's boots or clothing.

As part of GEMCO's offsets program and as supporting information for this BOMP, GEMCO has undertaken weed surveys (including a preliminary survey in 2022 and a more detailed baseline island-wide weed survey in 2023). Section 5 describes these surveys and provides information on the current weed situation on Groote Eylandt.

2.3 CURRENT WEED MANAGEMENT RESPONSIBILITIES AND ACTIONS ON GROOTE EYLANDT

2.3.1 INTRODUCTION

GEMCO and the ALC Rangers are the key parties with a role in weed management on Groote Eylandt. Their responsibilities and current weed management activities are described in the following sections.

2.3.2 GEMCO

GEMCO is currently responsible for weed management within the following areas, which are within its tenements:

- The port at Milner Bay, the township of Alyangula and the Rowell Highway;
- Tenements related to the Western and Eastern Leases (i.e. mineral leases and access authorities); and
- The parts of the Southern Lease in which GEMCO undertakes exploration activities. This area is shown on Figure 1 and is the broad area in which GEMCO has undertaken exploration in recent times or proposes to undertake exploration. The area has been cropped to exclude sacred site areas that GEMCO does not have the right to access.

Several of these areas (e.g. Alyangula and Rowell Highway) are open to the public and so weeds in these areas are not necessarily due to GEMCO's activities. Nevertheless, as these areas are within its tenements, GEMCO undertakes weed management in these areas[3]. The above-listed areas are referred to as the GEMCO weed management area in this BOMP (Figure 1). GEMCO manages weeds in this area via an existing weed management framework, which includes a Weed Management Plan that has been reviewed and endorsed by the Department of Environment, Parks and Water Security (DEPWS), the relevant NT regulator.

As indicated in the BOS, offsets funding will not be used for routine weed management work within the GEMCO weed management area, given that this work is an existing responsibility for GEMCO. Offsets will, however, be used for biosecurity measures related to the Milner Bay port, given that it is the main port on the island and is used by a range of parties, including commercial barge operators that provide freight services for the wider Groote Eylandt community (i.e. unrelated to GEMCO).

GEMCO maintains a live GIS database of weed distribution and management activities within the GEMCO weed management area, and has developed an ESRI Survey123 interface (Survey123) for real-time, field-based data capture. The lack of a common system of data capture and management between weed management stakeholders has been identified as a historical roadblock for effective weed management on Groote Eylandt.

[3] There are small areas of Alyangula not managed by GEMCO (e.g., houses for government agency staff) and these areas do not form part of the GEMCO weed management area.

As part of recent biodiversity offset works related to baseline island-wide weed mapping (Section 5.2.2), the ALC Rangers received training in Survey123 use, and it is intended that a common system be adopted between GEMCO and the ALC Rangers for weed management.

2.3.3 ALC RANGERS

The ALC Rangers, a division of the ALC, undertake land and sea management activities within the Anindilyakwa IPA, including some weed management work. The Anindilyakwa IPA Plan of Management (IPA Management Plan) (ALC 2016) describes the Traditional Owners' concerns, aspirations and priorities regarding future management of their country. It indicates that the ALC Rangers undertake the following actions in relation to weed management:

- Weed spraying on outstation properties, tracks and roads and other locations outside mining tenements, including within and on the boundaries of communities;
- Overseeing the transportation of plants from the mainland to communities on Groote Eylandt; and
- Undertaking training in identification and best practice control techniques.

The ALC Rangers have indicated via the stakeholder engagement program (refer to Section 4) that the level of routine weed management that they are able to undertake with existing funding is not sufficient to prevent the continued increase of transforming weeds. This is borne out by the 2019 TSMP which describes the emerging threat that weeds pose for biodiversity values, including the impacted species, despite existing management. The ALC Rangers do not have funding for staff dedicated to weed management or funding for weed management contractors, nor do they have the budget to undertake proactive, island-wide weed monitoring and management at the scale and intensity required to eradicate or control high priority weeds. The ALC Rangers have identified the need for a surge in additional resources to be put towards the management of high priority transforming weeds in the near future to effectively manage this emerging threat to Groote Eylandt's threatened species.

The IPA Management Plan includes a section on resourcing and notes that there is the potential for government and/or non-government agencies (including GEMCO) to provide resourcing and become partner agencies supporting the ALC Rangers in meeting the objectives of the IPA Management Plan. The ALC Rangers have indicated that they view the offsets program as having the potential to assist them with resourcing the weed management actions described in the IPA Management Plan.

Because of their concern about the emerging weed problem on Groote Eylandt, the ALC Rangers have convened a weed working group which meets sporadically to discuss weed management work and share weed management knowledge. Meetings are attended by representatives from the ALC, ALC Rangers, EARC, Aminjarrinja Enterprises[4] and GEBIE and GEMCO.

[4] Aminjarrinja Enterprises Aboriginal Corporation (Aminjarrinja Enterprises) and Groote Eylandt and Bickerton Island Enterprises (GEBIE) are Indigenous Corporations that undertake social and economic development projects on Groote Eylandt, including construction projects.

2.3.4 CONCLUSION

GEMCO has responsibility for weed management within an area referred to as the GEMCO weed management area (Figure 1) and offsets funding will not be used for routine weed management work in this area.

The ALC Rangers are the other party undertaking weed management work on Groote Eylandt, with their work being undertaken beyond the GEMCO weed management area. However, the ALC Rangers do not have sufficient capacity or funding to undertake the level of weed management work that is required to effectively manage the emerging threat posed by high priority transforming weeds, particularly those that have already become established on Groote Eylandt.

2.4 RATIONALE FOR WEED MANAGEMENT AS THE OFFSETS PROGRAM

Although some routine weed management work is undertaken on Groote Eylandt, the outcomes of the stakeholder engagement program (Section 4) and the results of the baseline weed mapping (Section 5) have confirmed that the current, business as usual approach to weed management is not proving to be successful. The transforming weeds that have established/are establishing on Groote Eylandt are of particular concern. These weeds are rapidly emerging on the island and pose a direct threat to the threatened fauna of Groote Eylandt, including the impacted species. The ALC Rangers have confirmed that these weeds are beyond their current capacity to control or eradicate. There is also the potential for additional transforming weeds to be introduced to the island and the current level of weed surveillance is not sufficient to detect these weeds, nor is there is a plan in place in the event of an incursion of a new transforming weed species.

The required weed management work is time critical because, as described in the TSMP, once transforming weeds have established, it may not be possible to control or eradicate them. Some of the more serious transforming weeds (e.g. Gamba Grass) have been recorded periodically on Groote Eylandt, but have not yet established. Other transforming weeds are present in disturbed areas (e.g. along roadsides) but are not yet widespread within bushland on Groote Eylandt (refer to Section 5 for a discussion of the current status of transforming weeds). With sufficient resources, there is the opportunity to halt and reverse the threat posed by weeds.

The TSMP recognises this issue and includes strategies to address the threat of weeds, including undertaking regular weed surveys of high risk weed establishment areas, developing a response plan for high risk weeds and improving information systems (e.g. maintaining a spatial database of weeds). However, the TSMP is a strategic plan and there is no funding associated with it. The TSMP strategies in relation to weeds have not been progressed to date due to a lack of resourcing and funding. A short/medium term boost of additional funding is required to progress these strategies, in order to:

- Eradicate transforming weeds (for species where this is feasible);
- For transforming weeds where eradication is not feasible, reduce the size and number of infestations to a level whereby these weeds can be managed via the routine weed management work that the ALC Rangers undertake; and
- Ensure that measures are in place to prevent the introduction of additional transforming weeds and respond to any incursions that do occur.

As described in the BOS, offsets funding will be used for this purpose, as well as for community awareness work, and training and capacity building of the ALC Rangers to ensure that long-term benefits are delivered by the offsets program.

The BOS confirms that using offsets funding in this way satisfies the requirements of the *EPBC Act Environmental Offsets Policy* (Department of Sustainability, Environment, Water, Population and Communities, 2012) (the EPBC Act Offsets Policy). The BOS contains a detailed review of the requirements of the EPBC Act Offsets Policy and explains the way in which these requirements will be met by weed management actions.

3 REQUIREMENTS FOR OFFSETS

3.1 INTRODUCTION

Offsets are required to satisfy the conditions of the EPBC Act approval for the project (specifically conditions 11 to 13). Condition 11 of the EPBC Act approval requires that a BOS be prepared to describe the strategies for delivering conservation outcomes, the outcomes to be achieved, and the regime for planning and reporting. As per condition 12(a), the BOMP is required to be consistent with the BOS. Consequently, the requirements for offsets are outlined in the EPBC Act approval conditions and the approved BOS. The sections below provide an overview of the requirements from the EPBC Act approval and the BOS, as follows:

- Section 3.2 explains that offsets are required to be provided via GEMCO spending funds on conservation program/s, with the EPBC Act approval specifying the value of the funds;
- Section 3.3 provides a high-level overview of the weed management actions that will be undertaken as the offsets program;
- Section 3.4 explains the timeframes over which the weed management actions will be undertaken;
- Section 3.5 describes the outcomes to be achieved by the end of each timeframe; and
- Section 3.6 describes the framework for monitoring, planning, and reporting in relation to offsets.

Further detail on the way in which the offsets program will meet these requirements is provided in Sections 6 and 7.

3.2 OFFSETS PROVIDED VIA FINANCIAL CONTRIBUTION

The EPBC Act approval outlines a framework whereby offsets are to be provided via GEMCO spending funds on conservation programs that meet specific requirements outlined in the EPBC Act approval. The value of the offsets funding is calculated based on the clearing undertaken, with $4,500 (excluding GST) to be spent on offsets per hectare of native vegetation cleared in the Eastern Leases. The EPBC Act approval authorises the clearing of up to 1,525 ha of native vegetation, which equates to approximately $7 million[5] to be spent on offsets over the life of the project, assuming that the full extent of clearing is undertaken.

3.3 WEED MANAGEMENT ACTIONS

As specified in the BOS, offsets will be delivered via weed management actions focussing on high priority weeds that have the ability to impact habitat for the impacted species, with the actions being described in a Weed Management Plan. The high priority weeds are nominated in Section 5.3 of this BOMP.

[5] These figures are as per the EPBC Act approval and are not adjusted for inflation. However, condition 13(a)(i) of the EPBC Act approval specifies that the value of offset contributions will be adjusted in accordance with the Darwin Consumer Price Index (CPI) fluctuations. The first adjustment is to be applied to the first contribution.

As per the requirements of the BOS, the following tasks are required to be undertaken as part of the offsets program:

- Mapping current major infestations of high priority weeds.
- Auditing existing systems in relation to weeds (e.g. systems related to quarantine measures, monitoring and control measures), with areas for improvement identified.
- Developing and implementing an ongoing, island-wide monitoring and control program for high priority weeds.
- Developing an island-wide quarantine program for weeds, noting that some quarantine/biosecurity measures are already in place on Groote Eylandt (i.e. those related to Cane Toad management), but that there may be scope to improve them.
- Developing a response plan for high priority weeds and high-risk establishment areas (e.g. transport points, roadsides, community areas). The offsets will be used to fund the development of the response plan, as well as ensure that the necessary procedures, equipment and training of personnel are in place to implement it.
- Developing and implementing a community awareness program related to weed management.
- Funding the role of a Plant Biosecurity Officer for Groote Eylandt who will work closely with key stakeholders, such as the ALC Rangers, and manage any additional, external resources (e.g. weed management contractors) required to undertake weed management actions.
- Training and capacity building of the ALC Rangers in relation to weed management.

The management actions to implement these requirements are described in Section 6.

3.4 TIMEFRAMES

The project commenced on 17 June 2022, and work on offsets also commenced at this time. As per the BOS, outcomes are to be achieved within the following specified timeframes:

- Foundation period (first 2 years), i.e. work to 16 June 2024;
- Short-term period (2-5 years), i.e. work undertaken between 17 June 2024 to 16 June 2027; and
- Medium-term period (5-10 years), i.e. work undertaken between 17 June 2027 to 17 June 2032.

In addition, the offsets program will be designed to ensure that the actions undertaken as part of the offsets program give rise to benefits that extend beyond the term of offsets funding (i.e. the long-term period) and the BOS specifies the long-term outcomes to be achieved.

The project is currently in the foundation period, with the work in the foundation period due to be completed by mid-2024. As specified in the BOS, the foundation period is primarily a planning stage involving auditing existing systems, mapping weed infestations, defining high priority weeds, engaging with key stakeholders about improvements to current weed management practices, and preparing a draft Weed Management Plan.

3.5 OUTCOMES

The outcomes that will be achieved through the implementation of the offsets program are listed below. These have been extracted directly from the BOS.

- Foundation (first 2 years):
  - *Major infestations of high priority weeds on Groote Eylandt are mapped. This will be demonstrated through the preparation of a baseline weed map of Groote Eylandt.* This work has now been completed.
  - *The Groote Eylandt community agrees to the strategies to prevent the introduction and spread of weeds, and measures to control weeds. This will be evidenced through the results of GEMCO's consultation with the ALC, as the representative of the Traditional Owners of Groote Eylandt.* This has now been completed and the ALC has endorsed the weed management measures described in this BOMP. Refer to Section 4 for details on the stakeholder engagement program, and Appendix C for a letter of endorsement from the ALC.
- Short Term (2-5 years):
  - *Major infestations of high priority weeds on Groote Eylandt have been contained. This will be demonstrated through monitoring showing that there is no spread of high priority weeds beyond the areas mapped at the foundation stage.*
- Medium Term (5-10 years):
  - *Major infestations of high priority weeds on Groote Eylandt have been contained and reduced (when compared to the baseline weed mapping). This will be demonstrated through monitoring showing that there is no spread of high priority weeds beyond the areas mapped at the foundation stage and that the area occupied by weeds in areas of major weed infestation has been reduced.* Targets for reducing major infestations are included in this BOMP (Section 6.7.4).
- Long Term:
  - *The ALC Rangers are trained and competent in weed management actions that would contain and reduce remaining infestations of high priority weeds on Groote Eylandt, and in weed monitoring.* The measures for demonstrating that this outcome has been achieved are included in this BOMP (Section 6.10.1).
  - *The Groote Eylandt community is aware of threats posed by weeds and actions that can be undertaken by community members to prevent the introduction and spread of weeds. This will be demonstrated through the results of a questionnaire administered to a sample of community members.*

3.6 FRAMEWORK FOR MANAGEMENT

As per the EPBC Act approval conditions and the BOS, the requirements in relation to monitoring, planning and reporting are as follows:

- An annual planning process will be implemented whereby work on offsets actions from the previous year will be reviewed and a program of work for the following year will be developed.
- Monitoring will be undertaken, including monitoring to confirm that the outcomes (Section 3.5) have been met.

An impact reconciliation report will also be prepared and submitted to the Minister for approval. As per Condition 13(b) of the EPBC Act approval, the first impact reconciliation report will be due on 31 August 2024. Thereafter an impact reconciliation report is required to be submitted every two years, by 30 March. Each impact reconciliation will describe the work undertaken during the term of the report and the outcomes achieved, and the work planned to be undertaken in the subsequent two-year period. An account of the moneys spent on the offsets will be provided.

The management framework for the offsets program is described further in Section 7.

4 STAKEHOLDER ENGAGEMENT

4.1 INTRODUCTION

Condition 12(b) of the EPBC Act approval requires that the BOMP be prepared in consultation with the ALC and the NT Department of Land Resource Management (now DEPWS). Section 4.2 and Section 4.3 describe the consultation undertaken with the ALC and DEPWS, respectively.

The engagement has occurred at multiple levels, from engagement relating to the high-level strategic direction of the offsets program and the alignment of offsets with the broader strategic approach to threatened species management, to much more specific considerations in relation to on-ground work. A detailed description of the engagement is provided in Appendix B, with an overview provided in the following sections.

4.2 ANINDILYAKWA LAND COUNCIL

The ALC represents the Traditional Owners of Groote Eylandt and is the land council responsible for Groote Eylandt under ALRA. The ALC Rangers are part of the ALC and undertake land and sea management activities (including weed management) within the Anindilyakwa IPA. Given these responsibilities, the ALC and ALC Rangers are key stakeholders for the BOMP, and the ALC Rangers will be actively involved in the implementation of the offsets program. As such, GEMCO has ensured that it has engaged early and often with the ALC and the ALC Rangers in the development of this BOMP. Engagement has predominantly been through face-to-face meetings.

Engagement with the ALC and ALC Rangers in relation to offsets commenced at the time that the BOS was prepared, and both parties were supportive of the concept of offsets funding being used for weed management activities. The BOS describes this engagement.

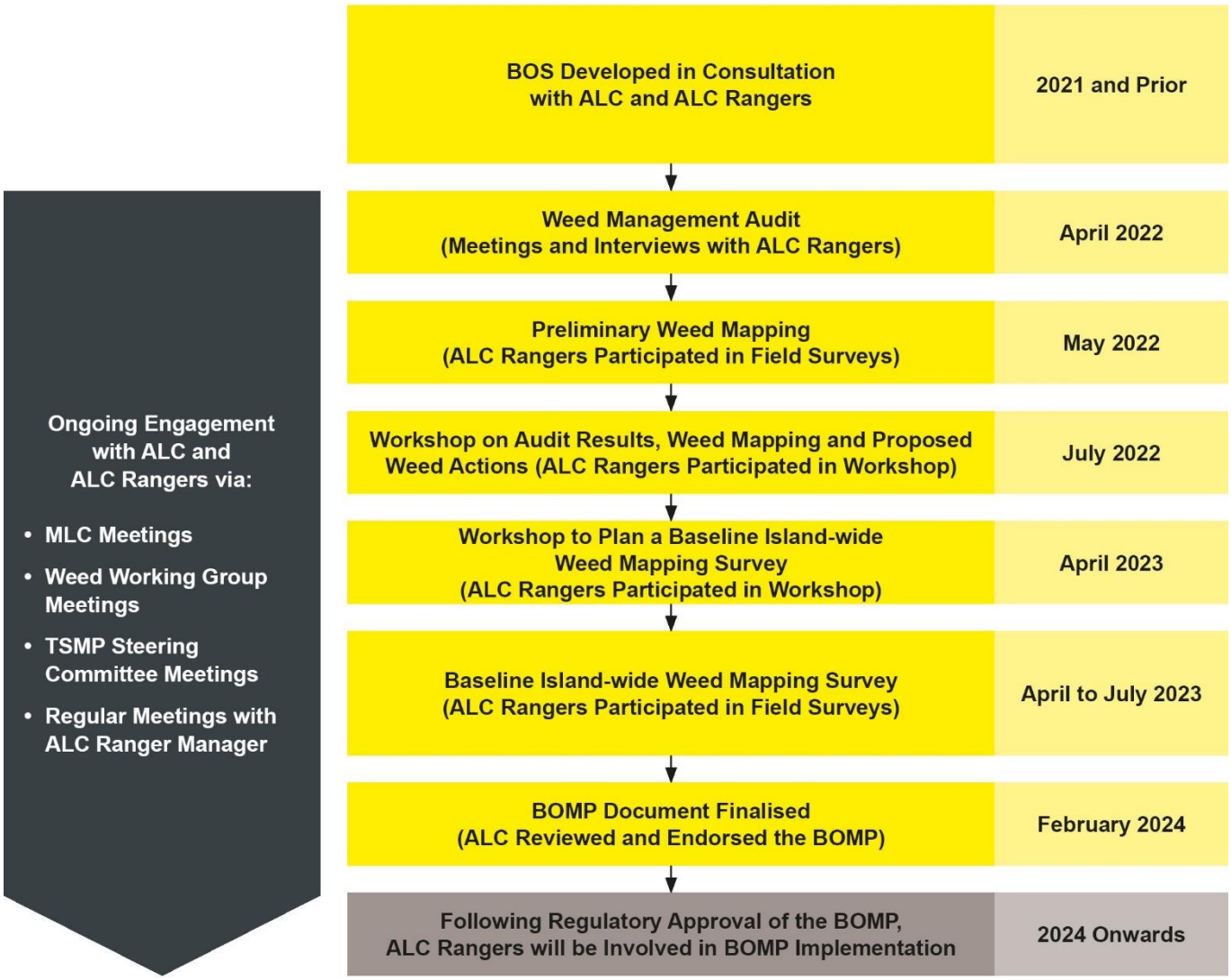
Since the BOS was approved by DCCEEW in July 2021, there has continued to be a program of ongoing engagement with the ALC and ALC Rangers to further develop the offsets program. Engagement has included regular updates and knowledge sharing through established forums, including the:

- Mining Liaison Committee (MLC) meetings, which are quarterly meetings held between GEMCO and the ALC in which GEMCO provides an update on its mining, project and sustainability activities. Any matters that may affect both parties are discussed. The Mining Agreement (signed under ALRA) describes the arrangements for MLC meetings.
- The weed working group that has been convened by the ALC Rangers.
- TSMP Steering Committee meetings, which are meetings attended by the ALC, ALC Rangers, GEMCO, DEPWS, and an independent scientific expert. Matters related to the TSMP are discussed. This includes the proposed offsets program, given that the proposed offsets have been designed to address several of the weed management strategies that are outlined in the TSMP.
- Regular meetings between GEMCO, the ALC Rangers (specifically the ALC Ranger Manager) and the ALC (specifically the ALC Manager Mining & Sustainability). These in-person meetings have been used over the past year to collaboratively develop the details of the offsets program.

Over the past two years, as the BOMP has been prepared, there have been approximately 20 meetings involving the ALC and/or ALC Rangers in which offsets were discussed. In addition to regular meetings, the following tasks were undertaken as part of development of the BOMP, in collaboration with the ALC and/or ALC Rangers (these tasks are also summarised in Graphic 1 below):

- In April 2022, an audit of the existing weed management practices on Groote Eylandt was undertaken by AECOM on behalf of GEMCO (refer to Section 6.3 for further details). The ALC Rangers were key participants in this audit and shared knowledge (via meetings and interviews) about the status of weed management on Groote Eylandt (including activities undertaken by the ALC Rangers), key priorities for weed management, training and capacity building of the ALC Rangers, and community awareness in relation to weeds. The ALC Rangers also provided advice on the species that should be considered as high priority weeds for management on the island. During this engagement, the ALC Rangers described the difficulties of retaining trained Ranger staff willing and able to conduct intensive weed management work due to high levels of staff turnover and the physical nature of the work. It was agreed that, due to the current weed situation on Groote Eylandt, it would be necessary to inject a significant investment of new resources into weed management to bring weed infestations under control to the point that ALC Ranger business-as-usual works could manage them. It was identified that resources should include funding a Plant Biosecurity Officer position and engaging specialist weed management contractors to undertake weed management work (e.g. spraying weeds).
- In May 2022, a preliminary weed mapping survey was undertaken by AECOM on behalf of GEMCO, with the ALC Rangers participating in the weed survey. This involvement of the ALC Rangers allowed for local knowledge to be shared (e.g. high-risk locations for weeds) and for training and capacity building of the ALC Rangers (in weed identification and survey techniques). This survey is discussed further in Section 5.2.1.
- In July 2022, a workshop was held with GEMCO, AECOM, and the ALC Rangers to discuss the results of the weed management audit and weed mapping survey, and agree on the weed actions needing to be undertaken and recommended to be adopted as part of the BOMP.
- A scope of work for a baseline island-wide weed survey was developed in collaboration with the ALC Rangers. In March 2023, the ALC Rangers reviewed the proposed scope for this work and in April 2023 they participated in a workshop to agree on the priority locations for weed mapping (including areas in which the Rangers knew or suspected that weeds were present), priority weed species on which to focus, data management, and opportunities for the ALC Rangers to participate in the island-wide weed survey.
- A baseline island-wide weed survey was undertaken by Cumberland Ecology, GEMCO's ecological consultant, with involvement of the ALC Rangers. This was undertaken over a total of four separate field survey periods from April to July 2023. ALC Rangers participated in the weed surveys, which provided an opportunity for training and capacity building of the ALC Rangers, as well as for the ALC Rangers to share their local knowledge. Cumberland Ecology botanists worked with the ALC Rangers to identify weed species, identify areas of likely weed infestation, and train Rangers on how to enter weed data using Survey123 on a phone and iPad. This survey is discussed further in Section 5.2.2.
- Development of the BOMP document. The ALC and ALC Rangers have been provided with draft versions of the BOMP, and GEMCO has revised the BOMP to address their comments. The ALC and ALC Rangers have provided a letter of support and endorsement of the BOMP (see Appendix C).

A summary of the engagement program is provided in Graphic 1 and a detailed record of the engagement is provided in Appendix B.



GRAPHIC 1 SUMMARY OF BOMP ENGAGEMENT WITH ALC AND ALC RANGERS

4.3 NT DEPARTMENT OF ENVIRONMENT, PARKS AND WATER SECURITY

DEPWS had a key role in developing the concept of the offsets program at the time that the BOS was prepared. As described in the BOS, this included multiple meetings with DEPWS to discuss the various potential conservation programs that could be used as offsets, and then review of the BOS by DEPWS. Since then, GEMCO has kept DEPWS regularly informed of progress with respect to developing the offsets program. This has been via the TSMP Steering Committee meetings, which are attended by a representative of the DEPWS Flora and Fauna Division (refer to Appendix A), as well as several phone conferences and email correspondence with Dr Alaric Fisher, Executive Director Flora & Fauna Division.

The 2023 BOMP was reviewed and endorsed by the Weed Management Branch of DEPWS in April 2023. Following updates to the document (refer to Section 1.2), the 2024 BOMP (this document) was also provided to DEPWS, with Dr Alaric Fisher providing a letter of endorsement (attached as Appendix D).

DEPWS will be kept updated on progress made in implementing the BOMP via the TSMP Steering Committee meetings.

5 BASELINE WEED MAPPING

5.1 INTRODUCTION

As discussed in Section 3.5, outcomes to be achieved during the foundation period (the first two years) of the offsets program include:

- Undertaking a weed mapping exercise on Groote Eylandt, with major infestations of weeds to be mapped; and
- Defining the high priority weeds for the purpose of the BOMP, taking into account the results of the weed mapping exercise.

These outcomes have now been achieved and are discussed in the following sections.

These tasks provide the groundwork for other offsets tasks, given that the remainder of the offsets program relates to controlling and/or eradicating, and preventing the introduction of these high priority weeds (as well as work related to community awareness and capacity building).

Weed mapping was undertaken for the purpose of guiding the development of BOMP actions, finalising the list of high priority weeds upon which to focus the offset program and providing a baseline map of weed populations (against which to measure future progress in controlling and eradicating weeds). Although, the weed mapping exercise was extremely comprehensive, undertaken over multiple field trips and covering areas assessed as being high risk for weeds, it is unrealistic to regard it as a full census of weeds on Groote Eylandt. In the event of additional infestations of high priority weeds being detected (i.e. beyond those detected during the weed mapping exercise), the infestations will be managed via the Trigger Action and Response Plan (TARP) process described in Section 6.9.

This section describes weed mapping in areas of Groote Eylandt beyond the GEMCO weed management area. This is termed the "offset management area" (Figure 1). Weeds within the GEMCO weed management area are monitored and managed by GEMCO via existing processes, which are not subject to offsets funding.

Baseline weed mapping was undertaken in two parts, namely a preliminary weed mapping survey (Section 5.2.1) and the more detailed baseline island-wide weed survey (Section 5.2.2). In this report, these surveys are collectively referred to as the "BOMP weed surveys".

5.2 WEED MAPPING

5.2.1 PRELIMINARY WEED MAPPING

A preliminary weed mapping survey was undertaken across Groote Eylandt between 16-20 May 2022. The purpose of this survey was to verify existing weed records (e.g. from database searches or engagement with the ALC Rangers) and confirm the presence and extent of weeds on the island that have a high risk of spreading into and transforming high value threatened species habitat areas. The survey also aimed to support the planning of the BOMP by identifying:

- High risk areas requiring further survey; and
- The optimal timing and resources required to undertake a comprehensive island-wide weed survey.

The survey was undertaken by AECOM (with the assistance of the ALC Rangers), and involved surveying a number of high risk areas across Groote Eylandt, including roads and access tracks, borrow pits and quarries, towns and outstations, and recreation areas. The surveys focused particularly on areas outside GEMCO's weed management area (i.e. the offset management area). Surveys were primarily undertaken via driving a vehicle at low speeds whilst a passenger recorded weeds using a GPS. This method is particularly effective for linear search areas where weed density was sparse (e.g. roads and tracks). In some instances, locations were surveyed by traversing on foot (e.g. at gravel pits). The coverage of the preliminary weed mapping survey is shown on Figure 2.

Data was recorded according to methods outlined in the NT Weed Data Collection Field Guide (Department of Environment and Natural Resources, n.d), and included collection of the following data: location, name, size and density of infestation, growth stage, and whether there was evidence of seeding. The survey gathered data on a range of weed species, but this BOMP focusses on the species that were ultimately categorised as being high priority species (refer to Section 5.3). All records from the preliminary weed mapping (high priority weeds and other species) have been captured in Survey123 and made available to the ALC Rangers. Records of high priority weeds are discussed further in Section 6.7.4. Figures 4-9 show the distribution of high priority weed species recorded during the preliminary weed mapping survey.

5.2.2 BASELINE ISLAND-WIDE WEED SURVEY

OVERVIEW

Following the preliminary weed mapping exercise, a baseline island-wide weed survey of Groote Eylandt was undertaken. The purpose of this survey was to undertake a more detailed survey of current infestations of weed species across the island, providing baseline data and further informing the development of the BOMP. The surveys focused on areas primarily within the offset management area.

The surveys were undertaken in areas:

- Known to be subject to weed infestations based on previous weed records. This was for the purpose of validating and further quantifying these records; and/or
- Deemed to be at risk of weed infestation (either currently or in future).

DESKTOP ASSESSMENT AND SURVEY PLANNING

Prior to the survey, a comprehensive desktop assessment was undertaken to review available weed record data for Groote Eylandt. This data was utilised to assist with planning the location of surveys, and included:

- The AECOM preliminary weed mapping survey;
- The AECOM audit of existing weed management systems (refer to Section 6.3 for further information);
- The NT Natural Resource Maps (NR Maps) search facility;
- Weed surveys undertaken by (or on behalf of) GEMCO and the ALC;
- NT Herbarium and NT Weeds Management Branch weed records for Groote Eylandt; and
- Information provided by the ALC Rangers during consultation (refer to Section 4.2), which identified areas that the Rangers knew or suspected to contain weeds.

The desktop planning exercise also identified areas throughout Groote Eylandt that are at risk of containing weeds and therefore also require survey. These high-risk areas were identified during consultation with GEMCO and the ALC, and through perusal of available aerial imagery. Areas identified during this exercise included:

- Areas in close proximity to known infestations;
- Roads, firebreaks and tracks;
- Townships, recreation areas, outstations and other communities;
- Beaches and waterways;
- Active and historical quarries and roadside borrow-pits;
- Industrial and residential waste refuse areas and sewage treatment areas;
- Powerlines, pipelines and other easements; and
- Other areas of past or present vegetation or soil disturbance.

SURVEY TIMING AND TEAM

The baseline island-wide weed survey was undertaken over four separate survey periods following the end of the wet season in 2023 (between 20 April to 4 July), with a total of 26 days in the field. This survey timing maximised the probability of detecting weeds by coinciding with plant biomass peaks, fruiting/seeding times (important for identification), and prior to fires occurring on Groote Eylandt, which can make identification impossible. The survey periods were spread over three months to account for the large survey area and variability in accessibility of some areas, whilst accounting for the variability in species growth and reproductive cycles, which also influence detectability.

The surveys were undertaken by botanists from Cumberland Ecology with extensive local weed survey experience on Groote Eylandt and in the Top End. Members of the ALC Rangers also assisted with the surveys and provided crucial local knowledge on weed distributions, and navigation/access. The surveys also provided the opportunity for informal information exchange and learning for junior Rangers and the Rangers were trained on entering weed data into Survey123 on both a phone and iPad.

SURVEY COVERAGE

The coverage of the baseline island-wide weed surveys is shown on Figure 3. The majority of areas identified as requiring survey during the desktop assessment were able to be surveyed. However, some areas were found to be inaccessible, including:

- Some beaches and sandy beach tracks, excessively overgrown access tracks, and wet/boggy tracks that were not accessible via driving or by foot;
- Some areas which were inaccessible due to cultural reasons (e.g. South Point which was closed for ceremonial purposes);
- Within town areas, individual properties, including backyards were not entered, with surveys generally being restricted to front nature strip areas or areas of bushland adjacent to the properties; and
- A portion of the road to Dalumba Bay (inaccessible to vehicles until much later in the dry season).

Although surveys focused on areas within the offset management area, some areas within GEMCO's weed management area were also surveyed if they were considered high risk areas for weed infestations. These included the township of Alyangula, and roads within GEMCO's tenements that are also used by the community (e.g. Rowell Highway, Yenbakwa Road).

Survey coverage did not include more remote areas away from tracks and infrastructure, as it is considered a low probability that there are significant additional weed infestations in these locations.

DATA COLLECTION

Surveys were primarily undertaken via driving a vehicle at low speed whilst a passenger scanned the immediate area for weed species. Where an infestation was observed or suspected, the immediate vicinity was then explored on foot, with team members searching the area to establish the extent of the infestation. Highly disturbed areas and those inaccessible to vehicles were surveyed exclusively on foot. These included firebreaks and walking tracks in Alyangula, built up areas in townships, vacant land, borrow pits, quarries, waste refuse areas, sandy beaches, and inaccessible overgrown/sandy/boggy track sections.

Data was recorded according to methods outlined in the NT Weed Data Collection Field Guide (Department of Environment and Natural Resources, n.d), and included collection of the following data: location, name, size and density of infestation, growth stage, whether there was evidence of seeding, and soil disturbance. A photo was also taken of significant infestations, as well as species newly detected on Groote Eylandt. Each weed record was recorded using Survey123.

Once surveys were completed, a full list of weed species detected was compiled and the distribution of weeds mapped.

SURVEY RESULTS

The baseline island-wide weed survey resulted in the identification of over 1,500 weed infestations. Overall, it was found that weeds were most widespread around townships and surrounding areas, and along major roads (e.g. Umbakumba Road, Rowell Highway). Weeds were sparser on more remote tracks to outstations, recreational areas and beaches.

All records from the baseline island-wide weed surveys (high priority weeds and other species) have been captured in Survey123 and made available to the ALC Rangers. GEMCO, the ALC and the NT Government were informed of any notifiable weed records, and any immediate control actions were identified and communicated to the appropriate parties.

Records of high priority weeds are discussed further in Section 6.7.4. Figures 4-9 show the distribution of high priority weed species recorded during the baseline island-wide weed survey.

5.3 HIGH PRIORITY WEEDS

5.3.1 SELECTION PROCESS

Following the weed mapping surveys discussed in the preceding sections, several weeds were confirmed as "high priority weeds" for Groote Eylandt, requiring either eradication, control, or prevention. The species were selected based on advice from Cumberland Ecology botanists, as well as consultation with ALC Ranger staff (refer to Section 4.2), and were chosen based on the following:

- Their known ability to transform natural habitats/ecosystems;
- The detrimental impact of such habitat transformations to the impacted species (Northern Quoll, Northern Hopping-mouse, Brush-tailed Rabbit-rat and Masked Owl (northern)); and
- Their likelihood of the weed species spreading out of control on Groote Eylandt, considering the known and potential distribution of each species, and their known ability to dominate similar habitats and climates to those found on Groote Eylandt.

These criteria are discussed further in the below sections.

The high priority weeds selected for Groote Eylandt are:

- Gamba Grass (*Andropogon gayanus*);
- Grader Grass (*Themeda quadrivalvis*);
- Annual Mission Grass (*Cenchrus pedicellatus*);
- Perennial Mission Grass (*Cenchrus polystachios*);
- Guinea Grass (*Megathyrsus maximus var. maximus*);
- Para Grass (*Urochloa mutica*);
- Buffel Grass (*Cenchrus ciliaris*);
- Fountain Grass (*Cenchrus setaceus*);
- Olive Hymenachne (*Hymenachne amplexicaulis*);
- Thatch Grass (*Hyparrhenia rufa*); and
- Molasses Grass (*Melinis minutiflora*).

With the exception of Fountain Grass, Olive Hymenachne, Thatch Grass and Molasses Grass, these species have each been recorded on Groote Eylandt.

Appendix E provides a profile of each weed species and further justification for selection as a high priority weed.

5.3.2 TRANSFORMATION OF HABITATS/ECOSYSTEMS

Transforming weeds are a subset of invasive species which alter the character, condition, form or nature of a natural ecosystem over a substantial area (Sheppard et al., 2010). These species can have a profound effect on biodiversity, often form monocultures, smother existing flora, and alter abiotic conditions (Sheppard et al., 2010). Key transformative actions include promoting or suppressing fire (e.g. by increasing fuel loads), using excessive resources (e.g. light, water, oxygen), and accumulating excessive litter (Sheppard et al., 2010). These species often require a major allocation of resources to contain, control or eradicate them (Sheppard et al., 2010).

If left unmanaged, these weed species would come to dominate Groote Eylandt to the detriment of the threatened fauna species. Transforming weeds can impact threatened species, as follows:

- Many transforming weeds are high biomass species which can increase fuel loads and exacerbate the cycle of intense late dry season fires. Such intense fires can result in:
    - Increased direct mortality of fauna (Hill & Ward 2010; DSEWPAC 2012a);
    - Removal of high proportions of understorey habitat (DSEWPAC 2012a), which species such as the Northern Hopping-mouse and Brush-tailed Rabbit-rat depend on for habitat and food and shelter resources.
    - Reduction of the availability of shelter/breeding habitat, such as tree hollows and logs. Intense fires are known to significantly increase tree mortality (Edwards et al. 2018) and also destroy hollow logs. The Northern Quoll relies on sheltering within tree hollows and hollow logs (Hill & Ward 2010), and mature trees and hollows are key habitat components required by the Masked Owl (northern) to breed. Loss of such features may be detrimental to these species.
    - The increased incursion of fire into fire-sensitive vegetation communities, which provide important habitat features for threatened species (e.g. riparian areas which are a source of hollow-bearing trees).
- Transforming weeds may inhibit ground movements of threatened species. For example, Gamba Grass has an unusually high density, biomass and rigidity which may inhibit ground movements and hunting by the Northern Quoll (Hill & Ward 2010).

5.3.3 IMPACTS ON THE PROJECT'S IMPACTED FAUNA

The TSMP identifies "invasive transforming weeds" as a "high" threat for all four of the project's impacted species, due to the ability of the weeds to displace native fauna, increase fuel loads/result in more frequent and intense fires, and consequently affect habitat structure and floristic diversity. These impacts can alter the food and resources available to the threatened fauna on Groote Eylandt.

Within the *Threat Abatement Plan for the Five Listed Grasses* (DSEWPAC 2012a), all four impacted species are also listed as being under "immediate threat" from this threatening process.

The relevant conservation advice/recovery plan documents for each species also specify the following:

- Northern Hopping-mouse – The conservation advice for this species (TSSC 2021) identifies invasive transforming weeds as a potential threat on Groote Eylandt. Invasive weeds causing degradation of habitat are assessed as having a low current impact, however the scope, severity and irreversibility have the potential to increase in the future if not managed. The advice makes specific reference to exotic invasive grasses, such as Gamba Grass, Grader Grass and Annual Mission Grass.

- Brush-tailed Rabbit-rat – The Conservation Advice for this species (TSSC 2016) identifies invasive weeds as a potential threat. The advice makes reference to annual grasses which increase fire-grass cycles. Gamba Grass, Grader Grass and Perennial Mission Grass are also referenced, in particular, as exacerbating the cycle of intense late dry season fires which is also a potential threat to the Brush-tailed Rabbit-rat.
- Northern Quoll –
  - The *National Recovery Plan for the Northern Quoll* (Hill and Ward 2010) identifies weeds as a threat to the species. The plan makes reference to exotic pasture grasses, in particular Gamba Grass and mission grasses, due to their unusually high density, biomass and rigidity which may inhibit ground movements and hunting by quolls. They may also foster fire regimes that are more intense which are more likely to cause direct mortality, reduce availability of shelter and reduce habitat heterogeneity.
  - The *EPBC Act referral guideline for the endangered northern quoll* (DotE 2016) identifies the introduction and increases of invasive species as a threat to the species. The guideline makes reference to high priority weeds which can modify habitat and provides Gamba Grass as an example.
- Masked Owl (northern) – The Conservation Advice for this species (TSSC 2015) lists the management of weeds at a landscape scale as a conservation action that is required for this species.

5.3.4 RISK OF SPREAD ON GROOTE EYLANDT

Groote Eylandt is within the known climate and habitat envelopes of all high priority weed species listed in Section 5.3.1.

High priority weeds already occurring on Groote Eylandt (Gamba Grass, Grader Grass, Annual and Perennial Mission Grass, Guinea Grass, Para Grass and Buffel Grass) are very likely to continue to spread out of control and come to dominate and transform habitats without significant management intervention. They are known to have a history of dominating and transforming habitats similar to those found on Groote Eylandt (DCCEEW, 2012; CRC Weed Management, 2008; Rojan-Sandoval and Acevedo-Rodriguez, 2013).

For those species not currently known to occur on Groote Eylandt (Fountain Grass, Olive Hymenachne, Thatch Grass and Molasses Grass), they are very likely to have the ability to spread out of control and dominate landscapes on Groote Eylandt should they arrive and not have active management (for modelled distributions that include Groote Eylandt, see DCCEEW, 2012; DENR 2012; DENR 2013; Maciel *et al.* 2022). These species have significant populations in North Queensland and/or the NT, and pose a credible biosecurity risk of incursion from seed-contaminated vehicles, machinery or other high-risk freight.

6 MANAGEMENT ACTIONS

6.1 INTRODUCTION

This section describes the management actions to be undertaken as part of the offsets program. The actions are consistent with the requirements outlined in the EPBC Act approval and the BOS (refer to Section 3 for an overview of these requirements). The actions are over and above the routine weed management work currently undertaken on Groote Eylandt (Section 2.3) and the actions described in this section will be funded by GEMCO's offsets program.

6.2 OVERVIEW OF ACTIONS AND TARGETS

Table 1 below gives an overview of the actions described in Section 6 and the timing of those actions. The timing of these actions is as per the required timeframes from the BOS (Section 3.4).

TABLE 1 OFFSET MANAGEMENT ACTIONS

Offset Management Action	BOMP Section	Foundation[1]		Short-term[1]			Medium-term[1]				
		Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Weed Mapping											
Undertake island-wide weed mapping survey[2]	5 & 6.4										
Audit of Existing Weed Management Systems											
Undertake audit	6.3										
Weed Management Plan											
Prepare a Weed Management Plan	6.5										
Plant Biosecurity Officer											
Recruit Plant Biosecurity Officer	6.6.1										
Employ Plant Biosecurity Officer	6.6.3										
Weed Control and Monitoring of High Priority Weeds											
Treat weeds, as per targets for each species	6.7										
Weed monitoring (part of routine weed treatment)	6.7										
Quarantine System											
Undertake detailed audit of quarantine system	6.8.1										
Quarantine inspections (freight, vehicles etc.)	6.8.2										
Develop risk profiles of high priority weed species	6.8.2										

Offset Management Action	BOMP Section	Foundation[1]		Short-term[1]			Medium-term[1]				
		Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Trigger Action Response Plan (TARP)											
Develop standalone procedure for TARP	6.9										
Implement TARP	6.9										
Community Awareness in Relation to Weeds											
Run awareness sessions and events	6.10.3 & 6.10.4										
Create and distribute awareness materials	6.10.5										
Evaluate the community's understanding of weeds	6.10.6										
Training and Capacity Building											
Develop and implement training courses	6.11.2										
Develop and utilise training materials	6.11.3										
Monitoring-Planning-Reporting											
Undertake annual planning	7.3										
Submit Impact Reconciliation Report	7.4										

Notes:

1 – = Approximate timing in which the action will be undertaken

2 – Weed mapping will generally be undertaken during the late wet season to the post-wet season and so may fall across two offset years. The year shown is the year in which surveys will commence

Table 2 below provides an overview of the targets described in this BOMP as well as the timeframes for achieving these targets. The timeframes align with the required timeframes from the BOS (Section 3.4).

TABLE 2 OFFSET MANAGEMENT TARGETS

Offset Management Targets	BOMP Section	Foundation Period	Short-term Period	Medium-term Period
Island-wide Weed Mapping Survey	5 & 6.4	• Undertake baseline island-wide weed mapping survey *(complete)*.	• Repeat island-wide weed mapping survey every two years.	• Repeat island-wide weed mapping survey every two years.
Audit of Existing Weed Management Systems	6.3	• Undertake audit of existing weed management systems and recommend improvements *(complete)*.		
Weed Management Plan	6.5	• Prepare a draft Weed Management Plan in consultation with ALC *(complete)*.	• Finalise Weed Management Plan once the BOMP has been approved.	
Plant Biosecurity Officer	6.6	• Plant Biosecurity Officer roles and responsibilities agreed with the ALC *(complete)*. • Plant Biosecurity Officer has been recruited *(to be completed by the end of the foundation period)*.	• Plant Biosecurity Officer role is filled.	• Plant Biosecurity Officer role is filled.

Offset Management Targets	BOMP Section	Foundation Period	Short-term Period	Medium-term Period
Weed Control and Monitoring Targets - Gamba Grass *(species to be eradicated – refer to Section 6.7.4).*	6.7.4	• Undertake a baseline island-wide survey for the species (*complete*). • Treat 100% of plants in any infestations located during the BOMP weed surveys (*complete*).	• Continue to monitor infestation sites for recurrence. • Monitor the offset management area for new infestations via the two-yearly island-wide weed survey. • Treat 100% of plants in any new infestations discovered.	• Eradicate known infestations on Groote Eylandt by the end of the medium-term period.
Weed Control and Monitoring Targets - Grader Grass *(species to be eradicated – refer to Section 6.7.4).*	6.7.4	• Undertake a baseline island-wide survey for the species (*complete*). In the roadside populations (i.e. all populations other than the Angurugu population): treat 100% of plants detected during the BOMP weed surveys *(this is planned to be completed by June 2024).*	• Continue to monitor the roadside infestation sites for recurrence. Monitor the offset management area for new infestations via the two-yearly island-wide weed survey. • Treat 100% of plants in any new infestations discovered. • Ensure that the Angurugu population does not expand beyond the area in which the species was located during the BOMP weed surveys.	• Eradicate known infestations on Groote Eylandt by the end of the medium-term period.
Weed Control and Monitoring Targets - Annual Mission Grass *(species to be controlled – refer to Section 6.7.4).*	6.7.4	• Undertake a baseline island-wide survey for the species (*complete*). Treat 100% of plants that were found in the BOMP weed surveys along Umbakumba Road and Emerald River/Yenbakwa Road *(this work is planned to be completed by June 2024).*	• Continue to monitor treated infestation sites for recurrence. • Treat 100% of plants in isolated populations (i.e. beyond townships). • Monitor the offset management area for new infestations via the two-yearly island-wide weed survey.	• As per short-term, with populations in offset management area (other than the township populations) having been eradicated by the end of the medium-term period. • Reduce area of occupancy in township populations to 50% or less of area currently occupied.

Offset Management Targets	BOMP Section	Foundation Period	Short-term Period	Medium-term Period
			• Treat 100% of plants in any new infestations discovered.	• Continue to control with the objective of eradication. Ensure that a feasible plan for eradicating the species from Groote Eylandt is in place and able to be implemented by the Rangers as part of their routine weed management work beyond the life of the offsets program.
Weed Control and Monitoring Targets - Perennial Mission Grass *(species to be eradicated – refer to Section 6.7.4).*	6.7.4	• Undertake a baseline island-wide survey for the species (*complete*). Treat 100% of plants in any infestations located during the BOMP weed surveys *(no infestations were found).*	• Continue to monitor prior infestation sites for recurrence. Monitor the offset management area for new infestations via the two-yearly island-wide weed survey. • Treat 100% of plants in any new infestations discovered.	• Eradicate known infestations on Groote Eylandt by the end of the medium-term period.
Weed Control and Monitoring Targets - Guinea Grass *(species to be controlled – refer to Section 6.7.4).*	6.7.4	• Undertake a baseline island-wide survey for the species (*complete*). Treat 100% of plants in the populations outside of the three townships that were found in the BOMP weed surveys *(this work is planned to be completed by June 2024).*	• Continue to monitor the populations that were treated in the foundation period for recurrence. • Monitor the offset management area for new infestations via the two-yearly island-wide weed survey. • Treat 100% of plants in any new infestations discovered.	• As per short-term, with populations in offset management area (other than townships) having been eradicated by the end of the medium-term period. • Reduce area of occupancy in township populations to 50% or less of the area currently occupied.

Offset Management Targets	BOMP Section	Foundation Period	Short-term Period	Medium-term Period
			• Ensure that the township populations do not expand beyond the area in which the species was located during the BOMP weed surveys.	• Continue to control with the objective of eradication. Ensure that a feasible plan for eradicating the species from Groote Eylandt is in place and able to be implemented by the Rangers as part of their routine weed management work beyond the life of the offsets program.
Weed Control and Monitoring Targets - Para Grass *(species to be eradicated – refer to Section 6.7.4).*	6.7.4	• Undertake a baseline island-wide survey for the species (*complete*). • Treat 100% of plants in any infestations located during the BOMP weed surveys *(this work is planned to be completed by June 2024).*	• Continue to monitor prior infestation sites for recurrence. • Monitor the offset management area for new infestations via the two-yearly island-wide weed survey. • Treat 100% of plants in any new infestations discovered.	• Eradicate known infestations on Groote Eylandt by the end of the medium-term period.
Weed Control and Monitoring Targets - Buffel Grass *(species to be eradicated – refer to Section 6.7.4).*	6.7.4	• Undertake a baseline island-wide survey for the species (*complete*). Treat 100% of plants in any infestations located during the BOMP weed surveys *(this work is planned to be completed by June 2024).*	• Continue to monitor prior infestation sites for recurrence. • Monitor the offset management area for new infestations via the two-yearly island-wide weed survey. • Treat 100% of plants in any new infestations discovered.	• Eradicate known infestations on Groote Eylandt by the end of the medium-term period.

Offset Management Targets	BOMP Section	Foundation Period	Short-term Period	Medium-term Period
Weed Control and Monitoring Targets - Fountain Grass, Olive Hymenachne, Thatch Grass, Molasses Grass *(species to be prevented – refer to Section 6.7.4).*	6.7.4	• Undertake a baseline island-wide survey to search for the presence of these species *(complete).*	• Monitor the offset management area for new infestations via the two-yearly island-wide weed survey. • Groote Eylandt remains free of these species.	• Monitor the offset management area for new infestations via the two-yearly island-wide weed survey. • Groote Eylandt remains free of these species.
Quarantine System	6.8		• Undertake detailed audit of quarantine system and recommend improvements. • Quarantine system improvements implemented. • Risk profiles for high priority weeds developed.	• Quarantine system improvements implemented.
Trigger Action Response Plan	6.9	• TARP framework developed *(complete).*	• Standalone TARP procedure developed. • TARP procedure implemented in the event of new incursions of high priority weeds.	• Stand alone TARP procedure implemented in the event of new incursions of high priority weeds.
Community Awareness	6.10		• Awareness materials are developed in an appropriate format. • Awareness events and sessions are held as per the schedule developed in the annual planning sessions.	• Awareness materials are utilised by ALC and community. • Awareness events and sessions are held as per the schedule developed in the annual planning sessions.

Offset Management Targets	BOMP Section	Foundation Period	Short-term Period	Medium-term Period
				• At end of medium-term period, a questionnaire is administered to a sample of Groote Eylandt community members and the survey results indicate that the community is aware of the threat posed by weeds and actions that can be undertaken by community members to prevent the introduction and spread of weeds.
Training and Capacity Building	6.11		• An annual training program is established and implemented that offers an appropriately tailored set of weed management courses to ALC Rangers and staff.	• Appropriate materials are available and actively used by ALC Rangers as training and reference resources for weed management.

6.3 AUDIT OF EXISTING WEED MANAGEMENT SYSTEMS

6.3.1 OVERVIEW

The BOS indicates that an audit of existing weed management and monitoring systems will be undertaken to determine areas for improvement. This was intended as a once-off audit to inform the development of the BOMP. This audit was undertaken in 2022 by AECOM and included a desktop review and a site visit for face-to-face consultation and facility inspections.

The audit is described in the following sections.

6.3.2 METHODOLOGY

Prior to a site visit, a literature review and desktop assessment of available procedures, safe work instructions, training programs, historical weed management reports, programs and weed data was undertaken to gain an understanding of the status of weed management on the island. Specifically, the desktop review included investigation of:

- The known presence of weeds on Groote Eylandt;
- The existing weed management and monitoring programs in place to avoid the introduction and spread of weeds on Groote Eylandt;
- The existing weed management programs to control weeds already present;
- Existing roles and responsibilities, including legislative and other requirements;
- Existing equipment and resources utilised to control weeds; and
- Existing weed mapping data.

A site visit and inspection was then undertaken on Groote Eylandt on 4-8 April 2022, and in Darwin on 12 April 2022 (the site visit to Darwin was for the purpose of assessing Groote Eylandt's freight service providers). The site visit and inspection included discussions with stakeholders who have a responsibility or interest in Groote Eylandt weed management, including:

- ALC Rangers;
- GEMCO;
- EARC;
- Aminjarrinja Enterprises;
- GEBIE;
- Centurion and Sea Swift (the primary freight provider for Groote Eylandt); and
- Compass Group/ESS (GEMCO's site services provider).

The site visit also included visits to various facilities on Groote Eylandt and in Darwin, including Sea Swift freight yards, the Milner Bay port facility in Alyangula, the barge landing at Umbakumba, and the GEBIE Civil and Construction Yard. These visits included physical inspections of the facilities for weeds as well as discussions with staff on current weed management and quarantine measures.

6.3.3 OUTCOMES OF THE AUDIT

Following the site visit, a two-day workshop was held in July 2022 between GEMCO, the ALC Rangers and AECOM, to discuss the outcomes and recommendations from the desktop review/site visit and reach agreement on the actions required to improve existing weed management systems.

Key overarching findings of the audit included the following:

- There is no coordinated island-wide approach to weed management on Groote Eylandt and no island-wide weed management plan or documented procedures, safe work instructions or annual action plans;
- There is no single weed map or robust database for managing weed records and actions;
- There is insufficient resourcing (people and equipment) to undertake required weed management activities; and
- Training and community awareness programs relevant to weed prevention and control are ad hoc and limited in scope.

The audit concluded that the following actions, already described in the BOS, were required:

- Employing a Biosecurity Coordinator to coordinate weed management activities, with this role being under the umbrella of the ALC Rangers but with a reporting line to the GEMCO Principal Biodiversity Offsets;
- Undertaking a comprehensive weed survey to establish a baseline weed map of the island; and
- Developing a Weed Management Plan for Groote Eylandt that is suitable for the ALC Rangers.

These actions were endorsed by the ALC Rangers in the workshop and will be resourced via GEMCO's offsets program.

Additional recommendations that were deemed to be potentially "highly effective" included:

- Engaging external weed management contractors to undertake weed control activities in the short term;
- Developing educational resources to support community and employee awareness regarding weed management;
- Developing a training program for all stakeholders required to undertake weed management programs; and
- Improving weed hygiene measures, including investigating options for additional vehicle washdown facilities on Groote Eylandt.

An additional outcome of the audit was the recognition that a more detailed, dedicated audit of the weed quarantine systems on Groote Eylandt is required.

Recommendations from the audit informed the development of this BOMP.

6.4 WEED MAPPING

The BOS requires major infestations of high priority weeds on Groote Eylandt to be mapped, with this work to be undertaken during the foundation period of the offsets program. This work has now been completed and is described in Section 5.2. The baseline weed maps produced as an output of the BOMP weed surveys (i.e. the preliminary weed mapping and baseline island-wide weed survey) are provided as Figure 4 to Figure 9. Weeds were mapped using Survey123, with the data stored and accessed via an ArcGIS online system.

As an outcome of the engagement that has been undertaken as part of developing the BOMP, the ALC Rangers are now also planning to use Survey123, ensuring that the key parties with responsibility for weed management are using a common system and have access to the same data. The lack of a single database for managing weeds was one of the issues identified in the audit and this will be remedied through ensuring that all stakeholders are able to use Survey123.

As part of the offsets program, the baseline island-wide weed survey will be repeated by appropriately qualified specialists every two years (calendar years 2025, 2027, 2029 and 2031). Data from these surveys will assist GEMCO in confirming whether targets for weed control are being met. Similar to the baseline island-wide weed survey that was undertaken as part of the development of this BOMP, future surveys will cover:

- Areas known to contain weed infestations or have been subject to weed infestations in the past, and nearby areas.
- Areas that are assessed as being high risk for weed spread, such as:
    - Roads, firebreaks and tracks;
    - Townships, recreation areas, outstations and other communities;
    - Beaches and waterways;
    - Active and historical quarries and roadside borrow-pits;
    - Waste refuse sites and sewage treatment areas;
    - Powerlines, pipelines and other easements; and
    - Other areas of past or present vegetation or soil disturbance.

This will provide landscape-scale monitoring data on the of the status of known weed infestations, as well as information on new or previously undocumented infestations of high priority weeds. The surveys will also allow for the discovery of new or previously unproblematic weed species on Groote Eylandt. This information gathered in the baseline island-wide weed surveys will inform planning for future weed management activities, as described in Section 7.3. The ALC Rangers will be encouraged to participate in the weed surveys. As noted in Section 5.2.2, they have participated in surveys to date which has provided an opportunity for them to share local knowledge, e.g. on the distribution of weeds, potential locations for weed infestations, and navigation/access considerations. It has also allowed for informal training, e.g. in weed identification and data management.

Although the intent is to undertake an island-wide survey and survey the areas described above, this is dependent on obtaining access. There may be circumstances that mean that a particular area cannot be accessed at the scheduled time (e.g. adverse weather conditions such as a late season cyclone, damaged infrastructure or Traditional Owners imposing temporary access restrictions for cultural reasons). In such circumstances, and if sufficient time in the survey season remains, GEMCO would arrange for the area to be surveyed once access is possible again, and at a time of year appropriate for detecting weed species.

6.5 WEED MANAGEMENT PLAN

A draft Weed Management Plan has been prepared by GEMCO, in consultation with the ALC Rangers. It will be finalised once the BOMP is approved. The Weed Management Plan, when finalised, will contain:

- Identification of high priority weeds;
- Weed mapping for high priority weeds;
- A description of the outcomes of the audit of existing systems in relation to weed management;
- A description of the weed control and monitoring work to be undertaken for high priority weeds;
- A description of a quarantine program for weeds, with a focus on high priority weeds;
- TARP for high priority weeds; and
- A description of a community awareness program and a training and capacity building program.

The Weed Management Plan has similar content to the BOMP but is more operationally focussed and is targeted towards the ALC Rangers. The Weed Management Plan will be a living document and may be reviewed and updated over the course of the BOMP. Any updates to the Weed Management Plan would occur in consultation with the ALC Rangers.

6.6 PLANT BIOSECURITY OFFICER

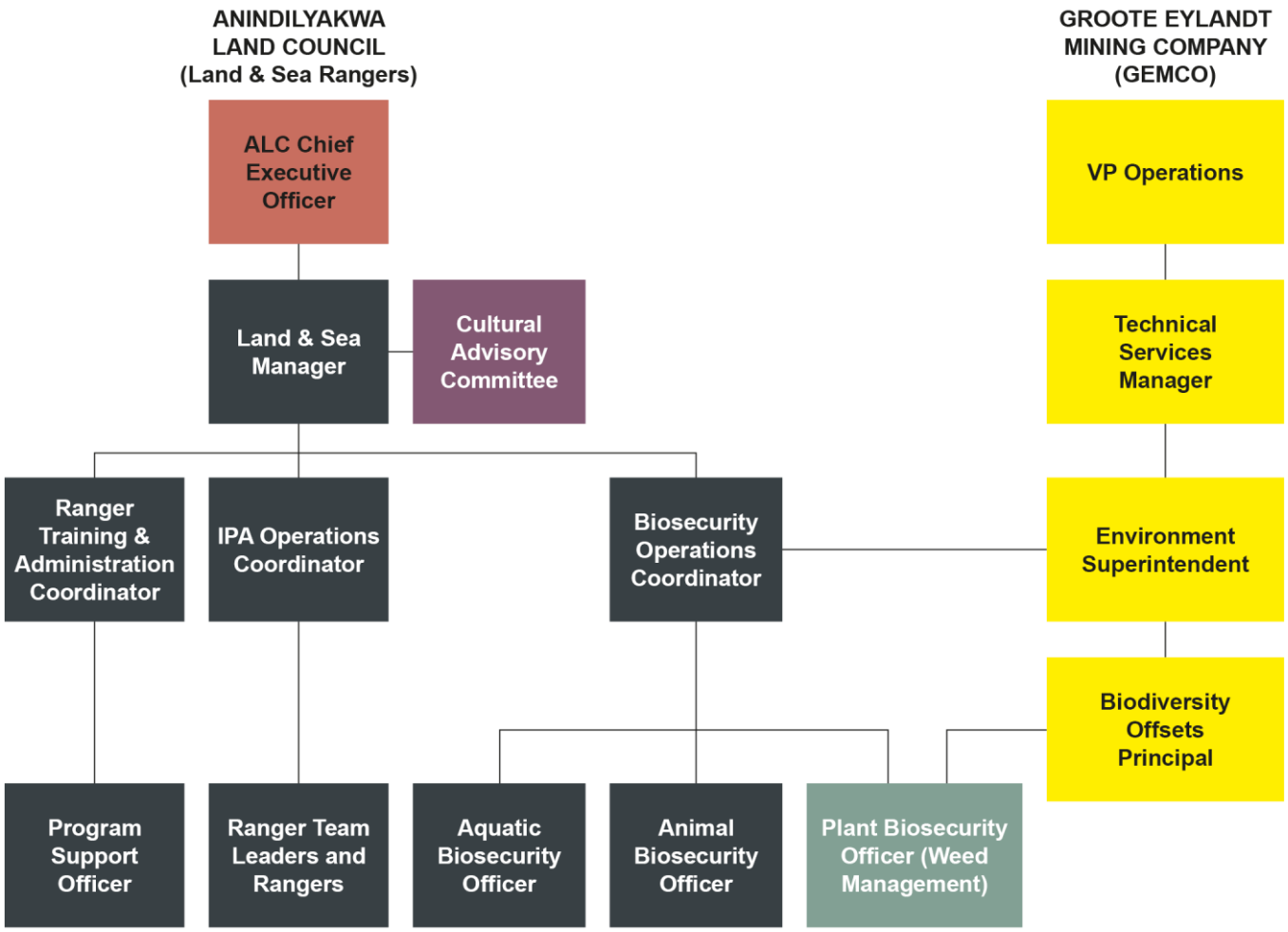
6.6.1 INTRODUCTION

A Plant Biosecurity Officer will be employed to coordinate the actions described in this BOMP. The organisational structure for this role is described in Section 6.6.2 and the duties of this role are described in Section 6.6.3.

GEMCO will work with the ALC Rangers to ensure that a Plant Biosecurity Officer is recruited during the foundation period, with the role to be funded by offsets for the duration of the offsets program, i.e. up until June 2032.

6.6.2 ORGANISATIONAL STRUCTURE

The ALC Rangers have expressed a preference for the Plant Biosecurity Officer to be employed by the ALC Rangers, with the position funded by GEMCO's offsets program. This arrangement will allow for the Plant Biosecurity Officer to work seamlessly with other personnel in the ALC Rangers, which will be particularly important for facilitating training and capacity building of the Rangers. It is also appropriate for the BOMP weed management actions to be coordinated via the ALC Rangers given that they are responsible for land management activities within the Anindilyakwa IPA. Although the position will sit within the ALC Rangers' organisational structure, the Plant Biosecurity Officer will also report to GEMCO's Biodiversity Offsets Principal regarding the actions described in the BOMP and in relation to progress towards achieving the required outcomes of the offsets program. Graphic 2 provides a summary of this organisational structure.



GRAPHIC 2 ORGANISATIONAL STRUCTURE

6.6.3 DUTIES OF THE PLANT BIOSECURITY OFFICER

The Plant Biosecurity Officer's primary role will be to coordinate and facilitate the weed management actions contained in this BOMP, although the Plant Biosecurity Officer will also support the ALC Rangers in relation to routine weed management work. Duties of the Plant Biosecurity Officer will include:

- Developing a rolling two-year plan, updated annually, for managing high priority weeds that is consistent with actions in this BOMP.
- Arranging for two-yearly island-wide weed surveys to be undertaken, as described in Section 6.4.
- Coordinating weed management contractors and ALC Rangers to carry out the direct weed control and monitoring actions described in Section 6.7.
- Working with the ALC Biosecurity Operations Coordinator to implement appropriate weed quarantine and biosecurity actions as described in Section 6.8.
- Developing the TARP described in Section 6.9 and coordinating the actions in the TARP.
- Working with the ALC Biosecurity Operations Coordinator to develop and deliver community awareness programs in relation to weeds (Section 6.10). This may include engaging external contractors to develop and deliver materials (e.g. signage, community awareness campaigns).

- Working with ALC Ranger management to coordinate appropriate Ranger training, consistent with the actions described in Section 6.11. This may include engaging external contractors to develop and deliver training modules.
- Reviewing progress towards annual workplan actions and outcomes, and adaptively managing any departures from planned targets (Section 7).
- Reporting progress towards annual workplan actions and outcomes to GEMCO's Biodiversity Offsets Principal.

It will be necessary for the Plant Biosecurity Officer to work closely with the ALC, particularly the ALC Land and Sea Manager, the ALC Biosecurity Operations Coordinator and IPA Operations Coordinator, and GEMCO's Biodiversity Offsets Principal. In addition, the Plant Biosecurity Officer will liaise with other personnel involved in weed management on Groote Eylandt, including GEMCO's weed management team.

6.7 WEED CONTROL AND MONITORING

6.7.1 INTRODUCTION

This section describes the measures that will be taken to control and monitor high priority weeds within the offset management area. The weeds have been categorised into management categories (eradicate, control and prevent), depending on the current presence of the species on Groote Eylandt and the size of the existing populations. Section 6.7.2 describes these management categories.

Section 6.7.3 describes the overall approach that will be adopted for treating and monitoring high priority weeds. This is followed by a section describing each high priority weed (Section 6.7.4), with information provided on records, reproduction and dispersal characteristics, and targets for individual species.

The work described in this section will be funded by the offsets program and coordinated by the Plant Biosecurity Officer. On-ground work will be undertaken by resources engaged by the Plant Biosecurity Officer (predominantly weed management contractors), particularly in the earlier stages of the offsets program. However, the Plant Biosecurity Officer will work with the ALC Rangers to facilitate participation of the ALC Rangers in on-ground work for the purpose of capacity building.

6.7.2 MANAGEMENT CATEGORIES OF WEEDS

Appendix E describes the current presence and distribution of the high priority weeds on Groote Eylandt. These weeds have been divided into the following three management categories, namely:

- Eradicate known infestations and prevent new infestations;
- Control current infestations and prevent new infestations; and
- Prevent the introduction and establishment of the weed species.

The weed species were categorised into these categories based on the current presence of the species and the size of existing populations. For example, some weed species occur in populations that are small enough to enable eradication of the species, whereas others have not yet established on Groote Eylandt and hence the strategy is to prevent the establishment of the species on Groote Eylandt.

Table 3 describes the three management categories, identifies the high priority weeds that have been allocated to each and provides a brief overview of the management approach. Further detail on the treatment and monitoring actions to be undertaken for the species under each management category is provided in Section 6.7.3.

TABLE 3 MANAGEMENT APPROACH OF HIGH PRIORITY WEEDS

Management Category	Relevant High Priority Weeds	Description
Eradicate known infestations and prevent new infestations.	• Gamba Grass • Grader Grass • Perennial Mission Grass • Para Grass • Buffel Grass	• These are species that currently occur on Groote Eylandt or are recorded as having occurred in the past four years[6] (with the detected population/s having been treated). However, these species have only ever occurred in small populations, and it is consequently feasible to entirely eradicate these species. • Any existing populations will be treated, with the aim of eradicating the population to prevent it spreading to additional locations. • Any new infestations that are detected during the term of the offsets program will also be eradicated to ensure that the weed does not establish on Groote Eylandt. • During the term of the offsets program, treated populations will be monitored for five years post treatment to provide confidence that the population has been eradicated.
Control current infestations and prevent new infestations.	• Annual Mission Grass • Guinea Grass	• These species are already present on Groote Eylandt and occur in large populations, generally near populated areas and along roads. However, they are not yet widespread throughout the island. • It is not feasible to completely eradicate these species, but current infestations in the offset management area will be controlled and pushed-back to major core infestations (generally near townships). • minor infestations and isolated outbreaks and will be controlled and eradicated. • Any new infestations that are detected during the term of the offsets program will be eradicated to ensure that the weed does not establish in other areas on Groote Eylandt. • During the term of the offsets program, treated populations will be monitored for five years post treatment.

[6] Reliable weed records on Groote Eylandt extend to approximately 4 years. This is expected to be sufficient for identifying weed populations from previous records, given that the seedbank for the majority of high priority weed species does not extend beyond 4 years.

Management Category	Relevant High Priority Weeds	Description
Prevent the introduction and establishment of the weed species.	• Fountain Grass • Olive Hymenachne • Thatch Grass • Molasses Grass	• These species were not detected on Groote Eylandt during the BOMP weed surveys and there are no records of them having occurred on Groote Eylandt in the past four years (the period during which reliable weed records exist). • Biosecurity measures will be adopted to minimise the risk of these species being introduced to Groote Eylandt. • If an infestation of any of these species is detected, it will be eradicated to ensure that the weed does not establish on Groote Eylandt. • During the term of the offsets program, treated populations will be monitored for five years post treatment.

6.7.3 OVERVIEW OF TREATMENT AND MONITORING PROCESS

This section describes the general process for treating and monitoring weeds. It should be read in conjunction with Section 6.7.4, which includes a description of each high priority weed species, including the targets to be achieved for each stage of the offsets program.

The general process for weed treatment and monitoring for high priority weeds is as follows:

- **As part of the annual planning process (Section 7.3), an annual treatment and monitoring program will be developed.** This will apply to any known weed infestations and for locations where the weed has been recorded in the past five years (e.g. from database records). The annual treatment and monitoring program will specify weed monitoring and treatment to be undertaken in the next calendar year and define the treatment season in which to undertake the work. The treatment season will be based on the optimum time of year to undertake treatment from a biological perspective (i.e. as soon as the species is flowering and can be identified, but prior to it being expected to set seed), as well as logistical considerations (e.g. areas being accessible following rainfall and weed management contractors being booked for the work). In general, the treatment season will fall within the wet season, but the exact timing will differ from year to year.
- **Weed monitoring and treatment will be undertaken as per the annual plan.** Weed monitoring will be undertaken concurrently with weed treatment (i.e. GPS coordinates of the extent of the weed population will be taken while treatment is applied). In locations where the weed appears to no longer persist, monitoring will involve searching the full extent of previously treated sites for the presence of weeds to confirm that the species is no longer present. Treatment will be as follows:
  - Small populations (1-25 plants and/or an infestation covering an area <40 m^2) of weed species will be treated via manual removal. The plants will be bagged and incinerated. If manual removal is not feasible, the weeds will be destroyed with foliar spray.
  - Large populations (25+ plants and/or >40 m^2) that cannot be manually removed will be treated via foliar spraying. The spray to be used will be determined by the Plant Biosecurity Officer in coordination with specialist weed management contractors, guided by published sources such as the NT Weed Management Handbook (DEPWS 2021).

- **After treatment has been applied, treated populations will be monitored to confirm that treatment was successful.** Monitoring will be undertaken during the treatment season (i.e. the wet season in which treatment was applied) as follows:
  - For weeds in the "eradicate" or "prevent" categories, monthly monitoring of the treated populations will be undertaken. If the weed infestation persists, treatment will be applied again.
  - For weeds in the "control" category, the treated populations will be subject to at least one follow up monitoring round in the same treatment season, with the follow up monitoring round being undertaken approximately one month after treatment. The feasibility of undertaking additional follow up monitoring rounds in the treatment season will be influenced by factors such as the timing of the initial treatment (e.g. whether it was at the start of the wet season or towards the end) and the availability of contractors, given that they will be booked for a pre-defined package of work each year. If the weed infestation persists, treatment will be applied again.
- **Monitoring will continue in subsequent years for at least five years after treatment was most recently applied.** All treated populations and locations where high priority weeds have been recorded in the past five years will be subject to monitoring. If the weed infestation persists, treatment will be applied again. The monitoring frequency will be determined by the Plant Biosecurity Officer and depend on the management category of the weed species, as follows:
  - For weeds in the "eradicate" or "prevent" categories, the monitoring frequency will remain monthly during the treatment season until monitoring has shown that the population no longer persists. At this point, the Plant Biosecurity Officer may review the monitoring frequency. The decision to change to less frequent monitoring will be based on an assessment of the factors that influence the risk of the species persisting (e.g. the time since live individuals were recorded, whether seeds were present at the original infestation, the treatment method used, etc.). The Plant Biosecurity Officer will determine the revised monitoring schedule, but monitoring will be at least annually for five years.
  - For weeds in the "control" category, monitoring will continue for at least five years, with the Plant Biosecurity Officer determining the frequency of monitoring during the annual planning process. In determining the monitoring frequency, the Plant Biosecurity Officer will consider the factors that influence the risk of the species persisting (as per the above dot point), as well as the targets for the weed species. For the "control" weed species, some infestations have been identified as needing to be eradicated by a particular point in the offsets program (e.g. those in remote areas), whereas other infestations are to be controlled and/or reduced. The target for the weed infestation will be a relevant factor in determining the frequency of ongoing monitoring. However, monitoring will be undertaken at least annually for a period of five years.
- **Any new populations or previously unrecorded populations of a high priority weed will be managed as per the TARP** (Section 6.9). New infestations may be detected through the two-yearly island-wide weed survey, incidental observations or feedback from the ALC Rangers or weed management contractors.

Most of the treatment and monitoring work will be undertaken by weed management contractors who will come to Groote Eylandt to undertake the work, and an annual work program will be developed for these contractors. The Plant Biosecurity Officer may also undertake weed treatment and monitoring work (e.g. as part of responding to TARP incidents or for some of the smaller infestations of weeds in the "prevent" category).

Some deviations from the annual treatment and monitoring program may occur in the event of access considerations (e.g. a late cyclone impacting access, or restrictions from the Traditional Owners due to Sorry Business) or safety issues (e.g. the presence of crocodiles). Deviations from the annual treatment and monitoring program will be reviewed in the next annual planning process.

6.7.4 TREATMENT AND MANAGEMENT OF INDIVIDUAL WEED SPECIES

This section provides the following information, which is relevant to the treatment and monitoring of high priority weed species:

- A description of infestations detected during the BOMP weed surveys, with a map showing the locations within the offset management area. In some cases, these infestations have already been treated (as described in the text).
- Additional previous infestations of the weed within the offset management area. These are infestations, from the past four years, some of which were not located during the BOMP weed surveys, but will nevertheless continue to be monitored to ensure that the weed no longer persists at these locations. These are shown on a map and are based on records obtained from:
    - The NR Maps search facility (DEPWS 2024);
    - GEMCO, or consultants who have worked on behalf of GEMCO; and
    - The ALC Rangers.
- The management category of the weed (i.e. eradicate, control or prevent).
- The reproduction and dispersal biology of the weed, as it relates to treatment and monitoring.
- The targets to be achieved for each stage of the offsets program, including a description of work already undertaken during the foundation period. The targets relate to the offset management area only.

The information in this section provides the best available information on the treatment and management of the high priority weeds, guided by the results of the BOMP weed surveys (Section 5.2) and extensive engagement with key stakeholders (Section 4). However, there will be a need for flexibility in the event of new information becoming available (e.g. new information on treatment methods) or circumstances changing (e.g. a new weed being introduced to the Top End that poses a risk to the impacted species). This may necessitate a need to adapt the offsets actions, including targets for individual weeds. Further information on adaptive management is provided in Section 7.6.

GAMBA GRASS

OVERVIEW

MAP 1 GAMBA GRASS RECORDS IN THE OFFSET MANAGEMENT AREA

Species Name:
Gamba Grass (*Andropogon gayanus*)

Infestations Detected During BOMP Weed Surveys:
Infestation south of Umbakumba.

Previous Infestations:
Infestations previously identified at two locations, namely near Malkala Outstation, and along Umbakumba Road.

Management Category for the BOMP:
Eradicate

REPRODUCTION AND DISPERSAL

This species is a perennial grass reaching maturity after two years and reproducing via large numbers of seed that form from May through to July. Seeds have a viability of approximately 12 months (Flores, Setterfield et al. 2005) and will readily germinate whenever sufficient soil moisture is available (AWC 2012). The fluffy seed spreads primarily via wind dispersal, resulting in 90% of seed falling within 5 metres of the adult plant (Csurhes and Hannan-Jones 2016). However, seed is often spread long distances via flooding, livestock and contaminated machinery or in hay (AWC 2012).

TARGETS

Foundation:

- Undertake a baseline island-wide survey for species (this has now been completed).
- Treat 100% of plants in any infestations that are located during the BOMP weed surveys (this has now been completed).

Short-term:

- Continue to monitor the infestation sites for recurrence as per the process described in Section 6.7.3, including sites treated during the foundation period and previous infestation sites.
- Monitor the offset management area for new infestations via the two-yearly island-wide weed survey.
- Treat 100% of plants in any new infestations discovered.

Medium-term:

- Eradicate known infestations on Groote Eylandt by the end of the medium-term period.

GRADER GRASS

OVERVIEW

MAP 2 GRADER GRASS RECORDS IN THE OFFSET MANAGEMENT AREA

Species Name:
Grader Grass (*Themeda quadrivalvis*)

Infestations Detected During BOMP Weed Surveys:
Infestations within and in close proximity to Angurugu. Infestations also adjacent to Umbakumba Road.

Previous Infestations:
Infestations previously identified within and in close proximity to Angurugu, and adjacent to Umbakumba Road (in the same areas identified during BOMP weed surveys). Additional infestation identified at a borrow pit adjacent to the Emerald River Road.

Management Category for the BOMP:
Eradicate

REPRODUCTION AND DISPERSAL

Grader Grass is an annual species with a fast life cycle. Seeds germinate rapidly with plants reaching maturity in as little as 10 weeks (Bishop 1981). In the NT, Grader Grass germinates at the start of the wet season between October and December and flowers between February and June (Keir and Vogler 2006). It is known to produce large quantities of heavy seed, not easily dispersed by wind or water, meaning most seed fall is close to the adult plant, but seed is readily spread by vehicles. Seed viability has been shown to decline rapidly to almost zero after two years (Bishop 1981, WMB 2021), but may remain viable for up to five years.

TARGETS

Foundation:

- Undertake a baseline island-wide survey for species (this has now been completed).
- In the roadside populations (i.e. all populations other than the Angurugu population): treat 100% of plants detected during the BOMP weed surveys (this is planned to be completed by June 2024).

Short-term:

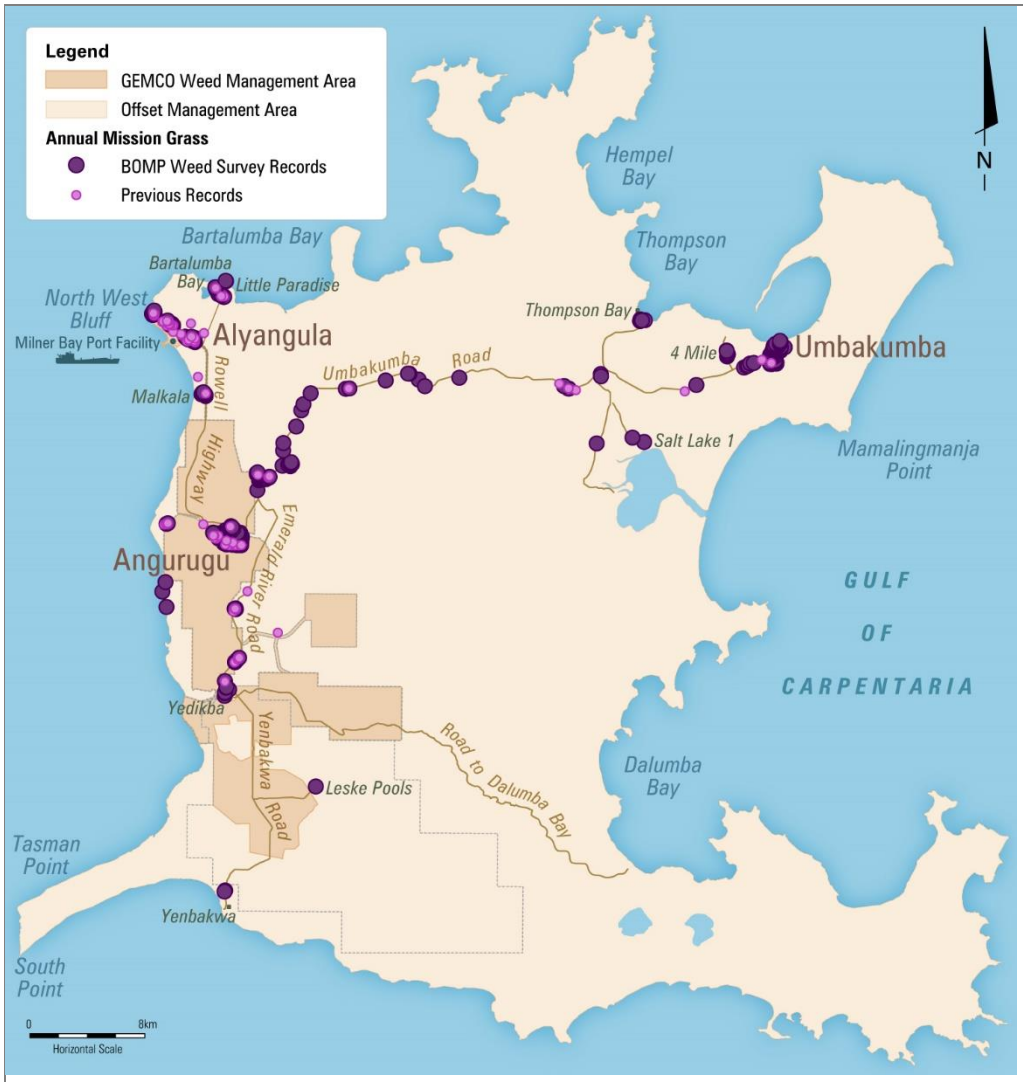
- Continue to monitor the roadside infestation sites for recurrence as per the process described in Section 6.7.3, including sites treated during the foundation period and previous infestation sites.
- Monitor the offset management area for new infestations via the two-yearly island-wide weed survey.
- Treat 100% of plants in any new infestations discovered.
- Ensure that the Angurugu population does not expand beyond the area in which the species was located during the BOMP weed surveys.

***Medium-term*:**

- Eradicate known infestations on Groote Eylandt by the end of the medium-term period.

ANNUAL MISSION GRASS

OVERVIEW



MAP 3 ANNUAL MISSION GRASS RECORDS IN THE OFFSET MANAGEMENT AREA

Species Name:
Annual Mission Grass (*Cenchrus pedicellatus*)

Infestations Detected During BOMP Weed Surveys:
Infestations identified within the three townships, as well as several outstations. Infestations also occur along Umbakumba Road and Emerald River/Yenbakwa Roads. Further isolated infestations occur across regional, accessible areas of the island.

Previous Infestations:
Infestations previously identified in the same locations as identified during the BOMP weed surveys.

Management Category for the BOMP:
Control

REPRODUCTION AND DISPERSAL

Annual Mission Grass is an annual species which reaches maturity quickly and reproduces via large numbers of seed that germinate readily after the first rain at the start of the wet season (Mott 1980). The seeds are fluffy aiding windborne dispersal, and have been shown to achieve a high germination rate.

TARGETS

Foundation:

- Undertake a baseline island-wide survey for species (this has now been completed).
- Treat 100% of plants that were found in BOMP weed surveys along Umbakumba Road and Emerald River/Yenbakwa Road (this work is planned to be completed by June 2024).

Short-term:

- Continue to monitor the populations that were treated in the foundation period for recurrence as per the process described in Section 6.7.3.
- Treat 100% of plants in isolated populations, i.e. those beyond the three townships.
- Monitor the offset management area for new infestations via the two-yearly island-wide weed survey.
- Treat 100% of plants in any new infestations discovered.

***Medium-term*:**

- As per short-term, with populations in the offset management area (other than the township populations) having been eradicated by the end of the medium-term period.
- Reduce area of occupancy in township populations to 50% or less of the area currently occupied.
- Continue to control with the objective of eradication. Ensure that a feasible plan for eradicating the species from Grote Eylandt is in place and able to be implemented by the Rangers as part of their routine weed management work beyond the life of the offsets program.

PERENNIAL MISSION GRASS

OVERVIEW

MAP 4 PERENNIAL MISSION GRASS RECORDS IN THE OFFSET MANAGEMENT AREA

Species Name:
Perennial Mission Grass (*Cenchrus polystachios*)

Infestations Detected During BOMP Weed Surveys:
Not recorded.

Previous Infestations:
Two infestations previously identified adjacent to Umbakumba Road.

Management Category for the BOMP:
Eradicate

REPRODUCTION AND DISPERSAL

Perennial Mission Grass is a perennial long-lived species which germinates at the onset of the wet season in northern Australia, although may germinate at any time if adequate moisture is available. Flowering occurs from late summer to early spring, however, some seed-heads may appear at first rains in spring.

This species reproduces via seed dispersal. Perennial Mission Grass can grow 50cm-3m tall, has multiple tillers, and produces large numbers of seeds, with a reported average of 23,500 seeds per plant (Ismail, Shukri and Shukor Juraimi, 1994). Seeds are light, fluffy, and hairy on the lower half, and disperse via water and wind. Dispersal may also occur via becoming attached to animals, clothing and vehicles (Parker, 2008). The main seeding period occurs between April to June, with aerial growth dying back in the dry season.

TARGETS

Foundation:

- Undertake a baseline island-wide survey for species (this has now been completed).
- Treat 100% of plants in any infestations that are located (note that no infestations were found during the BOMP weed surveys). Any infestations found during planned weed control prior to June 2024 will be treated.

Short-term:

- Continue to monitor prior infestation sites for recurrence as per the process described in Section 6.7.3.
- Monitor the offset management area for new infestations via the two-yearly island-wide weed survey.
- Treat 100% of plants in any new infestations discovered.

Medium-term:

- Eradicate known infestations on Groote Eylandt by the end of the medium-term period.

GUINEA GRASS

OVERVIEW

MAP 5 GUINEA GRASS RECORDS IN THE OFFSET MANAGEMENT AREA

Species Name:
Guinea Grass (*Megathyrsus maximus*)

Infestations Detected During BOMP Weed Surveys:
Infestations identified within the three townships, as well as several outstations. Further infestations occur in quarries/borrow pits adjacent to Umbakumba Road, and Emerald River Road.

Previous Infestations:
Infestations identified in: Angurugu; in proximity to an outstation at Bartalumba Bay; to the west of the Western Leases; and in a borrow pit adjacent to Emerald River Road.

Management Category for the BOMP:
Control

REPRODUCTION AND DISPERSAL

Guinea Grass is a perennial species which reproduces vegetatively and by seed. This species can produce about 9,000 seeds per plant and the seeds are spread via animals, wind, water, vehicles and machinery (Brisbane City Council n.d). Seeds have been reported to experience dormancy for three years (Soti and Thomas, 2022.

TARGETS

Foundation:

- Undertake a baseline island-wide survey for species (this has now been completed).
- Treat 100% of plants in the populations outside of the three townships (e.g. roadside and quarry populations) that were found in BOMP weed surveys (this work is planned to be completed by June 2024).

Short-term:

- Continue to monitor the populations that were treated in the foundation period for recurrence as per the process described in Section 6.7.3.
- Monitor the offset management area for new infestations via the two-yearly island-wide weed survey.
- Treat 100% of plants in any new infestations discovered.
- Ensure that the township populations do not expand beyond the area in which the species was located during the BOMP weed surveys.

***Medium-term*:**

- As per short-term, with populations in the offset management area (other than the township populations) having been eradicated by the end of the medium-term period.
- Reduce area of occupancy in township populations to 50% or less of the area currently occupied.
- Continue to control with the objective of eradication. Ensure that a feasible plan for eradicating the species from Grote Eylandt is in place and able to be implemented by the Rangers as part of their routine weed management work beyond the life of the offsets program.

PARA GRASS

OVERVIEW

MAP 6 PARA GRASS RECORDS IN THE OFFSET MANAGEMENT AREA

Species Name:
Para Grass (*Urochloa mutica*)

Infestations Detected During BOMP Weed Surveys:
Infestations at Umbakumba and Angurugu.

Previous Infestations:
Not recorded.

Management Category for the BOMP:
Eradicate

REPRODUCTION AND DISPERSAL

Para Grass is a perennial semi-aquatic species which reproduces primarily via broken stem fragments (vegetative propagation) carried downstream, but can also reproduce via seed. If seed production occurs, seed yields tend to be low, however, the percentage of viable seeds produced is high (DAF 2012). There appears to be no dormancy period for seeds to germinate, and seed viability periods are not known (DAF 2012).

Flowering times for this species depend on the local climate, with flowering typically occurring from March to September in the NT (Weeds Australia 2021).

TARGETS

Foundation:

- Undertake a baseline island-wide survey for species (this has now been completed).
- Treat 100% of plants in any infestations that are located (this work is planned to be completed by June 2024).

Short-term:

- Continue to monitor prior infestation sites for recurrence as per the process described in Section 6.7.3.
- Monitor the offset management area for new infestations via the two-yearly island-wide weed survey.
- Treat 100% of plants in any new infestations discovered.

Medium-term:

- Eradicate known infestations on Groote Eylandt by the end of the medium-term period.

BUFFEL GRASS

OVERVIEW

MAP 7 BUFFEL GRASS RECORDS IN THE OFFSET MANAGEMENT AREA

Species Name:
Buffel Grass (*Cenchrus ciliaris*)

Infestations Detected During BOMP Weed Surveys[7]:
Infestations at Bartalumba Bay, Umbakumba, and Thompson Bay.

Previous Infestations:
Not recorded.

Management Category for the BOMP:
Eradicate

REPRODUCTION AND DISPERSAL

Buffel Grass is a perennial species which reproduces via seeding. This species produces a large amount of seeds which disperse quickly (Department of Environment 2015) via wind but can also be dispersed by water, animals, clothing, machinery and vehicles (Identic 2016).

[7] Buffel Grass (*Cenchrus ciliaris*) can be difficult to distinguish from Mossman River Grass (*Cenchrus echinatus*) prior to seed set. In situations where there is doubt about the weed identity, it will be managed as Buffel Grass and eradicated.

Seeds remains largely dormant in dry conditions, responding quickly when moisture becomes available, and germinating readily after about 20-25 mm of rain (WMB 2018). Under good conditions plants can germinate, mature, and flower in six weeks (WMB 2018). Seeds can remain viable for up to four years (WMB 2018).

TARGETS

Foundation:

- Undertake a baseline island-wide survey for the species (this has now been completed).
- Treat 100% of plants in any infestations that are located (this work is planned to be completed by June 2024).

Short-term:

- Continue to monitor prior infestation sites for recurrence as per the process described in Section 6.7.3.
- Monitor the offset management area for new infestations via the two-yearly island-wide weed survey.
- Treat 100% of plants in any new infestations discovered.

Medium-term:

- Eradicate known infestations on Groote Eylandt by the end of the medium-term period.

SPECIES NOT CURRENTLY ON GROOTE EYLANDT

OVERVIEW

Fountain Grass, Olive Hymenachne, Thatch Grass, and Molasses Grass are not currently known from Groote Eylandt. No infestations were identified during the BOMP weed surveys, and no previous infestations have been recorded in recent years. Therefore, these species have been placed in the "prevent" management category for the BOMP. The below sections describe the reproduction and dispersal characteristics of these four species, and outline the targets for each to ensure these species are not introduced and become established on the island.

REPRODUCTION AND DISPERSAL

Table 4 provides the reproduction and dispersal characteristics of the four high priority weed species not currently known from Groote Eylandt.

TABLE 4 REPRODUCTION AND DISPERSAL CHARACTERISTICS FOR SPECIES NOT PRESENT ON GROOTE EYLANDT

Species	Characteristics
Fountain Grass	Fountain Grass is a perennial species which reaches maturity after two years and reproduces via seed, with seed production ranging from 100-10,000 seeds per plant depending on conditions (Poulin *et al.*, 2007). The fluffy seed spreads primarily via wind dispersal, resulting in 90% of seed falling within five metres of the adult plant (Csurhes and Hannan-Jones 2016). However, seed is often spread long distances via flooding, livestock and contaminated machinery or in hay (AWC 2012). Seeds are formed from May to July and have a viability of approximately 12 months (Flores, Setterfield et al. 2005). Seeds readily germinate whenever sufficient soil moisture is available.
Olive Hymenachne	Olive Hymenachne is a perennial semi-aquatic species that readily reproduces vegetatively by runners or by seed, and is typically dispersed along watersheds by floods, or between watersheds by vehicle, though it may also be spread by waterfowl. Single flower stalks can produce more than 4,000 seeds and there is the likelihood of a large soil seed bank. Trial work indicates that seed viability is still 8–24% after eight years (QLD Government 2022a).
Thatch Grass	Thatch Grass is a perennial or occasional annual grass that rapidly invades woodlands and savannas after fire. It reproduces readily via seed and is primarily dispersed by wind, animals or vehicles (NT Government, 2013).
Molasses Grass	Molasses Grass is a perennial species that reproduces via seed and disperses almost exclusively by wind, but can also disperse via vehicles, animals and on clothing (QLD Government 2022b). Long distance dispersal may also occur through export and import of seeds as a contaminant in cereal grains. This species flowers between April-June.

TARGETS

Foundation:

- Undertake a baseline island-wide survey to search for the presence of these species (complete).

Short-term:

- Monitor the offset management area for new infestations via the two-yearly island-wide weed survey.
- Any infestations will be treated as a TARP incident and treated.
- Rangers and contractors conducting weed treatment are aware of the species and how to identify them.
- The species are included in biosecurity checks and the TARP.
- Groote Eylandt remains free of these species.

Medium-term:

- As per short-term.

6.8 QUARANTINE SYSTEM

6.8.1 INTRODUCTION

This section describes the quarantine measures proposed to be adopted as part of the offsets program. The objectives of the quarantine system are to prevent the arrival of high priority weeds onto Groote Eylandt, and to detect any quarantine breaches of high priority weeds as early as possible. The quarantine system works together with: the community awareness program, which is necessary to reduce high risk biosecurity behaviour and increase reporting of weeds; and the TARP, which is necessary to respond appropriately to any breaches that are detected.

Although some quarantine measures already exist on Groote Eylandt due to GEMCO's Cane Toad Management Plan, further actions are required to adequately address the biosecurity risk of high priority weeds arriving and establishing on the island. An overview of these actions is provided in Section 6.8.2. The audit of the weed management system that was conducted in 2022 (described in Section 6.3) identified the need for a more detailed, dedicated audit of the weed quarantine systems on Groote Eylandt. This more detailed audit will be undertaken by the Plant Biosecurity Officer in the first year of the short-term period of the offsets program and will identify areas of improvement, and provide additional detail on the quarantine tasks described in the following section.

6.8.2 WEED QUARANTINE ACTIONS

The Plant Biosecurity Officer will be responsible for ensuring that the quarantine system is operating effectively in relation to high priority weeds and will ensure that quarantine actions are implemented. Reporting on quarantine actions, including to GEMCO's Biodiversity Offsets Principal, will be undertaken as part of the annual planning and reporting cycle.

The following actions will be implemented/facilitated by the Plant Biosecurity Officer, with additional detail on the tasks to be developed as part of the more detailed audit of the quarantine system:

- **Regular inspections of inbound vehicles, machinery, plant or high risk materials**. High-risk vectors to Groote Eylandt such as vehicles or construction material will be inspected for weed seeds. This will be arranged prior to arrival on Groote Eylandt. The Plant Biosecurity Officer will help to facilitate this via inspections or provision of advice and contact details of local biosecurity officers at departure points.
- **Regular inspections of laydown yards and holding areas on Groote Eylandt**. Laydown yards and holding areas for inbound machinery and goods will be kept free of high priority weed species to avoid these spreading within Groote Eylandt. The Plant Biosecurity Officer will regularly inspect laydown yards and holding areas for any new records of high priority weed species. New records of high priority weeds in laydown yards and holding areas will be treated as TARP incidents (Section 6.9), and an assessment will be made on whether weeds have arrived via inbound goods and hence indicate a biosecurity breach.
- **Development of risk profiles for each high priority weed species regarding transportation vectors to Groote Eylandt.** The Plant Biosecurity Officer will develop a biosecurity risk profile for each high priority weed species. This will include tracking of known mainland infestations for each species, and inspecting major source transport hubs to assess the presence or absence of high priority weed species.
- **Development of awareness-raising material**. Community awareness of the high priority weed species, and the importance of keeping them off Groote Eylandt with biosecurity measures is an important pillar of the biosecurity program. The Plant Biosecurity Officer will be responsible for managing the community awareness component of this BOMP, as described in Section 6.10. It is anticipated that this program will work alongside the Cane Toad Management Plan community awareness program.
- **Training in weed identification** (Section 6.11). The training program delivered to the ALC Rangers and other relevant staff will include identification training on all high priority weed species, including those that are not currently known to occur on Groote Eylandt. The training sessions will also include training on understanding the TARP process and what to do if a high priority weed is found on Groote Eylandt.
- **Development and implementation of TARP for high priority weeds**. The Plant Biosecurity Officer will be responsible for further developing and implementing the TARP, described in Section 6.9. TARP incidents will involve an investigation of likely sources of spread, which would prompt an update of the risk profiles for high priority weed species if new sources of spread are identified. Summary data on TARP incidents will be reported to GEMCO as part of the annual reporting and planning meetings, and will be reviewed as part of the adaptive management framework of this BOMP (Section 7.6).

6.9 TRIGGER ACTION RESPONSE PLAN

6.9.1 INTRODUCTION

A TARP will be implemented for new incursions of high priority weeds, or in the event of discovering a previously unmapped population of a high priority weed. The TARP addresses the following two potential scenarios, with different actions and timing for each scenario:

- For high priority weeds not currently present on Groote Eylandt, the introduction of the weed; and
- For high priority weeds already present on Groote Eylandt, the discovery of a new or previously unmapped population of the weed.

The TARP will be implemented upon detection of the weed, with detections potentially occurring via the two-yearly island-wide weed survey, weed monitoring undertaken as part of weed control and monitoring actions and incidental observations reported to the Plant Biosecurity Officer.

The following sections provide a framework for the TARP, with further operational detail to be developed by the Plant Biosecurity Officer and documented in a stand-alone procedure. The TARP will also include a review process to incorporate learnings from trigger-responses, enabling continual improvement of the weed management system.

The TARP will be implemented throughout the life of the offsets program.

6.9.2 HIGH PRIORITY WEEDS (NOT PRESENT ON GROOTE EYLANDT)

Table 5 outlines the key steps to be followed in the event of a high priority weed (not currently present on Groote Eylandt) being detected. This applies to Fountain Grass, Olive Hymenachne, Thatch Grass and Molasses Grass.

TABLE 5 KEY STEPS IN A TARP FOR HIGH PRIORITY WEEDS NOT PRESENT ON GROOTE EYLANDT

Step	Timeframe[8]
1. Identify species and extent of infestation, and record GPS location details. Areas within 100 m of infestation will be checked, including areas downstream for a distance of 200 m.	Within 7 days of trigger date.
2. Attempt to trace-back the outbreak to investigate where the weed came from and assess where it may have spread to determine if there are any other outbreak areas. Any additional potential outbreak areas will be inspected.	Within 14 days of the completion of Step 1.
3. Review quarantine and treatment measures for the species and update if additional or modified measures are required.	Within 7 days of the completion of Step 2.
4. The high priority weeds subject to this TARP are declared weeds under the Weeds Management Act[9]. Consequently, the Weed Management Branch of the NT Government will be notified, as will GEMCO and ALC.	Within 14 days of detection of the weed.
5. Collect, bag and dispose of any seed if present, and all specimens if the size of the infestation permits.	At the same time as Step 1 if the size of the infestation permits.
6. If the size of infestation is too large to remove manually on the first visit, confirm appropriate treatment methods for the newly identified species and undertake control.	Within 4 weeks of Step 1, or at beginning of weed treatment season if a large infestation is discovered in the dry season.

[8] There may be some circumstances in which timeframes cannot be met (e.g., a cyclone making access to the infestation impossible, land access restrictions imposed by the Traditional Owners including periods for when there may be a death/Sorry Business in community). Any instances of the timeframes not being met would be reviewed as part of the annual planning process (Section 7.3).

[9] Refer Appendix A for an overview of relevant legislation.

Step	Timeframe[8]
7. Undertake follow-up inspections and control.	Within six weeks of initial treatment, with ongoing inspections and control being undertaken as per the procedure outlined in Section 6.7.
9. Undertake ongoing monitoring for a period of 5 years to determine that no new plants have established.	As per the procedure outlined in Section 6.7.

6.9.3 HIGH PRIORITY WEEDS (ALREADY PRESENT ON GROOTE EYLANDT)

Table 6 outlines the key steps to be followed for high priority weeds already present on Groote Eylandt, in the event of a new population being detected. This includes all high priority weed species, other than those listed in Section 6.9.2.

TABLE 6 KEY STEPS IN A TARP FOR HIGH PRIORITY WEEDS ALREADY PRESENT ON GROOTE EYLANDT

Step	Timeframe
1. Identify species and extent of infestation, and record GPS location details. Areas within 100 m of infestation will be checked, including areas downstream for a distance of 200 m.	Within 7 days of trigger date.
2. Attempt to trace-back the outbreak to investigate where the weed came from and assess where it may have spread to determine if there are any other outbreak areas. Any additional potential outbreak areas will be inspected.	Within 14 days of the completion of Step 1.
3 In the case of declared weeds under the Weeds Management Act, notify the Weed Management Branch of the NT Government. GEMCO and the ALC will be notified for all high priority weeds, irrespective of whether the weeds are declared.	Within 14 days of detection of the weed.
4. Review weed hygiene and land management practices and update if additional or modified processes are required, and/or provide feedback to stakeholders to reiterate existing procedures.	Within 14 days of the completion of Step 2.
5. Collect, bag and dispose of any seed if present, and all specimens if the size of the infestation permits.	At the same time as Step 1 if the size of the infestation permits.
6. Undertake treatment for infestations too large to remove manually on the first visit.	Within 4 weeks of Step 1, or at beginning of weed treatment season if a large infestation is discovered in the dry season.

Step	Timeframe
7. Undertake follow-up inspections and control.	Within six weeks of initial treatment, with ongoing inspections and control being undertaken as per the procedure outlined in Section 6.7.
9. Undertake ongoing monitoring for a period of 5 years to determine that no new plants have established.	As per the procedure outlined in Section 6.7.

6.10 COMMUNITY AWARENESS

6.10.1 INTRODUCTION

This section describes the community awareness actions to be implemented as part of the offsets program. The actions described in this section are required to achieve the following long-term outcome of the offsets program: ensure the Groote Eylandt community is aware of threats posed by weeds and actions that can be undertaken by community members to prevent the introduction and spread of weeds.

GEMCO has a comprehensive Cane Toad management program and via this program it funds two biosecurity coordinators (i.e. the Biosecurity Operations Coordinator and Animal Biosecurity Officer on the organisational chart in Section 6.6.2). These officers are dedicated to Cane Toad management work, including Cane Toad community awareness work. They are employed by the ALC, but their roles are funded by GEMCO, in a similar arrangement to that proposed for the Plant Biosecurity Officer (Section 6.6.2). The community awareness component of the Cane Toad management program includes community awareness sessions, and the use of signage, promotional material, information packs, and awareness events. The weed community awareness program, to be developed and implemented as part of the offsets program, will be coordinated with the existing Cane Toad community awareness program given that the programs will target similar audiences, with several messages in common. Lessons learnt from the Cane Toad community awareness program will be applied to the weed community awareness program and in some instances the same forum will be used for both programs (e.g. a single biosecurity stall addressing both Cane Toads and weeds – refer to Section 6.10.4). The work described in the following sections provides an indication of what this is likely to entail, although the program of weed community awareness work will be further developed and refined by the Plant Biosecurity Officer, in consultation with the ALC's existing biosecurity officers and potentially with assistance from a stakeholder engagement specialist. The weed community awareness program will be implemented throughout the offsets program.

In addition to coordinating with the Cane Toad awareness program, it will be necessary for the weed community awareness program to be responsive to other activities occurring on Groote Eylandt that may affect stakeholders and their willingness and capacity to engage. For example, stakeholders may be occupied with other community engagement programs or Sorry Business may necessitate the rescheduling of awareness sessions. For this reason, the following sections provide an indication of the likely community awareness activities, but the detail will be developed by the Plant Biosecurity Officer as part of the annual planning process (Section 7.3), with the program being responsive to events occurring in the community.

6.10.2 KEY MESSAGES

The aim of the community awareness program is to ensure that stakeholders understand the threat posed by weeds, actions that they can take to prevent the introduction and spread of weeds, and have awareness of, and support for, the weed control program described in this BOMP.

Community awareness and support of the weed control programs is critical because weed management on Groote Eylandt is dependent on the Traditional Owners supporting the program and granting access to their country, and on the community providing permission for operational staff (ALC Rangers and weed management contractors) to access private properties in townships and outstations. To maintain that support, it is vital that community members are aware of the weed management program and why it is important for Groote Eylandt. The community awareness program will consequently provide information about the threat that weeds pose. This may include describing the extent to which transforming grasses change the landscape and the resulting impact on threatened species, as well as the impact on other values, such as recreation values and bush tucker for Traditional Owners. The message on the threat of weeds would be tailored to individual stakeholder groups.

In addition to providing information about the threat posed by weeds, the community awareness program will inform stakeholders about the direct actions that they can take to prevent the introduction and spread of weeds. This includes information about quarantine measures (i.e. ensuring that people do not bring soil into Groote Eylandt) and weed hygiene measures (e.g. checking shoes and cars for weed seeds, avoiding driving through areas of known weed infestations). The ALC has restrictions in place in relation to bringing plants to Groote Eylandt and a process to be followed to obtain pre-approval for transporting plants. It will be important to ensure that this is well understood by community members. In addition, some stakeholders have an additional role, such as employees of barging companies transporting freight. Key messages will be developed for the weed community engagement program, with the messages adjusted to stakeholder groups to ensure that the most relevant information is shared.

6.10.3 AWARENESS SESSIONS

As part of the Cane Toad management program, community quarantine and biosecurity awareness sessions are held on a regular basis with stakeholders who undertake work/travel that may provide a vector for the spread of invasive species. This includes barging companies (i.e. Auriga, Centurion and Sea Swift), Groote Eylandt Airport and cabin crew of airlines operating on Groote Eylandt, GEMCO work groups and contractors, and local schools. These sessions provide a mechanism for sharing information on Cane Toads, as well as weeds, and the Plant Biosecurity Officer will work in partnership with other ALC biosecurity staff to determine which of these forums should include weed management content, and the required content.

Similar to the way that the Cane Toad awareness sessions are tracked, a Weed Awareness Communication Schedule (maintained in the form of an Excel spreadsheet) will be used to track these sessions. It will include a list of all stakeholders who should be targeted for awareness training, contact details for each, whether the stakeholder should be considered higher risk (and therefore requires more frequent awareness sessions) and the aims of the session. The frequency of sessions for each stakeholder depends on their level of risk.

6.10.4 AWARENESS EVENTS

The Cane Toad management program includes a biosecurity stall organised annually to increase public awareness of all biosecurity issues on the island. This biosecurity stall is arranged as part of the annual Picnic Day, given that this event is targeted to the entire Groote Eylandt Archipelago and is the largest event to occur on the island. The Plant Biosecurity Officer will work in partnership with other ALC biosecurity staff to ensure that the biosecurity stall includes appropriate awareness material about weeds.

In the event of a weed incursion occurring (e.g. a species new to Groote Eylandt being recorded), the Plant Biosecurity Officer will notify stakeholders as part of the TARP requirements (Section 6.9) but will also determine whether the information should be shared more broadly as an opportunity to raise awareness about weeds. For example, information may be shared through updates to the GEMCO Community Wide Newsletter, the ALC and ALC Ranger's social media accounts and at awareness sessions.

Awareness events will include specific notifications on upcoming weed management work planned, so that community members are aware of the reason that ALC Rangers and weed management contractors are working in their areas.

6.10.5 AWARENESS MATERIALS

There is currently limited promotional material in relation to weeds on display on Groote Eylandt. Promotional material is restricted to some signage and occasional information bulletins circulated internally within GEMCO and the ALC when a new weed species is found on the island. The Plant Biosecurity Officer, potentially assisted by a stakeholder engagement specialist, will review the suitability of the material already in place and determine gaps, both in relation to the messages contained in the material, the suitability of the materials themselves (e.g. whether the language used is appropriate for the setting, whether the material is engaging and likely to be read) and the way in which they are deployed. This review will determine what additional materials are required and amendments to existing materials.

Any community awareness materials that are developed as part of the offsets program will be designed to ensure that they are appropriate to the stakeholders being targeted, with a broad range of materials being considered (e.g. posters, simple videos, social media posts, information sheets).

GEMCO has recently opened a shopfront in Angurugu and this may be used for displaying material and as a location for the Plant Biosecurity Officer to engage with community members.

A spreadsheet will be maintained by the Plant Biosecurity Officer to record the materials developed and the location/events where they have been deployed. The materials will be reviewed on an annual basis to ascertain whether the information and graphics being used require updating so that the messaging remains engaging and is being absorbed by the community. The annual review will also determine whether any signage that is deployed is in good condition and identify signage that requires replacing.

6.10.6 EVALUATION OF COMMUNITY UNDERSTANDING

At the conclusion of the offsets program (i.e. the end of the medium-term period), the success of the awareness program will be evaluated by assessing community attitudes towards weeds. As per Section 3.5, one of the long-term outcomes of the offsets program is that the Groote Eylandt community is aware of the threats posed by weeds and the actions that can be undertaken to prevent the introduction and spread of weeds. The BOS indicates that this will be assessed through the results of a questionnaire administered to a sample of community members. The process for administering this questionnaire will be determined by GEMCO's Biodiversity Offsets Principal, with assistance from the Plant Biosecurity Officer and potentially a stakeholder engagement specialist. The process will be designed to ensure that the questions asked, the process of asking them (e.g. through small group meetings, one on one interviews, a written questionnaire) and the method for selecting the sample of the community is appropriate to the cultural setting and local context.

6.11 TRAINING AND CAPACITY BUILDING

6.11.1 INTRODUCTION

This section describes the training and capacity building actions to be implemented as part of the offsets program. These actions are required to achieve the following long-term outcome of the offsets program: ensure that the ALC Rangers are trained and competent in weed management actions that would contain and reduce remaining infestations of high priority weeds on Groote Eylandt, and in weed monitoring.

The actions described in this section are an outcome of the review and audit of weed management on Groote Eylandt (described in Section 6.3), which included consultation with relevant Northern Territory training providers and ALC Ranger staff on appropriate Ranger training and capacity building options for weed management.

This section describes formal training. However, as noted in Section 6.4 and 6.7, the ALC Rangers will be encouraged to participate in weed survey and control work for the purpose of capacity building (e.g. in relation to weed identification, safe use and handling of chemicals, treatment methods, reporting and entering data relevant to weed incursions). The ALC Rangers have participated in all surveys and weed control work undertaken to date as part of the offsets program.

6.11.2 WEED MANAGEMENT TRAINING COURSES

The Plant Biosecurity Officer will be responsible for coordinating training courses for ALC Rangers and staff responsible for weed management. The Plant Biosecurity Officer will establish, during the short-term period, an annual training program able to be appropriately tailored to the needs and capacity of the ALC Ranger teams. The exact timing of the training, as well as the selection of courses will vary by year according to the needs of the Ranger teams available (e.g. number of new Ranger recruits, the continuity in staff, and numeracy and literacy levels), however, it is anticipated that the following courses or their equivalent will be included:

- Level 2 Training:
    - AHCCHM201 Apply Chemicals Under Supervision
    - AHCPMG201 Treat Weeds

- Level 3 Training:
  - AHCCHM307 Prepare and Apply Chemicals to Control Pests, Weeds and Diseases
  - AHCCHM304 Transport and Store Chemicals

These are key units of competency, under the Australian Qualifications Framework, that are relevant to weed treatment work.

Other forms of training may include non-accredited programs such as the maintenance and servicing of plant and equipment, what to do during safety inspections, how to deal with breakdowns of equipment, the required spares inventory and the TARP process.

Further relevant courses can be added/substituted in situations where staff have already completed the above. It is anticipated that these courses will include 1-2 days of face-to-face instruction per course, as well as a workplace competency booklet to be signed off by supervisors. Training modules are likely to be delivered by external providers, with the training arranged by the Plant Biosecurity Officer and funded by the offsets program.

By the end of the short-term period, an annual training program will be established and implemented that offers an appropriately tailored set of weed management courses for ALC Rangers and staff.

6.11.3 RESOURCES AND MATERIALS

The Plant Biosecurity Officer will, in the medium term, coordinate the development of training and information resources and materials for the ongoing use of ALC Rangers and Traditional Owners. These are to be developed in a culturally appropriate format, for example, audio visual resources including spoken Anindilyakwa. The Plant Biosecurity Officer will arrange for the assistance of external contractors to prepare these materials (e.g. translator, graphic designer etc.).

These materials will give instructional information on:

- Weed hygiene practices;
- Field identification of high priority weeds; and
- Appropriate weed treatment methods.

By the end of the medium-term period, the above materials will be available and actively used by ALC Rangers as training and reference resources for weed management.

6.12 ADDITIONAL ACTIONS

Over the course of the offsets program, additional weed-related actions (beyond those described in the BOMP) that would assist with achieving the outcomes of the offset may be identified. For example, there have been discussions in relation to construction of vehicle washdown facilities, but a suitable location and design has not been determined to date. The feasibility of constructing additional vehicle washdown facilities will continue to be investigated. Additional actions may also be identified as part of the annual planning process (e.g. the annual review of weed management actions may identify additional actions to enhance success) or may be suggested by other stakeholders, such as the ALC Rangers. Alternatively, the Plant Biosecurity Officer, once appointed and familiar with the role, may identify actions, beyond those described in the BOMP.

These actions would only be considered for inclusion as an offset action if:

- They could be reasonably expected to contribute towards achieving the outcomes of the offset (Section 3.5); and
- Offsets funding is available for these additional actions, taking account of the need to fund the actions described in this BOMP.

Planning for these actions would be undertaken as part of the annual planning process and if any additional actions are proposed, they would be described in the two-yearly reconciliation report (Section 7.3), which is required to be submitted to DCCEEW for approval.

7 MONITORING, PLANNING, REPORTING AND ADAPTIVE MANAGEMENT

7.1 INTRODUCTION

This section describes the monitoring, planning, reporting and adaptive management framework to be undertaken for the offsets program. Sections 7.2 to 7.4 describe the monitoring, planning and reporting processes and Section 7.5 describes the cyclical nature of these processes. The offsets program will be undertaken within an adaptive management framework, and this is described further in Section 7.6.

7.2 MONITORING

As part of the offsets program, data on the presence of weeds and the effectiveness of treatment will be collected. Weed monitoring data will be used to track performance against the overall outcomes of the offset (Section 3.5). In addition, weed monitoring will provide crucial operational data on the success of weed treatment practices, allowing for any adjustments to be made to the practices.

Weed monitoring will take place at multiple scales, as follows:

- At an operational level, known weed infestations will be regularly monitored as part of routine weed treatment, given that the treatment process involves repeatedly checking known weed infestations for a period of five years to confirm the efficacy of treatment (Section 6.7.3). Spatial data on infestation sizes and extent will be collected, along with data on the outcomes of treatment. At this level, monitoring, mapping and weed treatment will be integrated and occur simultaneously. TARP responses (Section 6.9) also require regular follow-up monitoring of treated areas, as well as assessments of quarantine and weed hygiene protocols. The monitoring at an operational level and as part of the TARP process allows:
    - The ground crew to confirm that their treatments are working as intended;
    - The Plant Biosecurity Officer to follow progress and check that resources put toward controlling infestations are adequate; and
    - GEMCO and the ALC to confirm that infestations are being successfully controlled in accordance with the targets for each weed species.
- A thorough, systematic search for weed infestations will take place as part of an island-wide weed mapping survey every second year (Section 6.4). The island-wide weed survey, to be conducted by appropriately qualified specialists, will provide monitoring data on the overall weed situation on Groote Eylandt, and inform both the operational and strategic levels of management. It allows for landscape-scale monitoring of the status of known weed infestations, the discovery of new or previously undocumented infestations of high priority weeds, and for the discovery of new or previously unproblematic weed species on Groote Eylandt. The results from these future island-wide weed mapping surveys will be compared to the baseline island-wide weed survey results to enable GEMCO to determine whether the offsets program described in this BOMP is achieving the required outcomes. This will also inform planning for future weed management activities.

7.3 PLANNING PROCESS

An annual planning process will occur, with planning for future offsets activities being guided by the results of the monitoring process described in the preceding section.

The planning process will be undertaken via a series of annual planning meetings held in the period August-November each year between, at a minimum, GEMCO's Biodiversity Offsets Principal, the ALC Land and Sea Manager and the Plant Biosecurity Officer, with other attendees from GEMCO, ALC and other parties as needed. The purpose of these meetings will be to review and report on the progress to date of the offsets program, to generate a rolling workplan for the subsequent two years, and to assess any adaptations needed to successfully implement the plan.

These meetings will include:

- A review of the works completed in the previous 12 months, including:
    - Summary of planned works completed.
    - Review of any planned works that were not completed, an assessment of lessons learned, and consideration of the implications for the forward work plan.
- A review of the impact of works completed in the previous 12 months, including:
    - A review of the status of each high priority weed species, including monitoring results from weed treatment and from the most recent island-wide weed survey. This will include a review of progress made toward meeting the targets for individual weeds (as per Section 6.7.4).
    - An evaluation of TARP incidents in the previous period.
    - An evaluation of the quarantine, training and community awareness programs.
- Planning session/s to:
    - Confirm the targets to be achieved for each weed species for the following two years (these targets will be based on those described in Section 6.7.4 and will depend on the stage of the offsets program).
    - Update the two-year rolling work plan.
    - Assess the resources required to achieve major works in the two-year work plan.
    - Assess the assumptions and risks that could affect successful implementation of the annual plan.

Outcomes from these meetings will include:

- A summary document of targets achieved in the previous 12 months, including commentary on any deviation from planned achievements.
- A schedule of the major works required for the following two years, including weed management work to meet the targets for individual weed species, as well as other work such as that related to community awareness (e.g. a schedule of awareness events and sessions), and training and capacity building.
- Recorded minutes from each meeting.
- An agreement between GEMCO and the ALC on major works to be conducted, timing of works, resources to be committed, and targets to be achieved.

The agreed schedule of weed management work, reached as an outcome of the annual planning meetings, along with accompanying notes and minutes, will comprise the rolling two-year Work Plan for the offsets

program, and will be the basis for the two-year work plan submitted to DCCEEW as part of the impact reconciliation report (Section 7.4 below).

This planning process will be undertaken as a collaboration between GEMCO's Biosecurity Offsets Principal, the ALC Land and Sea Manager and the Plant Biosecurity Officer. The schedule that will be produced as an outcome of this planning process will be developed by the Plant Biosecurity Officer, with GEMCO's Biodiversity Offsets Principal being responsible for reviewing and authorising it.

7.4 REPORTING

As required by Condition 13 of the EPBC Act approval, GEMCO will prepare and submit an impact reconciliation report to DCCEEW every second year. These reports will contain the following information:

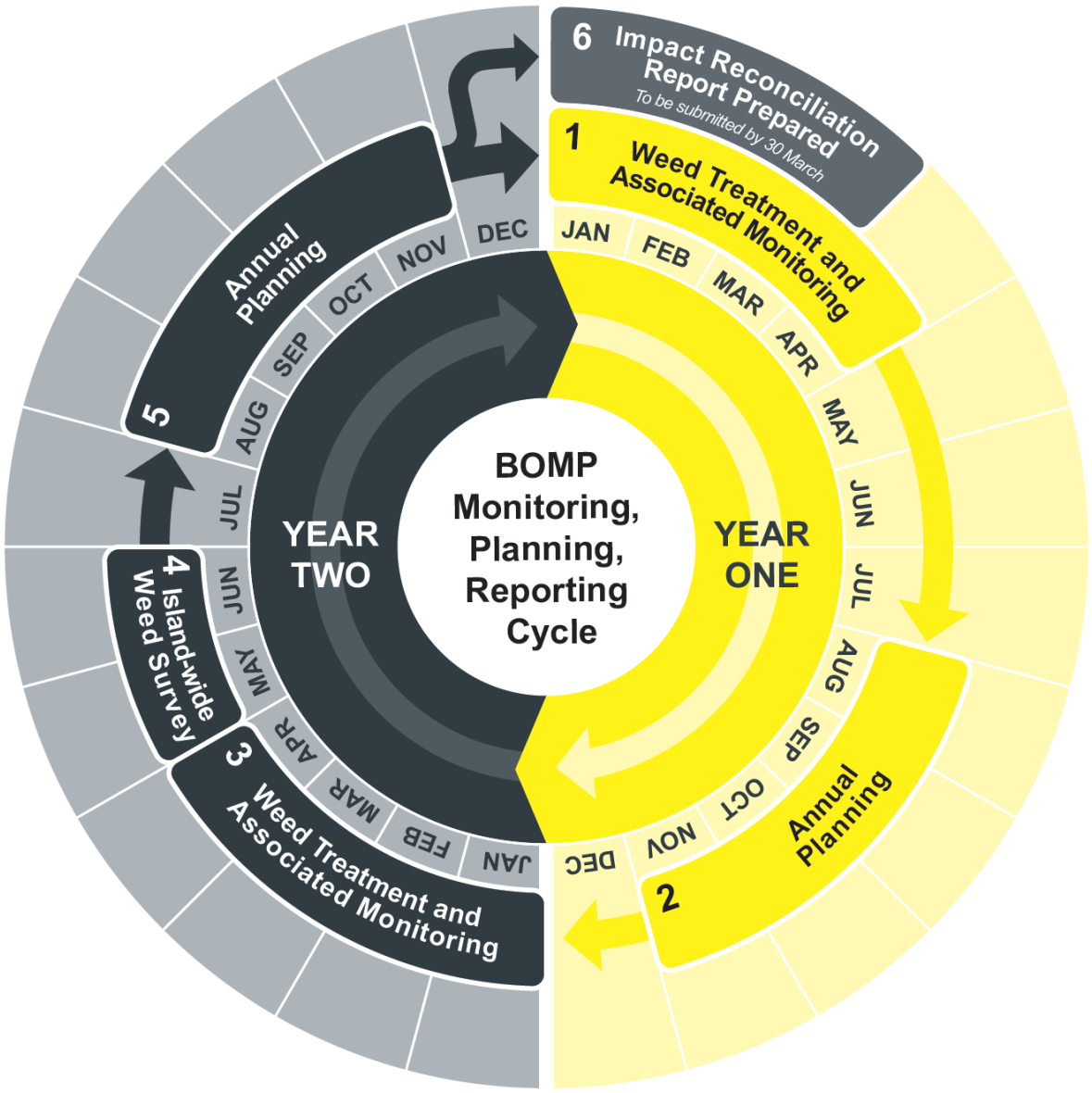
- **Native vegetation cleared in the Eastern Leases.** The report will confirm the number of hectares of native vegetation cleared in the Eastern Leases during the reporting period. Information used to generate this summary will come from formally surveyed GEMCO GIS mapping. Spatial data of the vegetation clearing will be supplied along with the reconciliation report.
- **Offset monies generated by native vegetation clearing in the Eastern Leases.** The report will confirm the value of offsets funding required as a result of native vegetation clearing and will describe the methodology used for calculating the generated offset monies. The Darwin Consumer Price Index (CPI) adjustment for each quarter will be applied to all native vegetation clearing that occurred within that quarter. This rate will be calculated at $41.5513 per Darwin CPI point per hectare of clearing (calculated from a Darwin CPI value of 108.3 for the June quarter 2016, when the offset figure of $4,500/ha was approved).
- **Offset works completed and the outcomes achieved.** This information will be provided for the reporting period (typically the preceding two years) and will be generated by the annual planning process (Section 7.3).
- **A work program for the subsequent two year period.** This information will be derived from the annual planning process (Section 7.3). Proposed work programs will outline weed management works required to meet the targets for individual weed species and the overall outcomes for the offsets program.

As required in Condition 13(b) of the EPBC Act approval, the first reconciliation report will be submitted by 31 August 2024. It will report on the period 17 June 2022 to 17 June 2024. Subsequent reports will be submitted no later than 30 March every second year.

7.5 MONITORING-PLANNING-REPORTING CYCLE

A cyclical approach to monitoring, planning and reporting will be adopted, accounting for the seasonal nature of weed treatment and monitoring, and the required timeframes for reporting in accordance with the EPBC Act approval. The cycle, which is undertaken over a two year period, is described below and is shown in Graphic 3.

1. Weed treatment will be undertaken each year of the offsets program. Weed treatment will be undertaken in the wet season as soon as the weed species can be identified but before they are expected to set seed (this timing will differ depending on seasonal factors, but it will generally be January to April each year). Monitoring will be undertaken as part of the weed treatment activity.
2. An annual planning process will be undertaken in August-November each year of the offsets program. It will involve reviewing the results of monitoring data collected as part of the weed treatment work, as well as reviewing the work undertaken in the preceding 12 months and the outcome of TARP incidents. As part of this planning process, a schedule of the major works required for the following two years will be developed.
3. Annual weed treatment will be undertaken at the start of the second year of the cycle, as per step 1.
4. Every second year, an island-wide weed survey will be undertaken. The island-wide weed survey will provide landscape-scale monitoring of the status of known weed infestations, and enable the discovery of new or previously undocumented infestations of high priority weeds. The island-wide weed survey will be undertaken in the late wet/post-wet season when weeds can still be identified.
5. Every second year, the August-November annual planning process will be informed by the island-wide weed survey, in addition to the results of the monitoring undertaken as part of annual weed treatment.
6. Every second year, an impact reconciliation report will be prepared, based on the outputs of the annual planning process and informed by the result of the island-wide weed survey. The impact reconciliation report will provide a work program for the subsequent two year period, as well as account for work undertaken and outcomes achieved in the preceding two years. It will also provide a reconciliation of clearing undertaken and offsets funds generated by this clearing.
7. The planning cycle will then repeat.



GRAPHIC 3 TWO-YEARLY MONITORING-PLANNING-REPORTING CYCLE

7.6 ADAPTIVE MANAGEMENT

Monitoring will be undertaken at multiple levels, including on a day-to-day basis as part of weed management work, and during the island-wide weed survey which will be undertaken every two years. Monitoring data will provide valuable feedback on the success of weed treatment, as well as progress made toward achieving weed management targets and offsets outcomes. This feedback will enable GEMCO to adjust the offsets program to ensure success (i.e. to adaptively manage it). Adjustments may range from operational issues, such as the preferred treatments for individual weed species, to strategic elements of the offsets program.

The following activities provide a mechanism for adaptive management:

- The annual planning process will provide a formal opportunity to review monitoring data against targets and outcomes and make any adjustments to future work programs to account for the results of this review.
- Minor operational changes (e.g. the treatment method for a particular weed) may be made in response to monitoring data gathered through the day-to-day weed management work.
- The TARP process (Section 6.9) includes a review process to incorporate learnings from trigger-responses, enabling continual improvement of the weed management system.
- As part of preparing the impact reconciliation report, GEMCO will confirm that the cost of the offsets program is in line with the offsets funding available. As noted in Section 6.5 of the approved BOS, although initial work has indicated that the offsets program is a good match for the funding available, unforeseen circumstances may mean that the actual cost of the program is significantly higher or lower than anticipated, and hence the scope of work may need to change to ensure that the offsets program can be fully funded.

Any adjustments to the offsets program will be addressed via the impact reconciliation report prepared every two years (Section 7.4). In the event of adjustments to the work described in the BOMP, the report will describe the changes and confirm that they do not significantly change the outcomes to be achieved.

Any changes to the offsets program that require an amendment to the outcomes would be addressed via an amendment to the BOMP and BOS (if necessary).

The BOS described potential conservation actions, beyond weed management actions (e.g. actions related to fire management). It noted that although the weed management actions described in the BOS were more suitable as offsets than these other actions, the offsets program would need to be adaptive and other actions may be considered in future. Other actions may be considered in future, for example, in the event of offset funds being surplus to the cost of implementing the BOMP. This issue will be considered when the impact reconciliation reports are prepared, given that these require a review of offsets funding spent, offsets funds generated through clearing, outcomes achieved and proposed actions (and associated costs). In the event of GEMCO determining that offsets funding should be used for other conservation actions (i.e. beyond weed management), a revised BOMP would be submitted to DCCEEW for review and approval.

8 ROLES AND RESPONSIBILITIES

The actions described in this BOMP will be funded by the offsets program, with the work coordinated by the Plant Biosecurity Officer. As noted in Section 6.6.2, the Plant Biosecurity Officer will be employed by the ALC Rangers, with the position funded by GEMCO's offsets program. The Plant Biosecurity Officer will report to the ALC's Biosecurity Operations Coordinator, as well as GEMCO's Biodiversity Offsets Principal. Situating the role with the ALC Rangers will allow the Plant Biosecurity Officer to work seamlessly with other personnel in the ALC Rangers. However, a reporting line to GEMCO's Biodiversity Offsets Principal is necessary because GEMCO has overall responsibility for ensuring that the offsets program is delivered as per the commitments made in the BOS and the BOMP, and that the specified outcomes and targets are met.

The actions already completed during the foundation period of the offsets program, including weed surveys and development of the draft Weed Management Plan, have been undertaken by specialist consultants managed by GEMCO. GEMCO will finalise the Weed Management Plan once the BOMP has been approved.

On-ground weed control and monitoring work will predominantly be undertaken by weed management contractors, who will be engaged and managed by the Plant Biosecurity Officer. The ALC Rangers will be encouraged to participate in this on-ground work for the purpose of capacity building. During the foundation period, prior to the engagement of the Plant Biosecurity Officer, the weed control and monitoring work was coordinated by GEMCO's Biodiversity Offsets Principal and the ALC Rangers have participated in all surveys and weed control work undertaken to date. The two yearly island-wide weed survey will be undertaken by appropriately qualified specialists.

Quarantine and biosecurity programs are in place on Groote Eylandt as part of GEMCO's Cane Toad Management Plan (implemented by ALC Rangers biosecurity staff who are funded by GEMCO). The Plant Biosecurity Officer will undertake an audit of quarantine measures in the first year of the short-term period and identify areas of improvement and additional quarantine measures required in relation to high priority weeds. The Plant Biosecurity Officer will then work closely with the ALC Rangers biosecurity staff to ensure that the biosecurity procedures that are implemented are effective for high priority weeds. Specific actions to be undertaken by the Plant Biosecurity Officer in relation to quarantine systems (e.g. developing risk profiles for each high priority weeds species) are described in Section 6.8.

The Plant Biosecurity Officer will also be responsible for implementing the TARP although this work will be undertaken in close collaboration with the ALC Rangers, particularly biosecurity staff.

The Plant Biosecurity Officer will manage the community awareness, and training and capacity building programs described in this BOMP, although it will be necessary to obtain assistance from specialist contractors (e.g. a stakeholder engagement specialist to assist with developing materials or a training contractor to assist with delivering accredited training sessions). These specialists/contractors will be managed by the Plant Biosecurity Officer and funded by the offsets program. The community awareness programs will be undertaken in collaboration with the ALC Rangers biosecurity staff who undertake community awareness work in relation to Cane Toads.

The annual planning process described in Section 7.3 will be undertaken as a collaborative process between GEMCO's Biosecurity Offsets Principal, the ALC Land and Sea Manager and the Plant Biosecurity Officer. The schedule that is produced as an outcome of this planning process will be developed by the Plant Biosecurity Officer, with GEMCO's Biodiversity Offsets Principal being responsible for reviewing and authorising it. GEMCO's Biodiversity Offsets Principal will be responsible for preparing and submitting the impact reconciliation report to DCCEEW every second year (Section 7.4).

The ALC Rangers will continue to undertake their routine weed management work on Groote Eylandt and this work would not be impacted by the offsets program. However, it is anticipated that the training and capacity building work undertaken as part of the offsets program will assist the ALC Rangers in undertaking this work, as will enhancing quarantine measures. In addition, the Plant Biosecurity Officer will be available to support the ALC Rangers in this work (e.g. by providing advice in relation to weed management). GEMCO will continue to undertake weed management work in the GEMCO weed management area (Figure 1).

9 CONSISTENCY WITH EPBC ACT APPROVAL

Condition 12 of the EPBC Act approval provides the requirements for the BOMP. This section lists these requirements and indicates the way in which the conditions have been met and the location in this document which provides further detail.

Condition 12	The approval holder must prepare a Biodiversity Offset Management Plan (BOMP) to describe specific programs to implement the approved BOS described in condition 11. The approval holder must submit the BOMP to the Minister within 12 months of the commencement of the action. The action cannot continue for more than 24 months from the date of the commencement of the action unless the Minister has approved the BOMP. The approved BOMP must be implemented.

A) The approved BOS explains the proposed offsetting program (including outcomes) in Sections 6 and 7. This BOMP includes programs that will deliver conservation outcomes to the impacted species through addressing the threat of weeds, as per the requirements of the approved BOS.

B) Construction commenced on 17 June 2022. A BOMP was submitted for approval on 11 May 2023 (termed the "2023 BOMP"). This BOMP supersedes the 2023 BOMP and addresses DCCEEW's feedback on the 2023 BOMP.

C) GEMCO has outlined a process for implementing the actions in this BOMP and provided timeframes.

Refer to the following sections for further information on the offsets program:

- Section 6 for a description of management actions, including those related to a weed audit, weed mapping, the preparation of a Weed Management Plan, the employment of a Plant Biosecurity Officer, the weed control and monitoring actions to be undertaken for each high priority weed species, the quarantine system to be adopted, the TARP and the community awareness program, and training and capacity building.
- Section 7, which describes the process for planning, monitoring and reporting on the offsets program, as well as adaptive management.

The remaining sections of the BOMP:

- Provide context and background (e.g. Sections 1-3)
- Describe the stakeholder engagement undertaken as part of developing the offsets program (Section 4)
- Describe the weed mapping exercise that has already been undertaken and the process for selecting high priority weeds (Section 5); and
- Describe roles and responsibilities for implementing the offsets program (Section 8).

Condition 12 (a)	The BOMP must: be consistent with the BOS described in condition 11.

The BOMP is consistent with the BOS, as follows:

- The BOS indicated that the offsets program would be weed management actions on Groote Eylandt. This BOMP focusses on weed management, as required in the BOS.
- The BOS indicated that the BOMP would identify high priority weeds for the purpose of management actions. High priority weeds have been identified in the BOMP, with justification for the selection of high priority weeds provided (Section 5.3).
- The BOS indicated that the following tasks were anticipated to be undertaken as part of the offset:
  - Current major infestations of high priority weeds will be mapped. This work is now complete (Section 5.2).
  - The existing systems in relation to the management of weeds will be audited with areas for improvement identified. This audit has now been completed (Section 6.3).
  - A Weed Management Plan will be prepared and implemented, focusing on high priority weeds. A draft Weed Management Plan has been prepared by GEMCO, in consultation with the ALC Rangers (Section 6.5). It formed the basis of the measures described in this BOMP. The Weed Management Plan will be finalised once the BOMP is approved.
  - A Weed Management Coordinator for Groote Eylandt will be funded by the offsets program (at the request of the ALC, this position is now termed a Plant Biosecurity Officer). A Plant Biosecurity Officer will be employed for the duration of the offsets program, with Section 6.6 describing the organisational structure relevant to this role and the duties of the Plant Biosecurity Officer.
  - A monitoring and control program will be developed and implemented for high priority weeds. Section 6.7 describes the control and monitoring program that will be adopted for high priority weeds.
  - A quarantine program will be developed, focusing on high priority weeds. Section 6.8 describes the quarantine system to be adopted.
  - A response plan will be developed for high priority weeds and high-risk establishment areas. The offsets will be used to fund the development of the response plan, as well as ensure that the necessary procedures, equipment and training of personnel are in place to implement it. Section 6.9 describes the TARP that has been developed and will be implemented as part of the offsets program.
  - Special projects will be funded, if the Weed Management Plan identifies any special projects that meet the objectives of the Weed Management Plan, and these project/s are found to be feasible and cost effective. No special projects that meet these requirements were identified as part of preparation of the Weed Management Plan and hence, at this stage, none are proposed to be funded by offsets. However, Section 6.12 notes the potential for such projects to be identified in future and describes how this situation would be managed.

  - A community awareness program related to weed management will be developed and implemented. Section 6.10 describes the community awareness program to be implemented as part of the offsets program.
  - Training and capacity building of the ALC Rangers (and potentially other parties involved in weed management) will be undertaken. Section 6.11 describes the training and capability building to be undertaken as part of the offsets program.
- The BOS described the outcomes to be achieved via offsets in terms of a foundation period (first 2 years), short-term period (2-5 years), medium-term period (5-10 year) and long-term period. The BOMP adopts these time periods and provides detailed information on the management actions to be taken during each time period. Refer to Section 6.2 for a summary.
- The BOS nominated outcomes to be achieved for each timeframe. The BOMP commits to achieving these outcomes and describes the actions that will be adopted to achieve them. As required in the BOS, the BOMP has expanded on the outcomes by including targets for individual weed species (Section 6.7).
- The BOS indicated that an annual planning process will be implemented whereby work on offset actions from the previous year will be reviewed and a program of work for the following year will be developed. The annual planning process described in the BOS will be adopted and the BOMP provides additional detail on the annual planning process (Section 7.3).
- The BOS explained that a disturbance register for the project will be maintained, with the clearing reconciled against the offset funds spent. This system is explained further in Section 7 of the BOMP.
- The BOS committed to monitoring being undertaken as part of implementing the offsets (e.g. weed monitoring). Section 7.2 of the BOMP describes the monitoring work to be undertaken to meet this requirement.
- The BOS described the reporting to be undertaken as part of the offsets program. This included preparation of an impact reconciliation report to account for the work completed and outcomes achieved in the two preceding calendar years against the agreed work program and the work program for the subsequent two-year period. Section 7.3 of the BOMP provides further detail on these reporting arrangements.

Condition 12 (b)	The BOMP must: be prepared in consultation with the Northern Territory Department of Land Resource Management and the Anindilyakwa Land Council.

GEMCO has engaged early and often with both the NT Department of Land Resource Management (now DEPWS) and the ALC. This has taken the form of:

- Early alignment in relation to the strategic direction of the offsets program;
- Regular meetings and presentations discussing the development of the BOMP;
- Participation of the ALC in the audit of weed management systems;

- Regular opportunities to comment, edit, and contribute to draft documents and survey designs (e.g. for the baseline island-wide weed survey); and
- Participation of the ALC Rangers in weed surveys, which allowed for the ALC Rangers to share local knowledge of weeds.

Section 4 provides an overview of this engagement and Appendix B provides additional detail. The ALC has provided a letter indicating its support for the offsets program and confirming its willingness to be involved in its implementation, as per the description of roles in Section 8. The letter is included as Appendix C. DEPWS has also provided a letter of endorsement of the BOMP, included as Appendix D.

Condition 12 (c)	The BOMP must: describe programs and/or actions for delivering conservation outcomes to the impacted species on Groote Eylandt. These programs/actions should address threats to impacted species and should reflect the preferred strategies for developing optimum conservation outcomes described in the BOS as per condition 11 (d).

The BOS assessed a range of programs/actions that could deliver conservation outcomes for the impacted species through addressing the threats listed in Condition 11(d) of the EPBC Act approval. The BOS concluded that weed management actions had the highest potential to deliver conservation outcomes for the impacted species and were the most suitable program/action for an offsets program. The BOS describes why actions related to other threats (e.g. Cane Toad management, feral cat management, fire management) were less suitable and hence were not selected for the offsets program. The BOS was approved on this basis and requires the development and implementation of weed management actions to meet the outcomes described in the BOS (Section 3.5 lists these outcomes).

Section 2.2 of the BOMP provides an overview of the current status of weeds on Groote Eylandt and the threat they pose to biodiversity values, including the impacted species. Section 2.4 explains why weed management was selected as the basis of the offsets program (as per the BOS). Section 5.3 and Appendix E describe the high priority weeds that have been selected as the focus of weed management activities and explains the threat that these weed species pose to the impacted species.

Condition 12 (d)	The BOMP must: identify measurable environmental outcomes which achieve a conservation gain.

As per the response to Condition 12(c). The outcomes to be achieved by the offsets program are described in the approved BOS and repeated for ease of reference in Section 3.5 of this BOMP. The remainder of the BOMP describes the actions that will be undertaken to achieve these outcomes.

Condition 12 (e)	The BOMP must: describe how the programs and/or actions, described in accordance with condition 12(c), will be implemented.

The description of programs/actions provided in this BOMP (predominantly in Section 6 and 7) includes detail on how the actions will be implemented, including responsibilities and timeframes. A summary of the actions and associated timeframes for them is provided in Section 6.2 of the BOMP.

Condition 12 (f)	The BOMP must: describe the role (if any) of the Anindilyakwa Land and Sea Rangers in implementing the strategies and/or actions identified in the BOMP.

The ALC Rangers will be key participants in the implementation of the offsets program and their role in the development and implementation of offset is described throughout the BOMP. A summary is provided in Section 8.

Condition 12 (g-i)	The BOMP must include a regime for: planning and setting a biennial (2 year) work program.

Section 7 describes the monitoring, planning and reporting framework to be undertaken for the offsets program and describes the process by which a two-yearly work program will be developed.

Condition 12 (g-ii)	The BOMP must include a regime for: monitoring outcomes.

Section 7.2 describes the monitoring program to be adopted for the offsets program, which includes monitoring progress against the outcomes described in the approved BOS.

Condition 12 (g-iii)	The BOMP must include a regime for: reporting outcomes against the work program.

Section 4 describes the reporting framework that will be adopted for the offsets program and notes that this includes reporting outcomes against the work program.

Condition 12 (g-iv)	The BOMP must include a regime for: adaptive management.

The offsets program will be undertaken within an adaptive management framework whereby activities are responsive to the results of monitoring, with adjustments being made to the offsets program to ensure that the required outcomes are achieved. Adaptive management is described in Section 7.6.

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FIGURES

SOUTH32

Local Setting

FIGURE 1

Figure 2. Coverage of Preliminary Weed Mapping Surveys

I:\...\20002\Figures\RP2\20240216\Figure 2. Coverage of Preliminary Weed Mapping Surveys

Figure 3. Coverage of Baseline Island-wide Weed Surveys

I:\...\20002\Figures\RP2\20240216\Figure 3. Coverage of Island-wide Weed Surveys

Legend

- GEMCO Weed Management Area
- Roads and Access Tracks
- Township
- Outstation

Gamba Grass (Andropogon gayanus) Records within the Offset Management Area

- Baseline Island-wide Weed Mapping Records (Cumberland Ecology 2023)

Coordinate System: MGA Zone 53 (GDA 94)

cumberland ecology

I:\...\20002\Figures\RP2\20240216\Figure 4. Gamba Grass

Figure 4. Gamba Grass Records from BOMP Weed Surveys

0 5 10 15 20 km

Figure 5. Grader Grass Records from BOMP Weed Surveys

I:\...\20002\Figures\RP2\20240216\Figure 5. Grader Grass

I:\...\20002\Figures\RP2\20240216\Figure 6. Annual Mission Grass

Figure 6. Annual Mission Grass Records from BOMP Weed Surveys

I:\...\20002\Figures\RP2\20240216\Figure 7. Guinea Grass

Figure 7. Guinea Grass Records from BOMP Weed Surveys

Figure 8. Para Grass Records from BOMP Weed Surveys

I:\...\20002\Figures\RP2\20240216\Figure 8. Para Grass

Figure 9. Buffel Grass Records from BOMP Weed Surveys

I:\...\20002\Figures\RP2\20240216\Figure 9. Buffel Grass

APPENDIX A

Regulatory and Policy Framework for Weed Management

APPENDIX A – REGULATORY AND POLICY FRAMEWORK FOR WEED MANAGEMENT

A.1 INTRODUCTION

This appendix outlines the Commonwealth and NT regulatory framework relevant to the management of weeds. It also provides a summary of the TSMP.

A.2 COMMONWEALTH REGULATORY FRAMEWORK

A.2.1 THREAT ABATEMENT PLANNING

Under the EPBC Act, distinct issues that negatively affect native species or communities can be nominated for listing as a "key threatening process" (KTP) and provided with a national threat abatement plan (TAP). TAPs describe the research, management, and any other actions necessary to reduce the impact of a listed KTP on native species and ecological communities. Threat abatement advice documents are also available to provide supplementary guidance on activities and research needed to abate threats, however, these are non-statutory documents.

The "*Threat abatement plan to reduce the impacts on northern Australia's biodiversity by the five listed grasses*" (TAP for the Five Listed Grasses) has been developed to address the following KTP: "Ecosystem degradation, habitat loss and species decline due to invasion of northern Australia by introduced Gamba Grass (*Andropogon gayanus*), Para Grass (*Urochloa mutica*), Olive Hymenachne (*Hymenachne amplexicaulis*), Mission Grass (*Cenchrus polystachios*) and Annual Mission Grass (*Cenchrus pedicellatus*)'. A threat abatement advice document is also available for this threat (Department of the Environment 2014). These species were imported into Australia for testing and/or use as pasture grasses, however, are invasive high-biomass species that can increase fuel loads and/or alter nitrogen cycling and water availability within systems, resulting in ecosystem degradation, habitat loss and biodiversity decline (Department of Sustainability, Environment, Water, Population and Communities 2012).

Several of these species have been recorded on Groote Eylandt. Furthermore, the TAP lists the threatened species and ecological communities that are under "immediate threat" from the five listed grasses. Species under immediate threat include the Northern Hopping-mouse, Brush-tailed Rabbit-rat, Northern Quoll, and Masked Owl (northern) (i.e. the "impacted species" for the project).

The TAP aims to provide a feasible, effective and efficient approach to abating the threat to Australia's biodiversity from the five listed grasses spreading across northern Australia. It also provides a framework to coordinate the management of the invasive tropical pasture grasses, all of which pose a current or future threat to the species and communities present.

In dealing with the five listed grasses, the BOMP has considered the objectives and actions set out in the TAP and, where appropriate, adopted these to ensure effective management and consistency with the national approach. As invasive grasses are the primary weed threat to the island, the TAP has a strong influence on the structure of this BOMP.

Additional threat abatement advices have been prepared for the following threats:

- "Ecosystem degradation, habitat loss and species decline in arid and semi-arid Australia due to the invasion of buffel grass (*Cenchrus ciliaris* and *C. pennisetiformis*)" (Department of the Environment 2015).
- "Loss and degradation of native plant and animal habitat by invasion of escaped garden plants, including aquatic plants" (Department of the Environment 2014).

These documents provide useful additional information on weed related threats, and the actions that may be taken by government, land managers, research organisations and industry groups to mitigate these threats.

A.2.2 WEEDS OF NATIONAL SIGNIFICANCE

The Weeds of National Significance (WoNS) list, inaugurated in 1999 by the Australian Government and updated in 2013, provides a list of weed species identified as being of the highest priority for management in Australia. These species cause major economic, environmental and/or social impacts in a number of states or territories with strong potential for further spread (Invasive Plants and Animals Committee 2016).

The listing of WoNS allows for coordinated management and funding through a national strategic management plan developed for each of the listed species.

Currently, the list includes 32 WoNS, and several of these species have been identified on Groote Eylandt. The BOMP integrates the goals and objectives contained within these plans.

A.3 NORTHERN TERRITORY REGULATORY FRAMEWORK

A.3.1 WEEDS MANAGEMENT ACT

The NT *Weeds Management Act 2001* (WM Act) makes provision for the control and eradication of "declared weeds" in the NT. Declared weeds are those that have been identified to have an impact on the NT's economic, environmental, cultural and social values.

A weed may be declared as:

- Class A: To be eradicated;
- Class B: Growth and spread to be controlled; and
- Class C: Not to be introduced to the NT.

All Class A and Class B weeds are also considered to be Class C weeds. A single species may also be declared as Class A or B, depending on its location in the NT.

The WM Act describes the legal requirements and responsibilities that apply to landowners and land occupiers regarding declared weeds. General duties include the requirement to take all reasonable measures to prevent land being infested with a declared weed and to prevent a declared weed from spreading. Requirements of the WM Act also include a prohibition on the buying, selling, cultivating, moving or propagating any declared weed, and the requirement to notify the Weed Management Branch of the NT Government of a declared weed not previously present on the land within 14 days of detection.

Several declared weeds under the WM Act have been recorded on Groote Eylandt.

A.3.2 WM ACT SUPPORTING PLANS AND STRATEGIES

Some declared weeds listed under the WM Act have Statutory Weed Management Plans, which describe additional legal requirements for these species in the NT. A Statutory Weed Management Plan establishes and clearly articulates the objectives, management requirements and management actions to be achieved by landholders for a specific declared weed. Several of the weed species recorded on Groote Eylandt are subject to Statutory Weed Management Plans.

Furthermore, the *Darwin Regional Weed Strategy* (DEPWS 2021) provides a strategic approach for the NT Government and key stakeholders to reduce the adverse impacts of weeds throughout the Darwin region, between 2021-2026. Groote Eylandt falls within the Darwin region for the purpose of this strategy. This document: identifies the principle weed threats for the region and outlines best practice management measures for each; provides clear weed management priorities; and provides regional management actions/goals.

Other resources available for weed management in the NT include:

- The NT Weed Management Handbook (DEPWS 2021) – This handbook provides information on approaches to weed management. Specifically, the handbook provides weed control option tables for 46 of the NT's most problematic weeds. These tables outline ideal treatment times and methods to use in the management of weeds.
- The Top End Weed Planning Guide (DENR n.da) – This short document outlines a number of steps to plan for and undertake cost effective and efficient weed control activities on properties in the NT. Steps include assessing the weed situation, developing a weed management plan, implementing the plan, and monitoring and reviewing the plan.
- The Weed Spread Prevention Book (DENR n.db) – This document outlines a number of simple weed spread prevention techniques that can be used by land managers and business operators in the NT. It identifies a number of high risk activities that lead to the spread of weeds, and provides guidance on how to reduce this risk for each.

These supporting plan and strategies have been used to guide development of the BOMP.

A.4 GROOTE ARCHIPELAGO THREATENED SPECIES MANAGEMENT PLAN

The *Groote Archipelago Threatened Species Management Plan 2019-2028* (TSMP) was prepared in collaboration between the Department of Environment and Natural Resources (DENR), ALC, Department of the Environment and Energy (DoEE), & GEMCO in 2019. The TSMP is a strategic plan which describes the management, research and monitoring actions required to address threats and impacts to threatened terrestrial fauna species in the Groote Archipelago over ten years (2019 to 2028). It was developed in recognition of the increasing pressures faced by threatened species on the Groote archipelago and in northern Australia generally. The plan is intended to guide conservation work on Groote Eylandt, but there is no funding associated with the TSMP.

The TSMP considers the range of threatening processes that currently impact or have the potential to impact threatened terrestrial fauna species in the Groote Archipelago (including the impacted species) and provides clear guidance on management measures required to address these threats. For each threatened species, the TSMP evaluates the scope, severity and irreversibility of each threat and provides a summary of the threat level. It takes account of published Conservation Advice and was developed with input from subject area experts, in consultation with local land managers.

Weed invasion is listed as a high threat for the four impacted species in the TSMP, which notes that potential impacts from weeds include habitat degradation, productivity loss and the facilitation of a changed fire regime. The plan includes actions to address the threat of weeds, including developing and implementing an integrated Weed Management Plan for the Groote Archipelago and improving information systems (e.g. maintaining a spatial database of weeds).

As discussed in the BOMP, the TSMP has provided critical guidance to the development of the BOMP.

APPENDIX B
Engagement with the ALC and ALC Rangers

APPENDIX B – ENGAGEMENT WITH THE ALC AND ALC RANGERS

Table B-1 provides detail on the engagement undertaken with the ALC and ALC Rangers as part of the preparation of the BOMP.

TABLE B-1 CONSULTATION WITH THE ALC AND ALC RANGERS ON THE BOMP

Date	Engagement Type	Stakeholders	Purpose and outcomes
24 November 2021	Mining Liaison Committee	Mining Liaison Committee Members (ALC and GEMCO)	GEMCO provided a presentation to the ALC on the status of the EPBC Act approvals, and explained that the BOS had been approved by the Department of Agriculture, Water and the Environment (now DCCEEW). GEMCO provided meeting attendees with an overview of the content of the approved BOS. There was a discussion about the proposed direct actions, including weed monitoring and control programs, community awareness and educational programs, training and capacity building for the ALC Rangers and the potential to employ a Plant Biosecurity Officer (funded through the offsets program). The ALC was supportive of the proposed work and indicated its willingness to work collaboratively with GEMCO to develop the required information for the BOMP. The ALC acknowledged the threat that weeds pose to the biodiversity values on the island and more specifically the listed species identified in the Eastern Leases project. The ALC also recognised the linkage between GEMCO's BOS and the Groote Eylandt Archipelago TSMP.
25 January 2022	Mining Liaison Committee	Mining Liaison Committee Members (ALC and GEMCO)	GEMCO provided a presentation to the ALC on the results of weed surveys carried out in the Eastern Leases mineral leases as well as a conceptual design of developing a light vehicle wash bay on Groote Eylandt. Several options for the location and design were discussed, however the form and location were not agreed on.
1 March 2022	TSMP Steering Committee	Members of the TSMP Steering Committee (DEPWS, ALC, ALC	Detailed discussion was held in relation to the status of the BOS; the scope of work associated with the development of a Weed Management Plan and BOMP.

Date	Engagement Type	Stakeholders	Purpose and outcomes
		Rangers, GEMCO, independent scientific expert)	The tasks to be undertaken as part of preparing the Weed Management Plan were discussed. It was agreed that deliverables from this work would include: • Identifying high priority weeds for the purpose of the BOMP; • Preparing a map to provide baseline data on high priority weeds; • Undertaking an audit of existing systems in relation to weed management; • Documenting responsibilities for weed management on Groote Eylandt; and • Describing proposed management measures relevant to weed management. There was agreement amongst Committee members that the management commitments in the BOS and the planned work for the BOMP were aligned to the TSMP and, if executed successfully, would address a key conservation issue in the TSMP (i.e. weed management).

4-8 April 2022	Audit of existing systems and processes for managing weeds across the island. This was undertaken via a site visit and meetings and interviews with key stakeholders.	• ALC Rangers
		• EARSC
		• Aminjarrinja Enterprises
		• GEBIE
		• GEMCO
			• A face-to-face meeting was held with stakeholders on Groote Eylandt who have a role or interest in weed management. A presentation was provided, which described the purpose and structure of the audit.
			• This was followed by the audit, which was undertaken by AECOM, on behalf of GEMCO. The audit involved interviewing stakeholders and visiting key sites (e.g. potential entry points for weeds such as the Milner Bay Port Facility, known weed infestations). The ALC Rangers were key participants in the audit and shared valuable information about:
			  • The current status of weed management on Groote Eylandt;
			  • Key priorities for weed management, particularly in relation to transforming weeds that may affect the habitat of the impacted species;

Date	Engagement Type	Stakeholders	Purpose and outcomes
			• The level and need for training and capacity building of the ALC Rangers; and • Community awareness programs currently in place in relation to weeds. • After the audit had been completed, a briefing paper was prepared and provided to all stakeholders. This formed the basis of subsequent discussions on weed management, and potential actions for the BOMP.
5 May 2022	Mining Liaison Committee	Mining Liaison Committee Members (ALC and GEMCO)	Presentation and discussion on the stages for the offsets program, including outcomes for the foundation (first 2 year) period; short-term (2-5 Year) period; medium-term (5-10 years) and long-term period (beyond 10 years). There was also a discussion on the potential to establish a light vehicle wash bay. The ALC was provided with an overview of the outcomes/recommendations from the AECOM audit.
15-20 May 2022	Weed mapping surveys	ALC Rangers and ecological consultants (on behalf of GEMCO)	Weed mapping surveys were undertaken by AECOM, on behalf of GEMCO, with the ALC Rangers participating in the surveys. The participation of the ALC Rangers allowed for local knowledge to be shared, and for training and capacity building of the ALC Rangers. This included discussions around how to identify key features of high priority weed species, the impacts that these species have on the natural environment and the steps to be taken in how to record and register these weeds whilst out in the field. An overview of the use and application of the Survey123 recording platform was covered, along with discussion around the challenges and improvements needed in order to accurately record infestations. Rangers communicated some of the issues of Rangers using Survey123, which would require training, along with the challenges in undertaking spraying activities.

Date	Engagement Type	Stakeholders	Purpose and outcomes
11 and 16 July 2022	Workshop, held via Teams	ALC Rangers, GEMCO and its ecological consultants	The results of the weed audit and preliminary weed mapping were presented. There was a discussion about potential weed management actions, with the ALC Rangers providing their feedback about proposed actions. This included the use of herbicide chemicals, application techniques as well as the rate and recording of chemicals used. The challenges of retaining Ranger staff and the importance of structured training and capacity development of staff was discussed at length, along with the need to be able to adequately resource the weed management control program by bringing in external specialist weed management contractors in the initial years of the BOMP. This feedback has been taken into consideration in the finalisation of the proposed management actions.
13 October 2022	Mining Liaison Committee	Mining Liaison Committee Members (ALC and GEMCO)	Presentation and discussion on the weed management audit that had been undertaken, and the recommendations arising from it. The ALC was provided with a list of the actions/recommendations arising from the audit Each of the actions was prioritised in terms of their likely effectiveness. Recommendations/actions were also described in terms of when they would be feasibly undertaken.
1 November 2022	Groote Eylandt Weed Working Group	Groote Eylandt Weed Working Group: • ALC Rangers • EARSC • Aminjarrinja Enterprises • GEBIE • GEAC • GEMCO	GEMCO provided a presentation and update to members of the Weed Working Group on the status of the BOMP, including: • Overview of the Eastern Leases EPBC Act approval; • Overview of the weed management audit that had been undertaken, and the recommendations arising from it; and • Next steps in the preparation of the BOMP and the associated timeframes. Feedback from the group showed strong alignment and support for the actions/recommendations identified in the audit and acknowledged the importance of assigning responsibility for these tasks. The group acknowledged the value of the data that would be obtained from the baseline island-wide weed survey and indicated that the survey would provide a baseline reference

Date	Engagement Type	Stakeholders	Purpose and outcomes
			which could be used in future to determine the efficacy of weed management programs over time.
9 February 2023	Mining Liaison Committee	Mining Liaison Committee Members (ALC and GEMCO)	GEMCO provided a progress update on BOMP preparation.
21 February 2023	Regular face-to-face meeting	ALC Land & Sea Manager and GEMCO Biodiversity Offsets Principal	Regular biodiversity offsets discussion. Introductory meeting between GEMCO Biodiversity Offsets Principal and ALC Land & Sea Manager. Discussion and tour of current ALC Ranger facilities and capacities. Discussion of the emerging threat of weeds on Groote Eylandt. The ALC Land & Sea Manager expressed the desire for the Plant Biosecurity Officer position (proposed BOMP action) to be filled quickly.
7 March 2023	BOMP document share/review	ALC Land & Sea Manager, ALC Manager Mining & Sustainability	The ALC Rangers and ALC were provided with a copy of the May 2023 BOMP for review.
7 March 2023	Regular face-to-face meeting	ALC Land & Sea Manager and GEMCO Biodiversity Offsets Principal	Regular biodiversity offsets discussion. Discussion of the May 2023 BOMP. ALC Land & Sea Manager expressed that the weed situation is getting worse on Groote Eylandt, and that weed management contractor support in at least the first 5 years of the BOMP would be needed.
28 March 2023	Opportunity for the ALC Rangers to review the proposal for the island-wide weed survey	ALC Land & Sea Manager and ALC Biosecurity Operations Coordinator	The ALC Rangers provided comments on the design of the proposed baseline island-wide weed survey and the scope of work was adjusted to reflect this input.

Date	Engagement Type	Stakeholders	Purpose and outcomes
4 April 2023	Workshop related to weed management and mapping	• ALC Rangers • ALC Biosecurity staff • GEMCO staff and its ecological consultants	The proposed baseline island-wide weed survey was discussed, with collective decisions made by meeting attendees on the scope and methodology of the mapping, including: • Priority locations for weed mapping; • Weed species on which to focus; and • Opportunities for the ALC Rangers to work alongside ecological consultants to inform the mapping, including opportunities for information sharing on weed management, capacity building and training (weed identification, technology use).
4 April 2023	BOMP document share/review	ALC Land & Sea Manager and ALC Manager Mining & Sustainability	The ALC Rangers and ALC were provided with a revised copy of the May 2023 BOMP for review. They provided comments on the revised BOMP and GEMCO subsequently updated the BOMP to reflect their comments. Comments showed: • Overall agreement with the main points of the BOMP. • Some corrections of the terms and language used in the BOMP. • A suggestion from one ALC staff member that Red Natal Grass be included as a high priority weed, though other ALC staff supported the weed species selection as is. Red Natal grass is not considered to be a transforming weed. • Queries on whether the ALC would be required to run the training programs or whether an external contractor could be brought in for that. It was agreed that the BOMP would make provision for an external contractor to be involved in training. • Support for the BOMP's provision for weed management contractors to be used to assist the Rangers with weed control (e.g. weed spraying).

Date	Engagement Type	Stakeholders	Purpose and outcomes
			• An option to potentially develop weed additional weed hygiene (i.e. vehicle washdown) facilities in the future. • Request for more clarity/discussion around exact role and job title of Plant Biosecurity Coordinator. The 2023 BOMP was updated in response to this request.
• 20-21 April 2023 • 26-27 April 2023 • 30 May-13 June 2023 • 26 June-4 July 2023	Island-wide weed survey	ALC Rangers and ecological consultants (on behalf of GEMCO)	Weed mapping surveys were undertaken by Cumberland Ecology, GEMCO's ecological consultants, with the ALC Rangers participating in the surveys. The participation of the ALC Rangers allowed for local knowledge to be shared and for training and capacity building of the ALC Rangers.
3 May 2023	Endorsement letter	ALC Manager Mining & Sustainability and ALC Land & Sea Manager	The ALC provided a letter endorsing the 2023 BOMP.
18 May 2023	Mining Liaison Committee	Mining Liaison Committee Members (ALC and GEMCO)	GEMCO described the status of BOMP preparation and provided a progress update of the planning and execution of work programs, including: • The baseline island-wide weed survey; and • Development of the draft Weed Management Plan.
7 June 2023	Regular face-to-face meeting	ALC Land & Sea Manager and GEMCO Biodiversity Offsets Principal	Regular biodiversity offsets discussion.
15 June 2023	Regular face-to-face meeting	ALC Land & Sea Manager and GEMCO Biodiversity Offsets Principal	Regular biodiversity offsets discussion.

Date	Engagement Type	Stakeholders	Purpose and outcomes
21 June 2023	TSMP Steering Committee	Members of the TSMP Steering Committee (DEPWS, ALC, ALC Rangers, GEMCO, independent scientific expert)	Detailed discussion on: • Objectives and scope of the Eastern Leases BOMP; • Outcomes to be achieved by offsets; • Work undertaken on the baseline island-wide weed survey; • The focus of the BOMP on high priority weed species; and • Roles and responsibilities – i.e. confirming that weed management activities/actions would be coordinated by GEMCO (via the Plant Biosecurity Officer) with the support and collaboration of the ALC Rangers. The actions would be funded by GEMCO through the offsets program.
5 July 2023	Regular face-to-face meeting	ALC Land & Sea Manager and GEMCO Biodiversity Offsets Principal	Regular biodiversity offsets discussion
7 August 2023	Regular face-to-face meeting	ALC Land & Sea Manager and GEMCO Biodiversity Offsets Principal	Regular biodiversity offsets discussion.
5 October 2023	Mining Liaison Committee	Mining Liaison Committee Members (ALC and GEMCO)	GEMCO described the status of BOMP preparation and provided a progress update of the planning and execution of work programs, including: • Interim results of the baseline island-wide weed survey; and • Development of the draft Weed Management Plan.
27 November 2023	Groote Eylandt Weed Working Group	Groote Eylandt Weed Working Group members, including: • ALC Rangers • EARSC • GEMCO	GEMCO provided a presentation and update to members of the Weed Working Group on the status of the BOMP, including: • Results of the baseline island-wide weed survey; and • Update on the draft Weed Management Plan.

Date	Engagement Type	Stakeholders	Purpose and outcomes
7 December 2023	Mining Liaison Committee	Mining Liaison Committee Members (ALC and GEMCO)	GEMCO described the status of the BOMP, specifically: • Feedback received from DCCEEW in relation to the previous version of the BOMP submitted in May 2023; • Final results of the baseline island-wide weed survey, showing records of transforming weeds identified across the island; and • Update on the draft Weed Management Plan, including actions and responsibilities.
14 December 2023	Regular face-to-face meeting	ALC Rangers (Biosecurity Operations Coordinator and Animal Biosecurity Officer) and GEMCO Biodiversity Offsets Principal	Regular biodiversity offsets discussion, including planning for the weed management actions to be taken in the remainder of the foundation period. This included confirming that the ALC Rangers will be accompanying GEMCO's weed management contractors.
14 February 2024	Regular face-to-face meeting	ALC Land & Sea Manager and GEMCO Biodiversity Offsets Principal	Detailed discussion of the content of the 2024 BOMP, particularly around the actions and targets described in the BOMP, and the role and responsibilities of the Plant Biosecurity Officer. The ALC Rangers were highly supportive of the more detailed targets, the proposed responsibilities of the Plant Biosecurity Officer, and the 2024 BOMP more generally.
14 February 2024	Face-to-face meeting	ALC Manager Mining & Sustainability, GEMCO Project Study and Approval Manager	Detailed presentation and discussion of the 2024 BOMP, particularly around the roles and responsibilities of GEMCO and the ALC in the proposed offsets program. This meeting was to seek formal ALC endorsement for the updated BOMP. ALC representative was highly supportive of the updated BOMP and the proposed offsets program more generally.

APPENDIX C

ALC Endorsement of BOMP

Anindilyakwa
Land Council

21 February 2024

Mr Steve Hedges
VP GEMCO Operations South32
ALYANGULA NT 0885
Via Email: Steve.Hedges@south32.net

Re: ALC Endorsement & Support of the GEMCO Eastern Leases Biodiversity Offset Management Plan (BOMP)

Dear Steve,

The Anindilyakwa Land Council (ALC) previously endorsed GEMCO's Biodiversity Offset Strategy on the 25th May 2021, as well as an earlier version of this Biodiversity Offset Management Plan (BOMP) for the Eastern Leases project on the 3rd May 2023. The ALC has reviewed the additional details contained in this final version of the BOMP and is satisfied that it is consistent with the previously endorsed strategy and considers the plan to be a clear and logical pathway to collaboratively managing high priority weeds across the island.

The Groote Archipelago is uniquely biodiverse and provides refuge for plants and animals that have declined or become extinct in mainland Australia because of pest species and habitat loss.

The Groote Eylandt Archipelago Threatened Species Management Plan, GEMCO's Eastern Leases Project - Biodiversity Offset Strategy and Biodiversity Offset Management Plan recognise the threat emerging weeds pose to Groote Eylandt habitat values. Addressing this threat requires island wide management and the ALC supports this plan. The ALC appreciates the approach GEMCO has taken in the BOMP to develop an Eylandt wide Weed Management Plan to prioritise weed threats and effectively manage them, and to provide support and training for the ALC Rangers and Traditional Owners.

Please contact either Kirsten Eden, ALC Land & Sea Manager on (08) 8987 6703 or 0429854223 or myself for further clarification.

Yours Sincerely,

Michael Trainor

Mining & Sustainability Manager

(Mob: 0476495752)

30 Bougainvillea Drive, Alyangula NT | PO Box 172, Alyangula NT 0885
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APPENDIX D

DEPWS Endorsement of BOMP

NORTHERN TERRITORY GOVERNMENT
Department of
ENVIRONMENT, PARKS
AND WATER SECURITY

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12 March 2024

Mr Mike Chapman
Project Study & Approvals Manager – GEMCO
Mike.Chapman@south32.net

Dear Mike

Re: Eastern Leases Mining Project – Biodiversity Offset Management Plan (February 2024)

Thank you for providing an opportunity to review the revised version (dated February 2024) of the Biodiversity Offset Management Plan (BOMP) for the Eastern Leases project.

I note that the revision of the BOMP has incorporated significantly more detail about weed management actions, timeframes and projected outcomes. These have been appropriately informed by the completion of a detailed weed survey across Groote Eylandt. It is particularly pleasing that the BOMP explicitly aims to eradicate the five key transformer weed species present on the island, and seeks to prevent the introduction of other weeds that have had devastating impacts on biodiversity elsewhere in the Northern Territory.

The BOMP focuses on minimising the threat from weed species on threatened species (and biodiversity more generally) on the Groote Archipelago. In the context of the Groote Archipelago Threatened Species Management Plan (TSMP), this is appropriate as it comprehensively addresses the most outstanding current gap in the management of the key threats identified in the TSMP.

The Department of Environment, Parks and Water Security endorses the revised BOMP. I am confident that its successful implementation will make a very significant contribution to maintaining the outstanding biodiversity values of Groote Eylandt.

Yours sincerely

ALARIC FISHER
Executive Director
Flora and Fauna Division

APPENDIX E
Threat Posed by High Priority Weeds

APPENDIX E - THREAT POSED BY HIGH PRIORITY WEEDS

The high priority weed species chosen for the offsets program are listed in Table E-1. Table E-1 also provides the status of the weed under Commonwealth and NT legislation, provides a description of the species, and provides further justification for each species' inclusion as a high priority weed.

TABLE E-1 HIGH PRIORITY WEEDS

Weed Status under Legislation	Description
Gamba Grass (*Andropogon gayanus*)	
• Subject to the Threat Abatement Plan (TAP) for the Five Listed Grasses • Weed of National Significance (WoNS) • An NT declared weed (Class A on Groote Eylandt) • Subject to an NT Statutory Weed Management Plan Note that the regulatory framework for weeds is provided in Appendix A, including a description of Threat Abatement Plans, WoNS, NT declared weeds and NT Statutory Weed Management Plans.	Gamba Grass is a large, perennial, highly productive introduced grass which forms tall (to 4 m), dense stands. These stands dry later than native annual grasses of the Top End, and are bigger, taller, and more dense than native grass species (NT Government 2010). These characteristics provide increased fuel loads which promote intense, late, dry season fires that can modify habitat. This species can produce fires that are eight times more intense than those produced by native grasses (Rossiter-Rachor et al 2008). Gamba Grass has also been shown to alter catchment hydrology, and lower the available soil nitrate levels (DSEWPaC 2012a). The TSMP indicates that Gamba Grass is possibly the biggest threat to threatened species in the Groote Archipelago given its potential to alter fire regimes and vegetation composition (DENR, ALC, DoEE & GEMCO 2019). This species is not established on Groote Eylandt, however, isolated infestations have been previously recorded. Figure 4 shows records for this species obtained from the BOMP weed surveys. Refer to Section 6.7.4 for further detail (including further record information from other sources).
Grader Grass (*Themeda quadrivalvis*)	
• NT declared weed (Class B) • Subject to an NT Statutory Weed Management Plan	Grader Grass is a moderately sized, annual grass which grows to a height of 2m (Weeds of Australia 2016). This species can significantly reduce the biodiversity of native grasslands, savanna woodlands and rangelands (particularly in areas that are disturbed) and forms tall thickets that can cover large tracts of land (Weeds of Australia 2016). It is a prolific seeder, germinates quickly, and seeds earlier than other native grasses, allowing it to replace them (DEPWS 2021).

Weed Status under Legislation	Description
	This species has greater biomass than the native plants it replaces, and therefore produces higher fuel loads and alters the fire regime (Weeds of Australia 2016). Each of these hot fires causes a thinning of the native woodlands and eventually the number of trees in the ecosystem are reduced, resulting in a shift to exotic grasslands (Weeds of Australia 2016). Several infestations have been mapped as occurring on Groote Eylandt. Figure 5 shows records for this species obtained from the BOMP weed surveys. Refer to Section 6.7.4 for further detail (including further record information from other sources)
Annual Mission Grass (*Cenchrus pedicellatus*)	
• Subject to the TAP for the Five Listed Grasses	Annual Mission Grass is a moderately sized annual grass which grows to 1.5 m tall and has a high seed output. This species has a high biomass, and therefore contributes to increased fuel loads, resulting in intense late-season fires (DSEWPaC 2012a). It is known to invade disturbed areas and waste sites, but can also invade native vegetation (Weeds Australia 2021). It is also reported to grow in shady areas where native grasses do not, thereby facilitating the spread of fires beneath sensitive trees and shrubs that would not normally be subjected to burning (DSEWPaC 2012a). Several infestations have been mapped as occurring on Groote Eylandt. Figure 6 shows records for this species obtained from the BOMP weed surveys. Refer to Section 6.7.4 for further detail (including further record information from other sources).
Perennial Mission Grass (*Cenchrus polystachios*)	
• Subject to the TAP for the Five Listed Grasses • NT declared weed (Class B)	Perennial Mission Grass is a large, perennial grass growing to 3 m tall. This species has a high fuel load, and remains green until the late dry season, providing more fuel for hotter, more intense fires later in the season (DENR 2017). Fuel load for this species can often be 3-5 times that of neighbouring areas which are free from Perennial Mission Grass (DENR 2017). Growth is also known to be encouraged by repetitive burning (DENR 2017). This species also produces a large quantity of seeds, readily competes with native annual species and is known to occupy disturbed areas (DENR 2017). This species was not recorded during the BOMP weed surveys, but has been mapped on Groote Eylandt previously. Refer to Section 6.7.4 for further detail (including further record information from other sources).

Weed Status under Legislation	Description
Guinea Grass (*Megathyrsus maximus var. maximus*)	
• None	Guinea Grass is a perennial, dense tussock grass which grows to 3 m tall. This species is known to invade seasonally dry ecosystems throughout the tropics. It is known to outcompete native plant species, which indirectly reduces native fauna diversity. This species also alters fire regimes due to its high biomass (Rhodes et al., 2021), increasing fuel loads and wildfire intensity (Ellsworth et al. 2013). This species also spreads quickly following fire (Rhodes et al., 2021). Several infestations have been mapped as occurring on Groote Eylandt. Figure 7 shows records for this species obtained from the BOMP weed surveys. Refer to Section 6.7.4 for further detail (including further record information from other sources)
Para Grass (*Urochloa mutica*)	
• Subject to the TAP for the Five Listed Grasses	Para Grass is a robust perennial grass that forms dense, sprawling mats, and grows to a height of 1 m. This species is typically found in wetland habitats and is known for its adaptability to aquatic and wetland environments. It often forms dense monocultures due to its ability to expand rapidly through the growth of horizontal stems (stolons) and this allows it to significantly outcompetes native vegetation (QLD Government 2023). Para grass infestations can provide a significant fuel load, resulting in destructive, late-season floodplain fires from which Para Grass can re-establish but many native species cannot (DSEWPAC, 2012a). Increased fuel loads in wetlands could result in loss of hollow-bearing trees. Several infestations have been mapped as occurring on Groote Eylandt. Figure 8 shows records for this species obtained from the BOMP weed surveys. Refer to Section 6.7.4 for further detail (including further record information from other sources)
Buffel Grass (*Cenchrus ciliaris*)	
• None	Buffel Grass is a long-lived perennial tussock grass which grows to 1.5 m. This species forms extensive dense monocultures with deep roots, and is able to outcompete native vegetation (Department of the Environment 2015). It flowers and fruits quickly following rainfall, and can produce large amounts of seed that disperse quickly (Department of Environment 2015). It also alters the fire regime of invaded areas, by encouraging and carrying intense wildfires (i.e. increasing their frequency and intensity) through vegetation communities that are not adapted to intense fire regimes or would not normally carry a fire (Weeds of Australia 2016). The species is also resilient to fire, and quickly produces new growth after burning, and in turn creates

Weed Status under Legislation	Description
	further fuel for fires (DENR 2018). This species is particularly threatening to riparian and aquatic ecosystems, and may impede the overland flow of water in streambeds, increasing local flooding (DENR 2018). Several infestations have been mapped as occurring on Groote Eylandt. Figure 9 shows records for this species obtained from the BOMP weed surveys. Refer to Section 6.7.4 for further detail (including further record information from other sources)
Fountain Grass (*Cenchrus setaceus*)	
• NT declared weed (Class B)	Fountain Grass grows in dense stands to a height of 1.5 m. In dry and open environments Fountain Grass is a highly aggressive, fire-adapted colonizer that readily outcompetes native plants, and rapidly re-establishes after burning. Fountain Grass raises fuel loads, which increases the intensity and spread of a fire, resulting in severe damage to native, dry forest species adapted to less extreme fire regimes (Global Invasive Species Database 2023). The species is also known to crowd out other plants where it grows (Cook, Pengelly et al. 2005). There are no records of this species on Groote Eylandt. However, this species occurs in the NT and Groote Eylandt is within the known climate and habitat envelope of the species. Consequently, there is a risk of it being introduced and establishing on the island.
Olive Hymenachne (*Hymenachne amplexicaulis*)	
• Subject to the TAP for the Five Listed Grasses • WoNS • NT declared weed (Class B)	Olive Hymenachne is a perennial, semi-aquatic grass which grows to 2.5 m tall. Its habitat is primarily seasonal, shallow freshwater wetlands and riverbanks in coastal and sub-coastal areas (DSEWPaC 2012a). This species can form dense monocultures in open water, which reduces plant diversity and poses a severe threat to wetlands (DSEWPaC 2012a). It also blocks waterways, potentially causing flooding, and affects water quality (Northern Territory Government 2024). Since escaping from cultivation, it has seriously threatened the wetlands of northern Australia (Weeds Australia 2023). It may also impact on the recruitment of native trees and exclude native plants that provide foraging and nesting resources for wildlife (DSEWPaC 2012b). This species has not been recorded on Groote Eylandt to date. However, this species occurs in the NT and Groote Eylandt is within the known climate and habitat envelope of the species. Consequently, there is a risk of it being introduced and establishing on the island.

Weed Status under Legislation	Description
Thatch Grass (*Hyparrhenia rufa*)	
• NT declared weed (Class A)	Thatch Grass is a tall, densely tufted perennial grass growing to 3 m, which burns readily and intensely, and resprouts rapidly following fire. Thatch Grass fuelled fires can burn into regenerating and intact tropical dry forest (DENR 2013). With frequent burning, this species replaces native vegetation easily (DENR 2013). This species has not been recorded on Groote Eylandt. However, this species occurs in the NT and Groote Eylandt is within the known climate and habitat envelope of the species. Consequently, there is a risk of it being introduced and establishing on the island.
Molasses Grass (*Melinis minutiflora*)	
• None	Molasses Grass is a perennial grass usually growing to 1 m tall, but occasionally reaching up to 1.5 m in height. It forms dense mats that exclude other species (DAF 2020), alters successional processes, and reduces native tree and grass regeneration. This species has potential to increase fuel loads and is highly flammable, quick burning, and promotes fire spread in invaded communities (Hauser 2008). This species is not established on Groote Eylandt and is currently not present, however, isolated infestations have been previously recorded and treated. Groote Eylandt is within the known climate and habitat envelope of the species. Consequently, there is a risk of it being introduced and establishing on the island.