# PURPOSE

Newmont Tanami Operations (NTO) is committed to effectively managing and conserving biodiversity and land values on its historic, current and future mining leases and the surrounding environment; with the goal of ensuring a consistent approach to biodiversity conservation and sustainable stewardship of resources.

The purpose of this plan is also to ensure that systems are established and maintained for the effective management and conservation of biodiversity and land values across NTO leases, as well as to avoid, minimise and offset potential impacts to biodiversity and land values imposed by the mining operation.

# Scope

This management plan applies to all NTO employees, contractors and visitors, to ensure:

* Responsible stewardship of the land.
* Identification of biodiversity and land conservation opportunities.
* Involvement of relevant stakeholders in the management of identified biodiversity aspects.

This management plan is specifically applicable to all NTO activities that have the potential to significantly impact upon land. This includes all activities with the potential to impact on the environmental values of land, including:

* Damage or removal of vegetation.
* Altering natural landforms.
* Altering fire regimes.
* Disturbance of faunal habitats.
* Spills or stockpiling of materials containing hazardous contaminants.
* Impacts on cultural or heritage values.
* ‘Downstream’ impacts on environmental values.

This document and other associated documents apply primarily to the NTO Sustainability and External Relations (SER) Department, as well as the Processing, Mining, Geology and Projects Departments.

# Responsibilities

| Role | Responsibilities |
| --- | --- |
| **General Manager (GM)** | * Ensure adequate resources are provided to manage biodiversity and land values at NTO. * Ensure risks associated with biodiversity and land values are included in the NTO Risk and Opportunity Register. |
| **SER Manager** | * Ensure systems are established and maintained to support the requirements of this procedure. * Ensure resources are available to assist all areas of the operations achieve the requirements of this procedure. * Monitor, review and report on compliance with the requirements of this procedure. |
| **SER Department Personnel** | * Ensure the requirements of this management plan and associated documents applicable to the area of responsibility are communicated to and implemented by all relevant personnel. * Ensure effective systems, including effective planning measures, exist in relation to biodiversity management. * Maintain the site disturbance permitting system. * Review and approval of site disturbance permits. * Facilitate cultural heritage surveys as required. * Ensure consultation and dissemination of information is appropriate. * Participate in biodiversity and land management risk assessments. * Ensure risks associated with biodiversity, are included in NTO Risk and Opportunity Register. * Ensure the requirements of this management plan and associated documents applicable to the area of responsibility are communicated to and implemented by all relevant personnel. * Where required obtain the assistance from the Regional SER Department and the Denver Corporate SER Department when planning closure and reclamation activities. * Provide advice regarding requirements for indigenous cultural heritage surveys. |
|  |
| **Processing Department Personnel** | * Ensure the requirements of this management plan and associated documents applicable to the area of responsibility are communicated to and implemented by all relevant personnel. * Consider biodiversity and land management when conducting process water and process slurry management and containment. |
| **Mining Department Personnel** | * Ensure the requirements of this management plan and associated documents applicable to the area of responsibility are communicated to and implemented by all relevant personnel. |
| **Projects Department Personnel** | * Ensure the requirements of this management plan and associated documents applicable to the area of responsibility are communicated to and implemented by all relevant personnel. * Consider biodiversity and land management when conducting project-related activities. * Comply with the site disturbance permit procedure with effective planning and execution of disturbance rehabilitation in a timely manner relevant to type of disturbance. |
| **Geology Department Personnel** | * Ensure the requirements of this management plan and associated documents applicable to the area of responsibility are communicated to and implemented by all relevant personnel. * Consider biodiversity and land management when conducting exploration-related activities and select track and drill site locations in such a way to minimise impacts to key biodiversity areas. * Comply with the site disturbance permit procedure with effective planning and execution of disturbance rehabilitation in a timely manner relevant to type of disturbance. |

# Plan Details

## Legal Requirements and other Commitments

The following legal requirements apply to the management of biodiversity and land values at NTO:

* *Environmental Protection and Biodiversity Conservation Act 1999* (EPBC Act).
* *Territory Parks and Wildlife Conservation Act 1996* (TPWC Act).
* *Aboriginal & Torres Strait Islander Heritage Protection Act 1984*.
* *Aboriginal Land Rights (Northern Territory) Act 1976* and Regulations.
* *Mining Management Act 2001* (NT) and Regulations.
* Northern Territory *Weeds Management Act 2001* and Regulations.
* *Bushfires Management Act 2016* and Regulations.
* Northern Territory *Aboriginal Sacred Sites Act 1989* and Regulations.
* NT *Plant Health Act 2008* and Regulations.
* Commitments made within the NTO Mining Management Plan.
* Commitments made within the NTO Closure and Reclamation Management Plan.
* Consolidated Mining Agreement for MLS8 and MLS154.
* Commitments made to the International Committee on Mining and Metals (ICMM) to meet Principle 7 of the 12 Sustainable Development principals.

Other commitments that apply to the management of biodiversity and land values at NTO include:

* Newmont Mining Corporation (NMC) Environmental Discipline Specific Standard Biodiversity Management.
* NMC Environmental Discipline Specific Standard Waste Rock and Ore Stockpile Management.
* NMC Environmental Discipline Specific Standard Tailings and Heap Leach Facility Management.
* NMC Environmental Discipline Specific Standard Closure and Reclamation Management.

Documents referenced are located on the site Legal Requirements and Other Commitments Register, NTO intranet.

## Site-specific biodiversity objectives

NTO has developed site-specific biodiversity objectives in consultation with relevant stakeholders and in accordance with the following table:

| **Type of Project** | **Requirement** |
| --- | --- |
| Exploration | Refer to the Exploration S&ER Guidebook. |
| New Projects and Expansions | No net loss of key biodiversity values as a result of mine-related activities or a net gain, when possible, within 10 years post mine closure. |
| Operational Sites | No additional loss of key biodiversity values as a result of mine-related activities by the time of mine closure. |
| Legacy Sites | Seek to enhance the long-term health and resiliency of species and ecosystems in affected areas and/or managed areas in accordance with regional conservation goals and long-term land use plans. |

## Introduction to NTOs Key Biodiversity and Land Values

NTO is located within the Southern Tanami Indigenous Protection Area (IPA) and the South-west Tanami Site of Conservation Significance (SOCS); these areas are home to numerous fauna and flora species protected under both Territory and Federal legislation. As a result NTO presents a number of risks to these key biodiversity values (species, habitat and ecosystem services) that are managed through the Integrated Management System (IMS) and procedures derived to manage conditions of NTOs land access agreements.

### Biodiversity Assessments

Biodiversity (flora and fauna) monitoring, surveys and / or assessments have historically been conducted intermittently in the NTO area. The key historic assessments include:

* Botanical Surveys by Mt King Ecological Surveys, 1985.
* Fauna Survey by Gibson, 1986.
* Vegetation Survey by Low Ecological Services, 1990.
* Fauna Survey by Low et al., 1990.
* Stygofauna Survey by SA Museum, 2001.
* Bird Survey (for DBS Shaft Project) by Desert Wildlife Services, 2009.
* Flora and Fauna Assessment DBS South East Block and Ivy Corner, Low et al., 2018.

More recently, since 2005 and the commencement of the Regional Biodiversity Management Strategy 2004, NTO has overseen the periodic completion, in collaboration with the CLC (Central Land Council), of eight fauna and flora surveys within a 200km radius of the existing Mineral Leases.

### NTO Key Biodiversity and Land Values

#### South-west Tanami Desert SOCS

The NTO mineral leases sit within the South-west Tanami Desert site of Conservation Significance (SOCS) as per the Department of Environment and Natural Resources (DENR) document ‘An inventory of sites of international and national significance for biodiversity values in the NT, 2009’. This area is characterised by a complex mosaic of landforms and habitats that are considered distinct from surrounding country including the paleodrainage system, alluvial plains, dunefields, sand plains, salt and freshwater lakes etc. This habitat supports a rich diversity of fauna and flora and various threatened species persist in the area including the Dwarf Desert Spike-rush (*Eleocharis papillosa*), Bilby (*Macrotis lagotis*), Brush-tailed Mulgara (*Dasycercus blythi*) and the Great Desert Skink (*Egernia kintorei*).

The primary threats to the South-west Tanami Desert site include fire, feral animals, weeds and invasive exotic plants. Mining, exploration and road work activities occur within the area and may have some impacts on sensitive habitats.

Numerous sites of botanical significance (SOBS) have been identified within the South-west Tanami Desert SOCS. SOBS are considered important for plant conservation and are designated as either nationally significant, bio regionally significant or of undetermined significance. NTO sits to the west of the Western Tanami Paleodrainage system (nationally significant) and south-east of the Mongrel Downs (bio regionally significant) SOBS.

#### Southern Tanami IPA

In 2002, the Southern Tanami became an IPA and consists entirely of Aboriginal freehold land that is managed by the CLC on behalf of the Warlpiri people. IPAs are areas of Aboriginal owned land or sea where traditional owners have entered into an agreement with the Australian Government to protect the biodiversity and associated cultural values of a region.

The NTO mineral leases fall within the Southern Tanami Indigenous Protected Area (IPA), which is managed by the Warlpiri Ranger group.

#### Flora

The following sections describe studies of floral communities, conservation and cultural significance and endemic species at NTO.

##### The Granites

Three habitat types/landforms supporting various vegetation associations were identified during botanical surveys of the Granites mineral lease and associated exploration areas conducted in 1984 (Mt King Ecological Surveys, 1985). These were:

* Sand plains – dominant vegetation comprising hummock grasslands with trees and shrubs scattered or locally dominant, and forming low open/sparse woodlands, open/sparse shrub lands, or open shrubs (the latter represented by usually monospecific thickets of Acacia spp.).
* Low rocky outcrops – hummock grassland with trees and shrubs scattered, some locally dominant and forming sparse shrub land open mixed shrub land.
* Stream channels dissecting low rocky outcrops – hummock grassland with trees and shrubs scattered, some locally dominant and forming sparse shrub land open mixed shrub land.

A total of 125 species were recorded by Mt King Ecological Surveys in 1985, the dominant families being Poaceae (27 species), Mimosaceae (14 species), Amaranthaceae (7 species) and Myrtaceae (7 species). No plants considered rare were recorded during the survey.

Two introduced species were present within the Granites mineral lease at the time of the survey, being Buffel Grass (Chenchrus cilliaris) and Couch Grass (Cynodon dactylon) which were present on Chapman’s Hill at the Granites.

##### Dead Bullock Soak

A vegetation survey of the DBS mineral lease area by Low Ecological Services in 1990 identified habitats supporting a relatively narrow range of plant communities which were generally widespread and common throughout the Tanami region. The communities identified were:

* Mixed Acacia spp. under widely scattered Eucalyptus - with an understorey of hummock grasslands (Triodia and Plectrachne) in the deeper loamy sands of the drainage depressions and on the sand plains and ridges.
* Hummock grasslands (Triodia) - occur on rocky slopes; no overstorey present.

A total of 198 species were recorded in the 1990 survey of the DBS lease area, the dominant families being Poaceae (37 species), Mimosaceae (16 species) Myrtaceae (11 species), Caesalpiniaceae (9 species) and Malcaceae (9 species). No plants recorded from the survey area were considered rare.

Two introduced species were identified within the survey area, being Couch Grass (Cynodon dactylon) and Spiked Malvastrum (Malvastrum americanum) (Low Ecological Services, 1990).

##### Ecological Conservation Significance

The Large palaeodrainage channels in the Tanami region have been identified as highly significant refugia (level 5, SEWPAC) for vulnerable and other species due to their ability to provide protection from introduced species and to support greater plant production than the more elevated land systems (Morton et al., 2004).

One flora species, Dwarf Desert Spike-rush (*Eleocharis papillosa*), listed under the *Territory Parks and Wildlife Conservation Act* (TPWC)or the *Environmental Protection Biodiversity Conservation Act* (EPBC) for conservation significance was identified within a protected matters report from the SEWPAC within a 20km radius of NTO. The recorded distribution of the species is predominantly proximal to temporary freshwater and semi-saline wetlands and swamps, none of which occur within or immediately adjacent to the Granites or DBS minerals leases or associated haul road corridor.

##### Cultural Significance

Though not listed under territory or federal law there are a number of species in the area that are considered significant to the Indigenous Warlpiri people. Trees of significance in the area greater than 2m tall should not be removed unless approved by the Aboriginal Traditional Owners. These include desert walnuts *(Owenia reticulata)*, bloodwoods (*Corymbia opaca*), rough-leaved range gum (*Corymbia aspera*), red-bud mallee (*Eucalyptus pachyphylla*), beefwood (*Grevillea striata*), bull hakea (*Hakea chordophylla*) and flat leaved hakea (*Hakea macrocarpa*).

##### Endemic Species

There are a number of species found in the area that are considered endemic on a local, regional or territory/State level.

***Endemic to the site:***

One plant species (*Marsilea latzii*) is entirely restricted to this site and another (*Spermacoce resinosula*) is known only from the site and a record immediately adjacent to it.

***Endemic to the bioregion:***

Three plant species recorded from this site are endemic to the Tanami bioregion (*Coleocoma centaurea, Marsilea latzii and Spermacoce resinosula*).

***Endemic to the NT:***

Seven plant species recorded from this site are endemic to the NT (*Acacia abbreviate, Bonamia deserticola, Eleocharis papillosa, Goodenia halophila, Marsilea latzii, Spermacoce resinosula and Trachymene inflata*).

***Other:***

Seven plant species are restricted to the Tanami bioregion within the NT but also occur in other states (*Acacia sabulosa, Acacia stellaticeps, Acacia synchronicia, Coleocoma centaurea, Corynotheca asperata, Indigofera ammobia and Pityrodia chorisepala*).

#### Fauna

Gibson (1986) in a wide ranging survey of the Tanami found three locally abundant but regionally and nationally rare mammals to be widespread:

* Spectacled Hare-wallaby (Lagorchestes conspicillatus).
* Mulgara (Dasycercus blythi).
* Greater Bilby (Macrotis lagotis).

The fauna identified in 1990 by Low et al. in the Granites to DBS region that are distributed widely, in appropriate habitats over the Tanami, with the exception of three regionally rare animals:

* Greater Bilby (Macrotis lagotis).
* Mulgara (Dasycercus blythi).
* Great Desert Skink (Liopholis (Egernia) kintorei).

Scattered over the calcrete rises in the Jumbuck bore field are relict warrens of Burrowing Bettongs (*Bettongia lesueur*), which had been abundant in this area before they became extinct on the mainland approximately 50 years ago.

Evidence of populations of Greater Bilby (*Macrotis lagotis*) have been recorded along the DBS haul road and in the Billabong and Jumbuck bore fields. Bilby populations were also present along the Windy Hill (Minotaur) haul road prior to and during operation.

In 2001, SA Museum completed a survey of groundwater of the Granites and DBS leases and the Billabong and Jumbuck bore fields with no stygofauna recorded.

Since 2005, NTO has overseen the completion, in collaboration with the CLC, of fauna and flora surveys within a 200km radius of the existing Mineral Leases. These surveys were initially intended to assess the impacts of the operations on biodiversity of the Tanami, but have also been a source of employment for Indigenous Rangers from Yuendumu and Lajamanu and have provided substantial information on the biodiversity of the region. To date, eight surveys have been completed.

In early 2009, a bird survey at DBS was conducted for the Tanami Shaft project. These surveys observed 82 species at DBS. For the wider Granites Region, 162 bird species have been observed (Desert Wildlife Services, 2009).

##### Conservation Significance

Fauna species listed under the *Territory Parks and Wildlife Conservation Act* *2011* (TPWC)or EPBC Act for conservation significance were identified within a protected matters report from the DEWHA within a 20km radius of NTO as of February 2015 are shown in Table 1.

Only one reptile species identified as inhabiting or known to potentially inhabit the survey area, the Great Desert Skink, is considered to be vulnerable under the EPBC Act. All other reptile species identified are common throughout the Tanami region.

Two mammal species either identified as inhabiting the survey area or known to potentially inhabit suitable habitat were the Greater Bilby and the Mulgara. These species are considered vulnerable under the EPBC Act. There have been no recorded sightings of these species within or immediately adjacent to the Granites or DBS minerals leases or associated haul road corridor during the reporting period.

Table 1 – Rare fauna listed under the TPWC and EPBC.

| **Species Name and Status** | **Common Name** | **Level of Status** | **Known to occur within 20km radius to operations** | **Preferred habitat** |
| --- | --- | --- | --- | --- |
| **ENDANGERED** | | | | |
| **Mammals** | | | | |
| *Issoodon aratus* | Golden Bandicoot | TPWC | Not known to occur (since 1958) | Shrub land on sandstone. |
| *Notoryctes caurinus* | Northern Marsupial Mole | EPBC | Not known to occur | Sand-dunes and sandy soils along river flats |
| *Trichosurus vulpecular* | Central Australian Brushtail Possum | TPWC | Not known to occur | River systems supporting large eucalypts, coolabah claypans and spinifex grasslands with a shrubby over story. |
| [*Zyzomys pedunculatus*](http://www.deh.gov.au/cgi-bin/sprat/public/publicspecies.pl?showprofile=Y&taxon_id=68) | Central Rock-rat | EPBC  TPWC | Not known to occur (since 1952) | Steep rocky slopes, usually with trees such as Native Pine (*Callitris glaucophylla*) and Hill Mulga (*Acacia macdonnellensis*), various tussock grasses and in close proximity to dense Spinifex |
| **Birds** | | | | |
| *Pezoporus occidentalis* | Night Parrot | EPBC  TPWC – (critically endangered) | Not known to occur | Inhabits arid and semi-arid areas that are characterised by having dense, low vegetation. |
| *Rostratula australis* | Australian Painted Snipe | EPBC  TPWC – (Vulnerable) | Not known to occur | Generally inhabits shallow terrestrial freshwater (occasionally brackish) wetlands, including temporary and permanent lakes, swamps and claypans. |
| **VULNERABLE** | | | | |
| **Mammals** | | | | |
| *Dasycercus cristicauda* | Crest-tailed Mulgara | EPBC  TPWC | Known to occur in the region | Arid and semi-arid sandy regions particularly mature hummock grasslands |
| *Dasycercus blythi* | Brush-tailed Mulgara | TPWC | Known to occur in the region near NTO | Occur in a range of vegetation types, but principal habitat is mature hummock grasslands of spinifex. |
| [*Macrotis lagotis*](http://www.deh.gov.au/cgi-bin/sprat/public/publicspecies.pl?showprofile=Y&taxon_id=282) | Greater Bilby | EPBC  TPWC | Known to occur in the region | Acacia shrub lands and hummock grasslands |
| *Notoryctes typhlops* | Southern Marsupial Mole | EPBC  TPWC - (Vulnerable) | Not known to occur | Sand-dunes, sandy interdunal flats, and sandy flood plains |
| **Reptiles** | | | | |
| *Liopholis (Egernia) kintorei* | Great Desert Skink | EPBC  TPWC | Known to occur in sand plains in the region | Hummock grass, sand plains and dune field swales |
| **Birds** | | | | |
| *Falco hypoleucos* | Grey Falcon | TWPC | Known to occur | Lightly timbered lowland plains, typically on inland drainage systems. |
| *Polytelis alexandrae* | Princess Parrot | EPBC  TPWC – (Vulnerable) | Not known to occur | Inhabits sand dunes and sand flats in the arid zone of western and central Australia. It occurs in open savannah woodlands and shrub lands that usually consist of scattered stands of Eucalyptus, Casuarina or Allocasuarina trees; an understorey of shrubs and a ground cover dominated by Triodia species. |
| **MIGRATORY and/or MARINE – Species or species habitat either likely, known or may occur within the area** | | | | |
| **Birds** | | | | |
| *Actitis hypoleucos* | Common Sandpiper | EPBC | Not known to occur | Water bodies. |
| *Apus pacificus* | Fork-tailed Swift | EPBC | Not known to occur | Boreal and temperate forests |
| *Ardea alba* | Great Egret, White Egret | EPBC | Known to occur | Wet areas and damp grasslands |
| *Ardea ibis* | Cattle Egret | EPBC | Not known to occur | Grasslands, woodlands and wetlands |
| [*Charadrius veredus*](http://www.deh.gov.au/cgi-bin/sprat/public/publicspecies.pl?showprofile=Y&taxon_id=882) | Oriental Plover | EPBC | Known to occur | Timbered Habitats |
| *Erythrotriorchis radiatus* | Red Goshawk | TWPC - (Vulnerable) | Not known to occur | Open woodlands. |
| [*Glareola maldivarum*](http://www.deh.gov.au/cgi-bin/sprat/public/publicspecies.pl?showprofile=Y&taxon_id=840) | Oriental Pratincole | EPBC | Known to occur | Creek lines |
| *Hirundo rustica* | Barn Swallow | EPBC | Not known to occur | Open country in coastal lowlands, often near water, towns and cities |
| *Merops ornatus* | Rainbow Bee-eater | EPBC | Known to occur | Open forests, woodlands and shrub lands, and cleared areas, usually near water. Migratory in summer. |
| *Motacilla cinerea* | Grey Wagtail | EPBC | Not known to occur |  |
| *Motacilla flava* | Yellow Wagtail | EPBC | Not known to occur |  |
| *Numenius minutus* | Little Curlew, Little Whimbrel | TWPC | Known to occur |  |
| *Tringa nebularia* | Common Greenshank | EPBC | Known to occur |  |

##### IUCN Red List Species

The Woma Python / Ramsay's Python (*Aspidites ramsayi*), known to occur, is not identified of conservation significance in Federal or Territory legislation, but is identified on the International Union for Conservation of Nature (IUCN) Red List.

##### Cultural Significance

The dingo (*Canis lupus dingo*) is present throughout the Tanami and is commonly sighted within the mine operational and accommodation areas. A Warlpiri ‘dingo dreaming’ site is located about 100km distance from operational areas. The Warlpiri name for dingo is ‘wanaparri’.

NTO has a long-term dingo management plan, which was developed in 2006 and has been continually reviewed. The aim of the plan is to minimise the level of dependence of the dingo on mining activities (i.e. food and water resources) and to reduce potential human-dingo interaction on the leases to ensure the protection of the dingo and the safety of site personnel.

There are other species of cultural significance to the Warlpiri that reside within the area; this includes the emu, mulgara, diamond dove, and wedge-tailed eagle.

##### Migratory Bird Species

Includes all migratory species that are native species protected under international agreements including (but not limited to) the:

* Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention)
* China-Australia Migratory Bird Agreement (CAMBA)
* Japan-Australia Migratory Bird Agreement (JAMBA)

Values of migratory bird species that require management include breeding and roosting habitat.

## Identification of NTOs KBVs

The Biodiversity Risk Assessment Tool (BRAT) was utilised to determine the KBVs for NTO.

Three KBVs have been classified in line with NTOs biodiversity and land management practices. This approach ensures that all biological values (e.g. species, habitat and/or ecological services) are adequately managed through grouping values that are managed through the same systems and/or process to form part of a KBV.

As such, the KBVs for NTO include:

1. Cultural and Ecological Values managed as part of NTOs Land Access Agreements. This encompasses species, habitats and ecosystem services.
2. Migratory Bird Species managed under the ICMC certification.
3. Preservation of Chapmans Hill to ensure management of European Heritage. Although not a listed heritage site the preservation of the mining relics are an ecosystem service.

## NTO Biodiversity Management Strategies and Initiatives

### Regional Biodiversity Monitoring (RBM)

With the introduction of the EPBC Act, NTO faced a requirement to refer proposals for new mining operations for assessment under the Act. In response, NTO decided to look more closely at the potential impacts its operations were having, both in a site specific sense and a cumulative sense, on the regional distribution and abundance of threatened species known to occur in the vicinity of its operations. In many ways NTO was grappling with similar dilemmas that faced the CLC - trying to understand the potential cumulative impact of its operations on the region and despite the years of collecting data, finding it difficult to quantify impacts (Stoll, Barnes & Fowler 2004).

Given Indigenous ecological knowledge and skills in natural resource management are highly valued; NTO and the CLC entered into discussions regarding the development of a strategy for monitoring and assessing the impacts of exploration and mining on biodiversity, in 2003. The aim was to develop a better approach to environmental monitoring, particularly in relation to regional biodiversity, enabling some direct comparisons between data collected specifically at operating sites and proposed new mining projects.

Subsequently, in 2004 the *Tanami Biodiversity Strategy*, a joint agreement with the Central Land Council was developed and implemented as a collaborative outcome between the CLC, NTO and a NTO hired consultant. It was agreed that the strategy was to operate over a portion of the central and northern Tanami Desert, shown on the map in Figure 1.

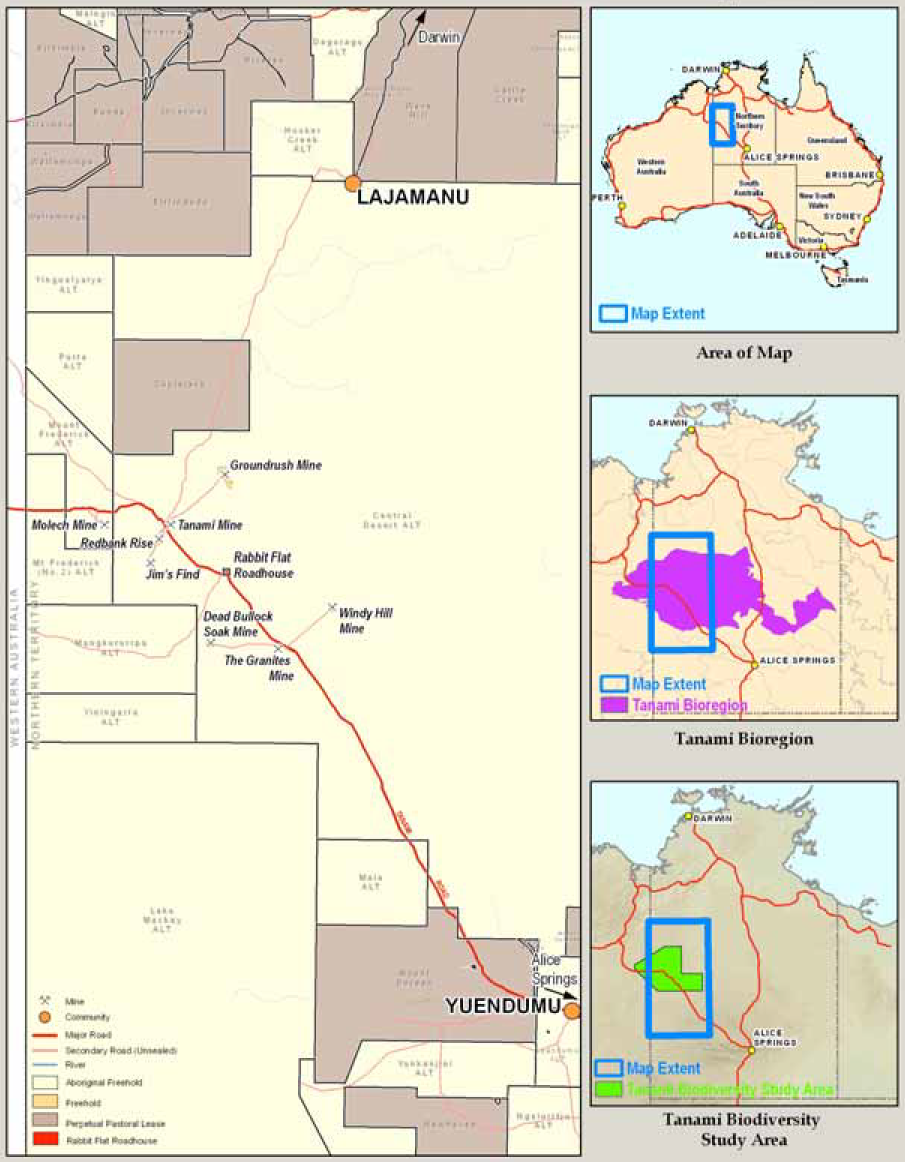
The aim of the agreement was to create a systematic and collaborative approach to environmental and biodiversity monitoring in the strategy area to enable the parties to be informed about and to assess the effects of NTOs operations on the environment of the Tanami Desert whilst also providing data on an area on which there has been little if any scientific investigation.

With the inception of the Tanami Biodiversity Strategy from 2005 onwards Newmont has overseen the completion, in collaboration with the CLC, of eight fauna and flora surveys within a 200km radius of the existing Mineral Leases. Although these surveys were initially intended to assess the impacts of the operations on biodiversity of the Tanami, they have also been a source of employment for Indigenous Rangers from Yuendumu and Lajamanu and have provided substantial information on the biodiversity of the region.

Following the completion of the 2012 survey the assessment program was deferred to an as required basis pending agreement between CLC and NTO, continuing to assess regional variances in biodiversity and presence/absence of favourable or adverse trends.

In 2019, the University of Sydney was commissioned by CLC to independently review the RBM program against its objectives in the “*Tanami Regional Biodiversity Monitoring Analysis Project Report, 2019”.* In 2019 and 2020, CLC and NTO are reviewing Stage 2 of the RBM program before a formal commitment is made with Tanami stakeholders.

Figure 1 – Regional Biodiversity Monitoring Plan



Note: Tanami Bioregion indicated in purple and survey area indicated in green.

### “No additional loss” of KBVs on NTO sites

Conservation of the environment and its inherent biodiversity is the responsibility of all NTO personnel and business partners. NTO promotes best practice environmental management principles and works to minimise environmental impact.

All NTO employees are required to conserve and protect the sites biodiversity and land value by following the below requirements:

* Drive on designated roads.
* Walk on designated walking tracks.
* Keep out of the vegetation.
* Comply with the Site Disturbance Permit procedure.
* Comply with site signage.
* Be aware of and slow down for wildlife.
* Report any fauna/dingo deaths on the Animal Mortality Register (in each individual work area) and issues to the SER Department monthly associated with end of month reporting.
* Report sightings of native animals (particularly mammals), introduced animals (e.g. rabbits, cats, foxes, camels, etc.), dead or injured animals, animals in danger or animals that may be a threat to personnel.
* Report weed sightings to the SER Department.
* Remove all seeds from clothing before leaving an area.
* Regularly wash machinery and equipment.
* Ensure all equipment and vehicles being mobilised to site are inspected by the SER Department or Security.
* Do not capture and/or relocated any reptile unless qualified, authorised and licenced to do so in the NT (note that all States and Territories have different regulations). Report all snake and reptile species relocated.
* Report the damage/removal of any culturally significant or legally protected plants of conservation significance.
* Do not feed or disturb the wildlife.

Further reiterated, encouraging dingoes and feeding them is illegal and strictly prohibited and strict penalties shall be enforced for any personnel observed to be feeding dingoes.

### Biodiversity Management on NTO sites

Biodiversity shall be considered for all new projects and major changes to existing operations.

As part of the site disturbance permit process, SER Department personnel are to indicate to the Project Manager if a new project area is within an area of high biodiversity significance (endangered regional ecosystem, culturally significant species found there, etc.). These areas are identified in the Site Disturbance Register (ArcGIS). Information within the Site Disturbance Register includes areas on the lease considered to be culturally significant, endangered, vulnerable or rare as determined by internal and external commitments.

Additional documentation shall be established and maintained in order to identify appropriate management priorities and outcomes for the land managed by NTO. These documents will identify and facilitate the protection of significant species and critical regional ecosystems, provide a baseline for biodiversity risk analysis, monitoring and environmental management plans. Where areas of significance have been identified, consideration shall be given as to whether some form of security is required to protect the integrity of the site or region.

Conservation Management Plans where applicable are to be development by the SER Department to ensure the appropriate and effective management of threatened or significant species within NTO leases. These plans are to be reviewed on an annual basis.

Adhoc botanical and/or fauna surveys, monitoring, assessments or studies will be carried out as required.

### Wildlife Rehabilitation

Any injured fauna that does not pose harm to personnel will be cared for by the SER Department. Following successful rehabilitation of any wildlife they will be released into the wild. All personnel involved in the rehabilitation of wildlife must be appropriately trained.

### Relocation of Dangerous Wildlife

Any dangerous fauna that places personnel’s health and safety at risk will be removed from the relevant work area and relocated as per the requirements of the EPBC Act and the TPWC Act by trained and competent personal that are licenced to do so, on the NTO mining leases.

The most common fauna species that pose a threat to personnel at NTO are venomous snakes, larger reptiles and venomous spiders, and any larger mammals that may become aggressive towards humans (i.e. dingoes, emus or camels).

All personnel involved in the relocation and removal of wildlife must be appropriately trained and deemed competent. NTO shall ensure ethical options of trapping, removal and relocation are utilised.

A list of all registered snake handlers will be made available in each individual work area. It is illegal for NTO personnel to disrupt or interfere with fauna unless authorised and trained to do so.

### Cyanide Exposure Controls for Fauna

NTO is a signatory to the International Cyanide Management Code (ICMC), which ensures fauna (inclusive of avifauna) is adequately protected.

The PVC pond has avifauna netting in place to prevent birds from coming in contact with water containing traces of cyanide. Other locations where traces of cyanide may be present in solution, such as the tailings facilities and Gerry’s pond are monitored on a daily basis for fauna by the Processing Department.

If there is an exceedance of the 50ppm WAD CN limit, additional checks are performed of the active tailings facilities and where needed appropriately trained and licenced personnel may utilise ‘bird fright’ to encourage fauna to relocate safely from the tailings supernatant.

### Fauna Mortality

All fauna mortalities shall be reported to and monitored by the SER Department. Fauna mortalities will be reported as biodiversity events internally through Cintellate, and externally to the Department of Primary Industry and Resources (DPIR) through the submission of the Mining Management Plan (MMP).

All deceased fauna shall be returned to its natural environment (i.e. natural bushland) to rest, in line with Aboriginal customs and beliefs and conditions of the Consolidated Mining Agreement with the CLC.

### Vehicle Weed and Seed Inspections

In order to prevent the potential introduction of weed species and or the dispersion of, inspections are undertaken of all equipment and machinery entering and / or leaving the lease footprints of NTO. These inspections are designed to identify potential weed, seed and soil material accumulation on vehicles in areas including within the radiator and between radiator and condenser grills, along, under and within the chassis, battery housings, behind bull bars and under running boards. Any vehicles that have not passed the appropriate environmental requirements will be required to be washed down in a designated area to prevent further spread or introduction of weeds.

Additionally weed and vegetation control programs are routinely implemented to prevent and control the establishment of vegetation in unwanted areas around infrastructure and to manage problem species.

If and when instances of new or declared weeds are identified notification is made to DENR.

### Site Disturbance Permit

The primary objective of a Site Disturbance Permit (SDP) is to minimise disturbance and contamination of land, prevent unauthorised clearing and environmental harm, ensure areas of high biodiversity significance are retained and comply with Cultural Heritage Management procedures. It is the Project Manager’s responsibility to ensure all site activities are undertaken in accordance with the conditions specified in the SDP.

The SDP form shall be obtained from Prospector or the SER Department prior to the commencement of works. The SER Department will issue a SDP (in line with the SDP Procedure) prior to the commencement of any activities that may result in damage (potential or actual) to the values of undisturbed land within MLS8, MLS154 or other leases that are licenced to NTO. This system ensures appropriate duty of care is displayed for Aboriginal Cultural Heritage and land management.

Project managers shall ensure all site activities are in accordance with the conditions specified in the SDP approval. Copies of each land disturbance approval will be retained by the SER Department for 3 years.

Many permits will mandate the retention of logs, debris and/or top soil for use in rehabilitation works.

### Disturbed Land Register

A Site Disturbance Register will be maintained and updated by the SER Department. The register as a minimum shall include the nature and size of the disturbance. The register shall be updated as per the SDP Procedure.

### Land Contamination

All operations and projects shall be undertaken with regard to minimising land contamination. Land contamination can be the result of any number of instances, including but not limited to:

* Hydrocarbon spills.
* Drill sump water overflows.
* Emissions fallout.
* Process water drainage and discharge.
* Tracking of contaminants by vehicles.
* Incorrect placement of waste rock.
* Incorrect disposal of wastes and chemicals.
* Tailings spills.

The risk assessment process outlined in the Hazardous Materials Management Plan and Waste Management Plan will assist in assessing the likelihood and consequences of land contamination occurring as a result of projects or major operational changes. Land contamination impacts are also to be assessed through the NTO Aspects Registers. Controls or potential for operational improvements may be captured in the relevant Environmental Management Program.

### Aboriginal Cultural Heritage

Risks to Aboriginal Cultural Heritage and appropriate controls shall be assessed for all new projects and any major changes to existing operations. Additional information is detailed in the Cultural Heritage Management Plan.

### Pests / Weeds Management

Pests are controlled under section 47(1) of the *Territory Parks and Wildlife Conservation Act* and therefore subject to control where deemed necessary.

Weeds are controlled in line with the requirements of the Weed Management Branch of DENR through the *NT Weed Management Act 2001* and *Weed Management Regulations 2006*.

Weed and animal control is outlined further in:

* Weed Management Plan.
* Long-term Dingo Management Plan.

#### Invasive Plant Species

Weed species identified to be present or previously identified with Newmont lease footprints are detailed below with occurrences specified as low, medium or high:

Schedule Class B/C Weeds

* *Argemone ochroleuca* - Mexican Poppy - Low
* *Calotropis procera* - Rubber Bush - Low
* *Cenchrus echinatus* - Mossman River Grass - Low
* *Tribulus cistoides*, T. terrestris – Caltrop - Low

Other species considered weeds in the Tanami region (non-indigenous)

* *Cenchrus biflorus* - Gallon’s Curse - Medium
* *Aerva javanica* - Kapok Bush - High
* *Acetosa vesicaria* - Ruby Dock - High
* *Cynodon dactylon* – Couch - Medium
* *Chloris virgata* - Feathertop Rhodes Grass - Medium
* *Cenchrus ciliaris* - Buffel Grass - High
* *Citrullus colocynthis* - Paddy Melon – Low
* *Azadirachta indica* – Neem - Low

Weeds are managed as per the NTO Weed Management Plan.

The main focus of control is spraying of areas around the lease that have been rehabilitated or not disturbed or areas of high occurrence. The two species receiving the most attention due to the high occurrence on site is Kapok Bush and Ruby Dock, which are sprayed with herbicide. The spraying program is managed under the guidance of the environment personnel and is undertaken by environment staff, other NTO staff, and contractors from individual work areas of responsibility.

All incurrences of Class B/C weeds are managed to eradication of the identified instance to mitigate the potential of further dispersion. Following eradication; the impacted areas are routinely inspected to allow prompt identification of any seed body germination.

Weeds can impact on biodiversity, as they invade natural environments and out-compete native species, disrupt natural food webs, pollination cycles and the water table, and can increase the risk of fire and contribute to land degradation. For this reason, NTO encourages weeds to be managed in accordance with the Weed Management Plan and its associated documents.

#### Invasive Fauna Species

Rabbits (*Oryctolagus cuniculus*) were known to occupy much of the area from at least the early 1920’s (Low Ecological Services et al. 1983) but numbers are now low and populations very disjointed. There are infrequent sightings of rabbits along the haul road and mineral leases.

Occasional reports are also received for sightings of other feral species in or around the lease areas including cats, foxes and camels.

Sightings of pests or invasive fauna are monitored and recorded to determine if any management initiatives are required to reduce the threat they impose on the area’s biodiversity.

Currently NTO does not actively manage feral animals due to the relatively small footprint of the active mineral lease footprints and infrequent occurrences.

### Fire Management

Fire is not considered to be a shaping factor of the environment in the vicinity of NTO operations.

Fire influences the ecosystem, and many of the endemic species are threatened by inappropriate fire regimes. The regional fire regime in the area is managed by the CLC in consultation with Bushfires Council NT and the Traditional Owners. The area surrounding the mineral leases is a part of the Central Desert Aboriginal Land Trust and is not managed by NTO.

Fire is considered an important component of biodiversity management in northern Australia; with many of the plant and terrestrial animals having adapted to a long history of Aboriginal fire management regimes. Some plants survive fire and then resprout from epicormic buds, roots or lignotubers. Others are killed by fire, but germinate from fire-resistant seeds in the canopy or soil. The seeds of some species (e.g. various species of Acacia) remain viable for many hundreds of years.

Noteworthy for the NTO leases is the decline of fire-sensitive Mulga stands. This is a common feature across arid Australia and may be due to infrequent large fires in spinifex ecosystems. Previously, these communities experienced more frequent, smaller fires as part of Aboriginal land management.

On a smaller scale, the NTO leases utilise fire as a tool to protect infrastructure as outlined in NTO Fire Management Plan. Risk to operations presented by fire is managed in accordance with the NTO Bushfire Management Plan which includes the provisions for fuel reduction burning and fire break management that are undertaken in consultation with the Bushfires Council NT.

## Monitoring

The status of biodiversity shall be reviewed periodically in terms of, but not limited to:

* Species and habitat loss or gains.
* Conservation significance of the site in a national and regional context.
* Factors that impact on biodiversity.
* Security of protected areas.
* Management of biological resources.
* Success of on-going rehabilitation and restoration of ecosystems.
* Resilience of the ecosystem.
* Presence and significance of noxious weeds and pests, erosion control and stock management.

Biodiversity (flora and fauna) monitoring, surveys and/or assessments have historically been conducted intermittently in the NTO area. The key historic assessments include:

* Botanical Surveys by Mt King Ecological Surveys, 1985.
* Fauna Survey by Gibson, 1986.
* Vegetation Survey by Low Ecological Services, 1990.
* Fauna Survey by Low et al., 1990.
* Stygofauna Survey by SA Museum, 2001.
* Bird Survey (for DBS Shaft Project) by Desert Wildlife Services, 2009.

More recently, since 2005 and the commencement of the *Regional Biodiversity Management Strategy 2004,* NTO has overseen the periodic completion, in collaboration with the CLC, of eight fauna and flora surveys within a 200km radius of the existing Mineral Leases.

NTO partake in a range of other monitoring that assists with the management of biodiversity, including;

* Regional Biodiversity Monitoring (RBM).
* Biennial Rehabilitation Ecological Assessments.
* Periodic weed monitoring.
* Monitoring of feral animal observations.
* Adhoc flora surveys.
* Adhoc fauna surveys.
* Adhoc Dingo studies.

### Regional Biodiversity Monitoring Program

As detailed in Section 4.11.1, NTO has overseen the completion, in collaboration with the CLC, of flora and fauna surveys within a 200km radius of the existing Mineral Leases since 2005. To date, eight surveys have been completed and the fauna survey results are summarised in Table 2. These surveys were initially intended to assess the impacts of the operations on biodiversity of the Tanami, but they have also been a source of employment for Indigenous Rangers from Yuendumu and Lajamanu and have provided substantial information on the biodiversity of the region.

Table 2 – Summary of Findings from Fauna Surveys

| **Survey Method** | **Phylum** | **Number of Species Recorded to Date** |
| --- | --- | --- |
| Trapping | Amphibia | 57 |
| Reptilia | 6 |
| Mammalia | 13 |
| Tracking | Amphibia | 1 |
| Reptilia | 9 |
| Mammalia | 14 |
| Bird Survey | Avian | 100 |

The effects of season, distance to mine impact sites, latitude (north/south), fire and disturbance, land unit, vegetation species richness and percentage of ground cover have been assessed. This was been achieved by using regression modelling analysis from the database to quantify and assess the significant effects of a series of explanatory variables and co-variants on a selection of flora and fauna groups (Newsome et al, 2009).

Fauna data was highly variable between sites and surveys which suggest that local habitat and seasonal conditions are important determinants of abundance, richness and probability of occurrence of selected fauna groups. Distance to mine site impacts did not appear to affect the majority of fauna groups although the abundance of all fauna, particularly members of the Muridae family, appeared higher in proximity to mine sites (Newsome et al., 2009). Following the review of the statistical analysis and consultation with the CLC it was decided that the RBM program be scaled back to being completed on an as agreed basis.

### Tree Health Monitoring

NTO has overseen the completion, in collaboration with the Low Ecological Services (LES) and periodically with assistance of CLC rangers, assessments of tree health in the Schist Hills Bore fields. Since 2000 nine tree health surveys have been conducted that have been utilised to determine the impact water extraction activities has had on the culturally significant tree species in the bore fields due to changes in the water table. The conclusions from the tree health surveys has determined with statistical confidence there have been no negative impacts to the tree health in the bore fields as a result of water extraction.

### Daily Fauna Monitoring

In line with the International Cyanide Management Code (ICMC) requirements, NTO completes daily fauna monitoring on the tailings storage facilities and in areas where avifauna may be exposed to cyanide solution. The Processing Department completes three checks daily including a wildlife check in the morning of these locations.

### Dingo Monitoring

NTO has periodically with assisted with research into dingo population dynamics and dingo dietary studies with several universities and the CLC rangers.

## Risk and Opportunity Management

NTO personnel and contractors are required to identify and manage risks associated with biodiversity and land values management. Risk assessments are to include consideration of closure and reclamation.

Risks are identified through formal risk assessments (internal or external), hazard reports, accident and incident investigations, workplace inspections and internal or external audits. Risk management processes are defined within the Risk Management Regional Procedure. Refer to the NTO Risk and Opportunity Register for all identified risks at NTO.

NTO Aspects/Risks Registers and Environmental Management Plans shall consider Biodiversity and Land Management impacts associated with their operations.

All environmental aspects that have the potential to impact on biodiversity and land shall be assessed for all operations (in additional to specific projects). Environmental aspects may include but are not limited to:

* Emissions to air and water.
* Waste management and contamination of land.
* Biodiversity.
* Use of raw materials and natural resources.
* Other local environmental and community issues.
* NT and Aboriginal Cultural Heritage.

NTO Environmental Management Programs are maintained to manage and improve biodiversity and land management performance. The targets and objectives detailed in the program are to be linked to NMC Environmental Standard 8 (*NEM-SER-STA-008)* to ensure the appropriate and effective continual improvement of biodiversity, land and landscape function management within NTO.

Effectiveness of controls are reviewed on a periodic basis through inspections, maintenance programs and audits. Significant risks are reviewed on a quarterly basis and the complete risk register is reviewed annually at a minimum as defined in the Risk Management Procedure.

## Change Management

Any changes in relation to biodiversity and land values management are required to be put through the Change Management process, including risk assessments where appropriate.

Change Management is defined within the Management of Change Regional Procedure.

## Procedures

Procedures are developed for regular activities based on an identified risk basis. Management of procedures is performed in accordance with the Systems Documentation and Record Management Procedure. Procedures are developed for various activities associated with biodiversity and land values management, including the long-term dingo management, land disturbance, fire management and control of pests and introduced species management, and are available on Prospector.

A list of procedures relating to biodiversity and land values management is provided in Section 6 References and Associated Documentation.

## Training and Awareness

Implementation of training requirements are in accordance with the Tanami Training and Assessment Management Procedure or where applicable, the contractors training procedure. It is the responsibility of each supervisor to ensure that all relevant personnel are adequately trained and competent in biodiversity and land values management, and are provided with the appropriate training, instruction and supervision.

NTO employees or contractors are to be trained in accordance with the Employee In-role to Competency Matrix and/or contractor’s training management system where applicable.

Training and/or awareness is provided through various means, including:

* NTO induction program.
* Toolbox awareness sessions.
* Change management awareness sessions when implemented.
* Detailed internal / external training programs.

All personnel are to be trained in hazard recognition, where relevant to their work area. Where personnel work in a high or extreme risk environment, mandatory specific training may be required in combination with the relevant specific procedures.

Training records are maintained by the NTO Learning and Development Department using the Employee In-role to Competency Matrix and/or by the contractor’s Training Coordinator where applicable.

## Inspections and Audits

### Inspections

Informal inspections of flora, fauna, weeds and pests are conducted by the SER Department whilst performing and planning monitoring activities and inspecting various work areas.

Inspections of any proposed site disturbance will be conducted prior to sign-off on the SDP. Additionally, where SDPs have been granted, follow-up inspections will also be completed by the SER Department.

All new equipment and machinery will also be inspected for weeds and seeds prior to entry into site.

Routine inspections of rehabilitated areas are completed by the SER Department with assistance from Security.

Periodic weed inspections and surveys are carried out at the bore fields and along the Haul Roads and other access tracks.

All associated corrective actions are considered in projects and closure and reclamation planning, and entered into Cintellate and managed as per the requirements of the Corrective and Preventative Action Regional Procedure.

### Audits

NTO performs audits in accordance with the Internal and External Audit Regional Procedure.

The NTO Audit Schedule is reviewed and updated annually or when required with input from the SER and the Health, Safety and Security (HSS) Departments. The audit schedule includes the following activities related to biodiversity and land management:

* Site-wide biodiversity management against Biodiversity Management Standard and all associated documentation (including this plan), at a minimum of once every three years.

## Reporting

Implementation of reporting and communication requirements is conducted in accordance with the Regional Communication, Consultation and Participation Procedure, the Regional Event Reporting and Classification Procedure, documents associated with the Newmont Legal and Other Requirements IMS Standard and mandatory external reporting commitments.

Events classified as biodiversity-related environmental accidents or incidents requiring reporting may include:

* Fauna/dingo death.
* Fauna interaction with personnel and/or equipment.
* Site disturbance that has not been authorised by the SER Department.
* Conservation or culturally significant plant removed and/or damaged without authorisation.
* Unsatisfactory human-wildlife interaction, removal from natural habitat, removal without relevant training or inadequate relocation.
* Driving off-road without appropriate site disturbance approval.
* Unauthorised fire or back-burning.
* New declared weed occurrence or the spread of existing weeds.
* Pests observed and or signs of pests impeding on the biodiversity.

The SER Department is to be notified of any disturbance to biodiversity or land on NTO’s leases and this information will be reported internally and externally in line with the Regional Event Reporting and Classification Procedure and relevant requirements under the *Mining Management Act 2001*.

### Internal Reporting

Internal reporting related to biodiversity and land management shall include:

* Reporting of all biodiversity and land value related accidents/incidents into Cintellate and to the NTO Management Team within 24 hours, and all Level 3 and above accidents/incidents to the Regional SER Manager.
* Where applicable, provision of information regarding all follow-up activities and/or corrective actions related to biodiversity accidents/incidents to the SER Department.
* Accidents/incidents reported to Regional SER through the Monthly Reporting process.
* Any changes to the area of disturbance on surface as identified in the life of mine plan.
* Reporting of any new weed occurrences on site.
* An inventory of known international and regionally significant species (as per the EPBC Act and TPWC Act) including a survey of flora and fauna, and monitoring locations is to be kept.

### External Reporting

Ongoing biodiversity and land management practices are reported to DPIR through the provision of the annual MMP submissions and the NTO Closure and Reclamation Plan.

All biodiversity and environmental related accidents/incidents are reported externally as soon as practicable to DPIR through S29 notifications per requirements of Section 29 of the *Mining Management Act 2001* or through the annual submission of the MMP. These events are monitored, actioned and stored by NTO in the Cintellate database.

There are other NT departments that also have specified interest (i.e. it is optional to report) in receiving the following information:

* NT Parks & Wildlife Commission are interested in botulism mortalities in birds, primarily during the wet season that occur in close proximity to sewage ponds.
* DPIR (fisheries division) is interested in significant illness or mortality (greater than 20 deaths) in wildlife for investigation.
* All fauna observations or mortalities can be optionally reported to DENR (Flora and Fauna Division). A location (GPS coordinates), date, species, and other information can be lodged with the NT Flora and Fauna Division’s biodiversity database. Data can be entered at [www.wildwatch.nt.gov.au](http://www.wildwatch.nt.gov.au).

In the event of a declared weed being positively identified at NTO, notification is to be given to the DENR Weed Management Branch within 14 days of becoming aware of the presence of the declared weed. This requirement is prescribed in the *Weed Management Act 2001*.

External reporting is the responsibility of the SER Manager in consultation with the General Manager and Regional SER Manager’s.

## Management Review

The effectiveness, suitability and/or adequacy of this management plan is assessed and communicated as per the Commitment, Leadership and Management Review Procedure.

Issues relating to biodiversity management (including incidents, accidents and trends), results of audits and an analysis of objectives, targets, corrective actions and other planning functions are included within the agenda of the management review.

## Document and Records Management

This Biodiversity and Land Management Plan will be reviewed at a minimum triennially through the document control and review process (refer to the Systems Documentation and Record Management Regional Procedure) or alternatively as required by an audit action, change of policy, standards or procedure, or proceeding a significant accident / incident.

Related records to be retained by NTO include:

* Monitoring and survey reports completed in partnership with CLC.
* Rehabilitation monitoring reports completed by third-party consultants.
* Weed inspection and survey forms.
* New Declared Weed Occurrence forms.
* Fauna mortality register.
* Accident/incident reports.

## Closure

As previously discussed, biodiversity and land management, monitoring, and assessment, is an integral component of closure and reclamation planning. As such closure planning and closure criteria are to be considered at all stages of mine life to ensure that the biodiversity and land-value is not negatively impacted.

### Concurrent Rehabilitation

Throughout the life of the mine, there are opportunities to complete rehabilitation of disused areas. Rehabilitation methods are outlined in the NTO Closure and Reclamation Plan and various reports from external consultants and other related documents. In general, rehabilitation involves the re-engineering of landforms to ensure design stability, preparation of ground surface through techniques such as ripping, and spreading of topsoil to promote vegetation re-establishment. Consideration needs to be made with regards to water, weed and erosion management. At NTO, methods involving seeding and/or planting of topsoil are not required due to favourable natural regeneration of native species.

Concurrent rehabilitation, where practical to be completed with regard to resource constraints such as time, labour, equipment and budget allowances, is a valuable activity as it can reduce liabilities, decrease cost at mine closure, reduce time until relinquishment post-closure, and make efficient use of under-utilised resources.

Concurrent rehabilitation at NTO is planned and coordinated by the SER Department, in association with the Projects Department.

Individual Area Managers will annually assess the availability of land no longer required for operational purposes for rehabilitation. Site rehabilitation will commence on all areas within two years of the area being identified as available.

### Rehabilitation Criteria

All land is to be designed and, at landform closure, managed in accordance with Closure Criteria as described in the NTO Closure and Reclamation Plan, and as listed below:

* Landform slopes are geo-technically stable.
* Landform surfaces are constructed and rehabilitated to promote soil stability and minimise erosion.
* Cover designs of waste rock landforms and TSFs are specific to the nature of the underlying materials and to the materials available for rehabilitation use. Infiltration into landforms through covers is encouraged in the case of NTO, provided it does not affect stability or create detrimental subsidence, or generate and mobilise ARD.
* Rehabilitate disturbed lands, unless otherwise specified through appropriate consultation and approval for final land use considerations.
* Demonstrate that vegetation establishment trends towards relevant analogue sites, or is appropriate in terms of plant species composition, diversity and abundance, if for any reason control sites are not an appropriate measure (where control sites are not the measure this will be specified).
* Demonstrate that measured values for Landscape Function Analysis, and habitat complexity trend towards relevant analogue sites, or are appropriate in terms of a regional completion criteria. If for any reason analogue sites are not an appropriate measure (where analogue sites are not the measure this will be specified).
* The occurrence of weeds is reduced and managed such that they do not significantly impact on the rehabilitation ecology.

The closure criteria ensure that the final landscape following cessation of mining activities will support a self-sustaining natural environment before the land can be relinquished. As such, this promotes the protection and conservation of biodiversity and land values at NTO throughout the life of mine cycle.

# Definitions

| Term | Description |
| --- | --- |
| ARD | Acid rock drainage |
| BAP | Biodiversity Action Plan (or equivalent) |
| Biodiversity | The variety of different species, the genetic variability of each of those species and the variety of different ecosystems that they form. |
| BRAT | Biodiversity Risk Assessment Tool |
| Cintellate | NTO accident and incident reporting system |
| DPIR | Department of Primary Industry and Resources |
| DENR | Department of Environment and Natural Resources |
| EMP | Environmental Management Plan |
| Environmental Aspect | Element of the organisation’s activities, products or services, which can interact with the environment. |
| Environmental Value | A quality or physical characteristic of the environment that is conducive to ecological health or public amenity or safety. These have been developed with key stakeholders. |
| EPBC Act | Environmental Protection and Biodiversity Conservation Act |
| GM | General Manager |
| HSS | Health Safety and Security |
| IMS | Integrated Management System |
| JHA | Job Hazard Analysis |
| Landscape Function | The intrinsic broader processes/function of the landscape that promotes and maintains biodiversity. |
| NMC | Newmont Mining Corporation |
| NTO | Newmont Tanami Operations |
| SER | Sustainability and External Relations Department |
| TPWC Act | Territory Parks and Wildlife Conservation Act |

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# References and Associated Documentation

| Item | Title | Location |
| --- | --- | --- |
| Corporate Standard | Biodiversity Management Standard | Prospector Corporate |
| Corporate Standard | Legal and Other Requirements | Prospector IMS Standards |
| Procedure | Risk and Opportunity Regional Procedure | Prospector Tanami IMS |
| Procedure | Management of Change Regional Procedure | Prospector Tanami IMS |
| Procedure | Commitment, Leadership and Management Review Regional Procedure | Prospector Tanami IMS |
| Plan | NTO Long-Term Dingo Management Plan | Prospector Tanami |
| Plan | NTO Closure and Reclamation Plan | Prospector Tanami |
| Register | NTO Risk and Opportunity Register | Prospector Tanami |
| Register | Legal and Other Commitments Register | Prospector Envirolaw |
| Procedure | Site Disturbance Permit Procedure | Prospector Tanami |
| Procedure | Site Disturbance Permit Follow-up Procedure | Prospector Tanami |
| Procedure | Behaviour and Observation Regional Procedure | Prospector Tanami IMS |
| Procedure | Vehicle Site Access Requirements Procedure | Prospector Tanami |
| Register | Site Disturbance Register | Prospector Tanami/Environment Drive |
| Register | Registered Snake Handlers | Prospector Tanami/Environment Drive |
| Checklist | Vehicle Equipment Item Washdown Checklist | Prospector Tanami |
| Schedule | NTO Environmental Assessment Monitoring Schedule | Prospector Tanami |
| Form | Site Disturbance Permit Form | Prospector Tanami |
| Form | Vehicle Weed Inspection Form | Prospector Tanami |
| Report | Newsome et al. (2009) Regional Biodiversity Monitoring Project: Factors affecting the distribution of selected wildlife within the vicinity of mining activity in the central and northern Tanami. Late Wet Season 2005 – Late Dry Season 2007. | Environment Drive |
| Report | Morton, S.R., Short, J. and Barker, R.D. (2004) Refugia for Biological Diversity in Arid and Semi-arid Australia, Biodiversity Series Paper No. 4, Department of Environment and Heritage | Environment Drive |
| Report | Stoll, Barnes and Fowler, n.d The Tanami Biodiversity Strategy - Aboriginal And Industry Partnership In Biodiversity Conservation. Newmont Tanami Operation and Central Land Council. | Environment Drive |
| Report | Gibson, D. F. (1986) A Biological Survey of the Tanami Desert in the Northern Territory. Conservation Commission of the Northern Territory, Alice Springs, N.T | Environment Drive |
| Report | Low Ecological Services (1990) Flora and Vertebrate Fauna Survey of the Proposed Mineral Lease at Dead Bullock Soak and Haulage Road to the Granites, Tanami Desert. Report prepared for North Flinders Mines Ltd, May 1990. | Environment Drive |
| Report | Low, W.A., Cook, B.D. and Strong, B.W. (1983) Reproduction and population dynamics of the rabbit, Oryctolagus cuniculus, in the Northern Territory at the edge of its distribution in Australia. Report to CCNT. | Environment Drive |
| Report | Mt King Ecological Surveys (1985) The Biological Environment of the Granites Goldfield. Report prepared for North Flinders Mine Limited. | Environment Drive |
| Report | Stoll, Barnes and Fowler, n.d The Tanami Biodiversity Strategy - Aboriginal And Industry Partnership In Biodiversity Conservation. Newmont Tanami Operation and Central Land Council. | Environment Drive |
| Report | Thackway, R. and Cresswell I. D. (ed), (1995) An Interim Biogeographic Regionalisation for Australia. Australian Nature Conservation Agency, Reserve System Unit, Canberra. | Environment Drive |
| BRAT | NTO Biodiversity Risk Assessment Tool | Environment Drive |

# Document Control

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| --- | --- | --- | --- |
| Author | Reviewer | Change | Date |
| S Dodd | S McCann | New Document | 28/05/2015 |
| S Dodd | S McCann | Minor edits to the document. | 30/09/2015 |
| S Dodd | S McCann | Additional content and clarification to site processes provided in line with amendments to the Biodiversity Management Standard and observations from the LCA Audit. | 22/06/2016 |
| S Dodd | S McCann | Defined KBVs for the site and referenced the objective of “no additional loss” following the workshop held in Perth and completion of the NTO BRAT. | 13/11/2016 |
| T Purcell | K Johnston | Amended; Southern IPA section, RBM section, Cyanide and wildlife management section, and SDP section. | 28/11/2019 |
| B Sweeney | K Johnston | Changes to incident reporting requirements as requested by DPIR. Updated NT Govt. departments and Goldcorp references. General edits. | 27/5/2020 |